



No. 94-CI-10078

IN RE: ALL ASBESTOS-RELATED §
PERSONAL INJURY OR DEATH §
CASES FILED OR TO BE FILED §
IN BEXAR COUNTY, TEXAS §

IN THE DISTRICT COURTS OF

BEXAR COUNTY, TEXAS

**DEFENDANT, GARLOCK INC'S OBJECTIONS,
ANSWERS AND RESPONSES TO PLAINTIFFS' MASTER SET
OF INTERROGATORIES AND REQUEST FOR PRODUCTION**

TO: ALL COUNSEL OF RECORD

NOW COMES, **GARLOCK INC** ("GARLOCK), one of the Defendants in the
above-entitled cause, and files the attached Objections, Supplemental Answers and
Responses to Interrogatories submitted by Plaintiffs, pursuant to the Texas Rules of
Civil Procedure.

Respectfully submitted,

SEGAL MCCAMBRIDGE SINGER & MAHONEY, LTD.

By: Melissa K Ferrell
Attorneys for Defendant, **GARLOCK INC**

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CERTIFICATION OF SERVICE

I hereby certify that a true and correct copy of the above and foregoing instrument of **GARLOCK INC** was sent by certified mail, return receipt requested, to counsel for Plaintiffs and by regular mail to all other counsel of record on the 31 day of MARCH, 2000.

A handwritten signature in black ink, appearing to read "Melissa K. Ferrell", written over a horizontal line.

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GENERAL OBJECTIONS

GARLOCK poses the following general objections to plaintiffs' interrogatories and incorporates each of these objections by reference to every answer provided hereafter.

1. The interrogatories seek information going back many years and GARLOCK has found it difficult, if not impossible, to reconstruct or retrieve much of the information requested. The answers given are thus based on the present facts known or believed by GARLOCK at the time of its answer.

2. The interrogatories are overly broad, burdensome, vague and ambiguous. In addition, the interrogatories and requests are not sufficiently limited in time and use terms which do not refer to products manufactured by GARLOCK.

3. GARLOCK does not now manufacture or sell, and has never manufactured or sold, asbestos-containing insulation products as that term is commonly used and understood in this litigation. Therefore, GARLOCK objects to any interrogatory referring to or assuming that such products are or have been manufactured by GARLOCK. GARLOCK presumes that questions referring to insulation products are thus not applicable to GARLOCK.

4. GARLOCK does not now manufacture or sell, and has never manufactured or sold, asbestos-containing building products as that term is commonly used and understood in this litigation. Therefore, GARLOCK objects to any interrogatory referring to or assuming that such products are or have been manufactured by GARLOCK. GARLOCK presumes that questions referring to building products are thus not applicable to GARLOCK.

5. The interrogatories are overly broad in that they tend to group together all of the defendants. There has never been any competent scientific or medical evidence or reason to believe that GARLOCK products, upon reasonable use, release asbestos fibers in sufficient quantities, if any, to pose a health hazard, potential or otherwise, to persons using said products. GARLOCK denies that the use of, or exposure to, its asbestos-containing products poses any health hazard.

6. The interrogatories are duplicative of earlier requests made by Plaintiff's counsel to GARLOCK in the asbestos litigation. GARLOCK affirmatively asserts that it has answered multiple sets of interrogatories and responded to numerous requests for production propounded by Plaintiff's counsel in thousands of asbestos cases over the past 15 years. Many documents potentially responsive to these interrogatories have already been produced to Plaintiff's counsel and GARLOCK has no obligation to produce them again. Plaintiff's Exhibit List contains numerous GARLOCK documents

and GARLOCK will not produce additional copies of these documents, although it may refer to them in these answers to interrogatories. GARLOCK objects to these interrogatories to the extent they are duplicative and cumulative in nature.

7. GARLOCK objects to these interrogatories to the extent they relate to foreign companies that are not wholly-owned subsidiaries of GARLOCK INC and do not sell products in the United States. The activities of any such entities are not relevant to any issue in this litigation.

ANSWERS TO INTERROGATORIES

INTERROGATORY NO. 1:

State the name, address, job title, length of time employed by Defendant, and a year-by-year list of all other positions, titles or jobs held when working for Defendant of each person who has supplied any information used in answering these interrogatories.

ANSWER: These interrogatory answers have been reviewed and signed by James Heffron, the current Director of Training for GARLOCK INC. Mr. Heffron has been employed by GARLOCK since 1972 and a summary of his positions and duties with GARLOCK from 1972 to the present is attached as Exhibit A. These interrogatories request detailed information regarding GARLOCK's asbestos related product line and business activities over an extended period of time. Mr. Heffron is not qualified, based on his personal knowledge and experience, to provide complete answers to these interrogatories. No present GARLOCK employee is qualified, based on his personal knowledge and experience, to provide complete answers to these interrogatories. Mr. Heffron has reviewed documentation potentially responsive to these interrogatories and he verifies these answers as true and complete based on his personal knowledge, experience and his review of said documents. The documents reviewed by Mr. Heffron in conjunction with the preparation of these interrogatory answers include: (1) previously filed discovery responses filed by GARLOCK, including answers to interrogatories and responses to requests for production of documents; (2) deposition and trial testimony previously provided by GARLOCK employees in asbestos related litigation; (3) information summarizing GARLOCK's asbestos-containing product line prepared by ex-GARLOCK employees; (4) Documents identified by GARLOCK as exhibits in the nationwide asbestos litigation; and (5) all documents produced by GARLOCK in Response to the Subpoena Duces Tecum issued by Baron & Budd in the Fulton County, Georgia asbestos litigation, Civil Action No. 1998 CV 02684. Mr. Heffron has also spoken with ex-employees of GARLOCK who provided information relied upon by GARLOCK in previously filed answers to interrogatories. Those individuals are Clay Jewett, formerly employed as GARLOCK's Manager of Marketing and Roy Whittaker, formerly employed by GARLOCK in numerous

capacities, including Director of Engineering. Mr. Heffron also obtained information regarding GARLOCK's international operations from Gilles Vallée, Vice President of Garlock of Canada, Ltd. and Felipe Mues of Garlock de Mexico.

INTERROGATORY NO. 2:

State whether or not you are a corporation. If so, state your correct corporate name, the state of your incorporation, the address of your principal place of business, the name and address of the person or entity authorized to accept service of process on your behalf, and whether or not you have ever held a Certificate of Authority to do business in the State of Texas.

ANSWER: Defendant's legal name is GARLOCK INC (no punctuation). GARLOCK INC is an Ohio corporation with offices located at 3 Coliseum Centre, 2550 West Tyvola Rd., Charlotte, NC 28217, and a principal manufacturing facility and sales office at 1666 Division Street, Palmyra, New York 14522.

The GARLOCK Packing Company was originally incorporated in New York on March 27, 1905. On April 25, 1960, the name was changed to GARLOCK INC. On March 3, 1975, a Delaware corporation of the same name was incorporated and on May 12, 1975, the New York corporation was merged into the Delaware corporation. On November 25, 1975, Colt Industries Inc of Ohio was incorporated in the state of Ohio and on January 28, 1976, GARLOCK INC was merged into Colt Industries Inc of Ohio which immediately changed its name to GARLOCK INC.

CT Corporation System is the entity authorized to accept service of process on behalf of GARLOCK. GARLOCK does hold a Certificate of Authority to do business in the State of Texas.

INTERROGATORY NO. 3:

Has defendant or any of its predecessors or subsidiary companies at any time

engaged in the mining and subsequent sale of material containing asbestos fibers? If so, identify the location of the mine(s), the years of its operation, the type of asbestos mined and whether you sold any asbestos to any Defendants in the Cameron County asbestos litigation.

ANSWER: No.

INTERROGATORY NO. 4:

Identify by name each product containing asbestos fibers that Defendant or any of its predecessor or subsidiary companies at any time manufactured or sold.

ANSWER: A summary list of GARLOCK's asbestos-containing product line is attached to these answers to interrogatories as Exhibit B. The list identifies each product by style number, product category, the type of asbestos fiber used in the product, the percentage of asbestos in the product, the non-asbestos binder in the product and the year GARLOCK stopped manufacturing the product. If GARLOCK continues to manufacture the product, that fact is noted on the list as well.

In addition to the products identified in Exhibit B, GARLOCK INC. manufactured and sold a limited line of asbestos textile products (cloth and yarn) in limited quantities to manufacturers of braided asbestos packing products.

In addition to the products identified in Exhibit B, GARLOCK also acquired four subsidiary companies which made or sold some asbestos-containing products. GARLOCK does not have a comprehensive list of the products or manufactured or sold by these companies. These companies are the Belmont Packing and Rubber Company of Philadelphia, Pennsylvania, the Crandall Packing Company and Dealer's Steam Packing Company located in Palmyra, New York and the U.S. Gasket Company located in Camden, New Jersey. Each of these companies, prior to the purchase by GARLOCK, sold asbestos-containing gaskets and packing products substantially similar to the GARLOCK asbestos-containing products identified in Exhibit B. Each of the above-

named entities was merged with GARLOCK and GARLOCK assumed all assets and liabilities. GARLOCK preserved the Belmont trademark and continued to sell products under that label.

GARLOCK also purchased the assets of the Anchor Packing Company in June, 1987. An Anchor Packing catalog for that time period which identifies the asbestos products sold by Anchor at that time is attached as Exhibit C. GARLOCK did not assume the liabilities of The Anchor Packing Company. The GARLOCK/Anchor acquisition agreement has already been produced to Plaintiff's counsel.

INTERROGATORY NO. 5:

Identify by name each product containing asbestos fibers that Defendant or any of its predecessor or subsidiary companies at any time marketed or sold.

ANSWER: See Answer to Interrogatory No. 4.

INTERROGATORY NO. 6:

If the answer to one or more of the last three interrogatories is in the affirmative or lists any products, state as to each named product the following:

- (a) As to each product, state whether such product was mined, manufactured, marketed and/or sold.
- (b) The names of the companies mining, manufacturing, marketing and/or selling each product mined, manufactured, marketed and/or sold.
- (c) The trade or brand name of each of those products mined, manufactured, marketed and/or sold.
- (d) The date each of the named products was placed on the market.
- (e) A description of the physical (chemical) compositions of each of the

named products, including the type of asbestos contained in the product and the percentage of asbestos put in each product.

- (f) The date each of the products was removed from the market and no longer sold or distributed and the reason or reasons therefor.
- (g) The date asbestos was removed from such products, if ever, and the reasons therefor.
- (h) A description of the physical appearance of each of the named products.
- (i) A detailed description of the intended uses of the named products.
- (j) Identify the last year that you sold each asbestos-containing product.

ANSWER: GARLOCK states that it has and does make a wide variety of products, many of which have contained asbestos and many of which have contained no asbestos. Among the specific products which GARLOCK has and does manufacture are asbestos gasket and asbestos sheet (from which the purchaser cuts gaskets). GARLOCK asbestos sheet is a mixture of asbestos fibers, curing agents, reinforcing fillers and elastomers (natural rubber or synthetic polymers having the elastic qualities of rubber). Asbestos fibers are machine blended with the rest of the mixture until they are thoroughly coated. The entire compound is then heated and rolled into sheets and is continually compressed to form a tough, impermeable, homogeneous material that resembles linoleum. Other gasket materials were made from woven, long fiber, asbestos yarn impregnated and encased in a rubberized coating. Other gaskets have had asbestos encased by layers of metal or encapsulated with a P.T.F.E. (polytetrafluoroethylene) resin envelope. GARLOCK asbestos packing materials consisted of woven asbestos encapsulated in either elastomeric compounds or metal foils and/or impregnated with lubricants.

GARLOCK gasket materials are primarily used for static sealing of steam line flanges, cylinder heads of engines, compressors and refrigeration equipment, fluid conduits, etc. GARLOCK packing materials are primarily used for dynamic sealing of machinery.

Finished compressed asbestos sheet is either cut into gaskets by GARLOCK or sold for use by others in cutting gaskets. GARLOCK's flexible and durable gasketing material is handled,

installed and removed in all intended applications without releasing meaningful quantities, if any, of asbestos fibers into the air.

GARLOCK's compressed asbestos sheets and gaskets are treated with an anti-stick releasing agent which reduces any tendency of the gaskets to adhere to pipe flanges during removal and replacement. This anti-stick agent facilitates the removal of old gaskets without generating dust. Other GARLOCK products come in specific sizes for application and do not generally require modification before or during application or use. GARLOCK states that from 95% to 98% of its asbestos-containing products have been made only with chrysotile asbestos fibers and that the remaining 2% to 5% of such products were made with crocidolite asbestos fibers. Depending upon the type of product involved, the percentage of asbestos contained in these products has ranged from about 10% to about 85%. This Defendant has never mined, supplied, distributed, marketed and/or sold raw asbestos fibers to others.

- (a) GARLOCK manufactured, marketed and sold the asbestos-containing products identified in Exhibit B.
- (b) GARLOCK INC; see Answer to Interrogatory No. 4.
- (c) See Exhibit B attached to these Answers to Interrogatories.
- (d) The exact date each product identified in Exhibit B was placed in the stream of commerce is unknown. Asbestos compression sheet material became generally available in the early 1900's. Asbestos-containing packing products became available in 1907. GARLOCK has previously produced product catalogs to Baron & Budd and those catalogs accurately describe the asbestos products available for sale in particular time periods. GARLOCK attaches as Exhibit D its Response to Plaintiff's Subpoena Duces Tecum in the Fulton County Asbestos Litigation, Civil Action No. 1998 CV 02684; paragraphs 2 and 3 of said response identify the relevant GARLOCK catalogs produced to Baron & Budd. GARLOCK incorporates that response in relation to Interrogatory No. 6(d) here. Actual copies of all catalogs and advertising materials identified in GARLOCK's response to said Subpoena Duces Tecum were produced to Baron & Budd in the Georgia asbestos litigation in 1999.
- (e) See Exhibit B and all product related documents and catalogs previously produced to Baron & Budd in the Fulton

County, Georgia asbestos litigation.

- (f) The date each asbestos product was removed from the market is identified in Exhibit B. Asbestos products were removed from GARLOCK's product line when suitable new products with superior performance capabilities became available. The development of non-asbestos substitutes for certain fluid sealing devices was dependent on the engineering of new materials, extensive functional and performance testing and ultimately the customers willingness to use these materials for applications that historically had required asbestos products.
- (g) See Answer to 6(f).
- (h) See all product information, catalogs, advertising materials and photographs previously produced to Baron & Budd in the Fulton County, Georgia asbestos litigation.
- (i) See all product information, catalogs and advertising materials previously produced to Baron & Budd in the Fulton County, Georgia asbestos litigation.
- (j) See Exhibit B.

INTERROGATORY NO. 7:

Do any documents, including but not limited to written memoranda, specifications, recommendations, blueprints, or other written materials of any kind or character, relating to the design, preparation, or introduction into the market of the products listed in Interrogatory No. 6 still exist? If so, state:

- (a) A description of each such document.
- (b) The name, address and job title of each person who currently has possession of each document, and where the documents are currently located.

ANSWER: Yes.

- (a) The product information, catalogs and advertising materials previously produced to Baron & Budd in the Fulton County, Georgia asbestos litigation relate to the asbestos products listed in Exhibit B and their introduction into the market. Any other documents potentially responsive to this interrogatory are located at the GARLOCK record retention facility in Palmyra, New York and a warehouse in Rochester, New York. The Rochester warehouse holds documents retained by GARLOCK per its Record Retention policies and copies of said policies were previously provided to Baron & Budd in the Fulton County, Georgia asbestos litigation. GARLOCK will provide access to the records located in the Rochester warehouse and the Palmyra facility at a mutually convenient date, time and place.
- (b) Paul Grant; Garrison Litigation Management Group, Ltd., One HSBC Plaza, Suite 1830, Rochester, New York 14604-2415. See Answer to Interrogatory No. 7(a).

INTERROGATORY NO. 8:

Before distributing, selling or placing the products listed in your responses to Interrogatory Nos. 3-6 into the streams of commerce, were any tests conducted to determine potential health hazards involved in the use of, or exposure to, the materials such as asbestos contained in those products? If the answer is affirmative, state:

- (a) The names of the products tested and the date of each test.
- (b) The name, address, and job title of each person conducting the tests or involved with conducting the tests.
- (c) The results of the tests.

ANSWER: Yes. (a) - (c) At various times. GARLOCK has retained independent industrial hygienists to test its products for potential fiber release in a wide variety of occupational settings and situations. The industrial hygienists generated reports from those tests and those reports are included in GARLOCK's Exhibit Binders which have been previously produced to Baron & Budd. A copy of GARLOCK's Exhibit List is attached as Exhibit E and GARLOCK refers to the following exhibits as being responsive to this interrogatory.

<u>Name/Hygienist</u>	<u>Garlock Exhibit Numbers</u>
1. Nielsen	33 - 38
2. Mangold	18 - 31
3. McCrone	39 - 40
4. Boelter	99 - 108
5. Spencer	111 - 112

INTERROGATORY NO. 9:

Do any documents, including but not limited to written memoranda, specifications, recommendations, blueprints or other written materials of any kind or character, relating to the testing of the products referred to in Interrogatory No. 6 now exist? If so, state:

- (a) A description of each such document.
- (b) The name, address and job title of each person who currently has possession of each document, and where it is presently located.

ANSWER: See Answer to Interrogatory No. 8.

INTERROGATORY NO. 10:

Did Defendant or any of its predecessor or subsidiary companies make any design changes or modifications as a result of those tests describe in response to

Interrogatory No. 8? If the answer is affirmative, state:

- (a) The trade names of the products changed.
- (b) The nature of the changes made and the date of such changes or modifications.
- (c) The name, address and job title of each person responsible for having caused a change to be made, or having made a change or modification.

ANSWER: No.

INTERROGATORY NO. 11:

After releasing the products listed in Interrogatory No. 6 to the public, were any tests conducted on them to determine potential health hazards resulting from the use or exposure to the materials, such as asbestos, contained in those products? If the answer is affirmative, state:

- (a) The names of the products tested and the dates of such tests.
- (b) The name, address and job title of each person who conducted those tests.
- (c) The results of those tests.
- (d) Whether, as a result of the tests, any products were removed from the market.
- (e) The names of all products removed from the market as a result of these tests.

ANSWER: See Answer to Interrogatory No. 8

INTERROGATORY NO. 12:

Do any documents, including written memoranda, specifications, recommendations, blueprints or other written materials of any kind or character, relating to the potential health hazards of the products listed in Interrogatory No. 6 now exist? If so, state:

- (a) The name of each product.
- (b) A description of each document and how it relates to each product.
- (c) The name, address and job title of each person who currently has possession of each document, and where it is presently located.

ANSWER: (a) - (c) GARLOCK does not possess any medical or scientific documents which relate or associate any potential health hazard to the use of the asbestos-containing gasket and packing products identified in Exhibit B. GARLOCK did prepare Material Safety Data Sheets for certain of its asbestos-containing products and copies of those documents are attached to these Answers to Interrogatories as Exhibit F. GARLOCK possesses copies of the various OSHA and EPA regulations regarding the potential hazards associated with asbestos exposure. Actual copies of those regulations are contained in GARLOCK's Exhibit Binders as Nos. 1-9.

INTERROGATORY NO. 13:

Did Defendant or any of its subsidiary companies make any design changes as a result of the tests discussed in your response to Interrogatories No. 10 or 13? If the answer is affirmative, state:

- (a) The names of the products changed or modified.
- (b) The name, address and job title of each person responsible for

having made a change or modification.

- (c) The nature of the hazard or defect which resulted in such change or modification.

ANSWER: No.

INTERROGATORY NO. 14:

Has Defendant or any of its predecessor or subsidiary companies at any time published or distributed any printed material, including brochures, pamphlets, catalogs, packaging or other written material of any kind or character containing any warnings concerning the possibility of injury resulting from the use of the asbestos-containing products listed in Interrogatory No. 6? If so, state:

- (a) The names of each relevant product.
- (b) The exact wording of each warning statement on each printed material.
- (c) A description of the printed material other than the warning statement.
- (d) The method used to distribute the warning to persons likely to use the product.
- (e) The date each warning was first issued, distributed or placed on packaging.
- (f) The name, address and job title of each person responsible for having drafted or issued the warning.
- (g) The current location of any such printed material and the custodian thereof.
- (h) The form in which such literature or printed material can be accessed, i.e., the manner in which such literature is indexed or stored.

ANSWER: Yes.

- (a) Caution labels were placed on all of the asbestos products identified in Exhibit B in 1977 (assuming the individual product was still being manufactured by GARLOCK at that time). GARLOCK placed a caution label on its limited line of asbestos textile products (cloth and yarn) in 1972.
- (b) The caution label stated, "CAUTION: Contains asbestos fibers. Avoid creating dust. Breathing asbestos dust may cause serious bodily harm." This is the caution label language established by OSHA, Section 1910.1001, par. .2(ii), GARLOCK placed this label on its products in 1977, although gaskets and packings are exempt from the OSHA caution label requirement.
- (c) A similar caution and warning notice has been contained in GARLOCK's product literature and catalogs since 1977.
- (d) The caution label was placed on the product packaging and the product itself.
- (e) August, 1977; For textile products, (cloth and yarn) 1972.
- (f) The decision to place a caution label on GARLOCK's asbestos-containing products was a consensus decision made by GARLOCK management in 1977. Management personnel involved included John Guffey (Compressor Packing Division), Alexander Kuzmuk (Construction Products), Gordon LeRoy (Engineering), Mike Panarites (Personnel), Herb Schaefer (MRD Operations) and Ron Stay (Marketing). The decision to place a caution label on textile products in 1972 was made by Alexander Kuzmuk.

None of these individuals are currently employed by GARLOCK.
- (g) Caution labels samples have been previously produced to Baron & Budd.
- (h) Not applicable.

INTERROGATORY NO. 15:

Before 1970, had you received notice that any individual or individuals, other than those Plaintiffs who have filed personal injury actions in Texas State Courts is or are claiming or has or have claimed an injury as a result of using asbestos products manufactured and/or sold by your company or any of its predecessors or subsidiaries before 1970? If so, state:

- (a) The name and address of each claimant.
- (b) The date of notice of each claim.
- (c) A description of the claim.
- (d) The type of injuries allegedly sustained.
- (e) The name and address of each attorney who represents each individual making a claim.
- (f) The style and court number of each claim.
- (g) The disposition of each claim that has been settled or taken to judgment.

ANSWER: GARLOCK had no personal injury claims alleging asbestos related disease or injury based on product handling or usage prior to 1970.

INTERROGATORY NO. 16:

Were your asbestos products distributed, marketed, packaged, labeled and/or sold by companies other than your own? If the answer is affirmative, list the names and addresses of each of those companies, and the products in question.

ANSWER: Yes. Most of GARLOCK's product sales were made on a direct basis until the mid-1960's. At that time, GARLOCK management made the decision to utilize distributors for sales to maintenance and repair customers and after a conversion period of several years, the majority of GARLOCK product sales have been made through distributors. A recent listing of GARLOCK distributors is attached as Exhibit G. A list of GARLOCK distributors for Texas, the territory relevant to this litigation, is attached as Exhibit H. Any sales records relating to GARLOCK's product sales prior to 1978, no longer exist. Post 1978 sales records are available for inspection and copying at a mutually convenient date and time. These records are currently located in the Rochester warehouse described above. GARLOCK can also perform microfiche searches of product sales to particular customers or distributors.

INTERROGATORY NO. 17:

Did you or any of your predecessors, successors or subsidiaries have any distributors or sales representatives of asbestos products in the States of Alabama, Florida, Mississippi, Oregon, Washington, Georgia, Tennessee, Arkansas, Texas and Virginia? If so, state:

- (a) The name and address of each such distributor or sales representatives.
- (b) The years in which such company or person distributed, marketed or sold your products.
- (c) What products were distributed, marketed or sold and in what years.

ANSWER: Objection. GARLOCK's sales activities in these states are irrelevant to any asbestos litigation pending in Texas. Without waiving said objection, GARLOCK answers yes and refers to Answer to Interrogatory No. 16.

INTERROGATORY NO. 18:

List each employee (including only physicians and/or hygienists) who has acted in a medical advisory capacity to your company at any time during the past 40 years, including, but not limited to, physicians and industrial hygienists, and the current address, telephone number and job title of each of those individuals and who has, had or may have had any knowledge regarding the hazards of asbestos.

ANSWER: GARLOCK has not employed, retained or otherwise engaged physicians, industrial hygienists or others to conduct medical research. GARLOCK has had part-time plant physicians since 1920. They are as follows:

<u>Name</u>	<u>Dates of Service</u>
Dr. C. C. Nesbitt (deceased)	8/30/20 - 8/1/56
Dr. J. D. Bramer (deceased)	8/1/56 - 7/24/72
Dr. K. K. Kapur 1269 Pittsford Palmyra Road Macedon, New York 14502	10/23/72 - 8/14/79
Dr. William G. Fallon 602 7th Street Liverpool, New York 13088	10/31/79 - 3/1/88
Dr. B. Maureen Merritt P. O. Box 477 Celoron, New York 14720	9/15/88 - 8/28/90
Dr. Tillman F. Farley 3345 22nd Court Brighton, Colorado 80601	10/9/90 - 8/3/93
Dr. Alan Lorenz 2 Forest Knoll Pittsford, New York 14534	8/3/93 - 3/1/98

Dr. Carl M. Devore
Garlock Inc
1666 Division Street
Palmyra, New York 14522

3/3/98 - Present

All of these physicians served on a part-time basis and were at GARLOCK primarily for incoming employee physicals, treatment of minor injuries, etc. Any existing records, reports or memoranda written by any of these physicians and pertaining to GARLOCK are in the hospital records which are all maintained by patient name at GARLOCK.

INTERROGATORY NO. 19:

Does Defendant have in its possession any books, pamphlets, memoranda, or written material of any kind or character that would indicate that asbestos fibers, when inhaled, can be hazardous to the health of human beings? If so, state:

- (a) The name of each such publication.
- (b) The date of publication and the names of the author and publisher (if any).
- (c) The date received by Defendant, if known.
- (d) The name, job title, and address of each person who currently has possession of each publication and its present location.

ANSWER: Yes (a) - (d) GARLOCK is not aware of any competent scientific, medical, industrial hygiene or epidemiological studies which establish a causal relationship between the use of or exposure to asbestos-containing gaskets and packing products and any asbestos related diseases. GARLOCK has become aware of the potential hazards of excessive asbestos exposure from the following sources:

1. GARLOCK received copies of the Hemeon Report prepared by the Industrial Hygiene Foundation for the members of the Asbestos Textile Institute in June 1947. A copy of this report has already been produced to Baron & Budd.

2. GARLOCK has received copies of the OSHA and EPA regulations at or near the time they were published by those agencies. These government regulations are listed in Exhibit G.
3. GARLOCK may have received minutes of the Asbestos Textile Institute Meeting of March 7, 1956. The minutes show that George Houghton a GARLOCK employee, attended the meeting as a guest. Baron & Budd possesses copies of Mr. Houghton's deposition testimony regarding his participation and attendance at that meeting.
4. GARLOCK may have received minutes from the Asbestos Information Association Meeting of December 6, 1973 and June 10, 1976. Said minutes have previously been provided to Baron & Budd.
5. GARLOCK has also received worker's compensation claims from textile plant employees alleging asbestos disease caused by exposure to raw asbestos fibers used at that facility. All documents regarding those worker's compensation claims has previously been provided to Baron & Budd.
6. GARLOCK, throughout the course of the asbestos litigation, has become aware of medical and scientific literature which relates certain diseases to excessive occupational exposure to asbestos fibers.

INTERROGATORY NO. 20:

Has Defendant or any of its subsidiaries or predecessor companies at any time been a member of any trade organization or association that published or disseminated any documents or information relating to the hazards of asbestos comprised of other manufacturers, miners, marketers, and/or sellers of asbestos products? If so, state:

- (a) The name and address of each such association or organization.
- (b) The dates during which Defendant or any of its subsidiaries or predecessors were members.

- (c) The names and dates of any publications, minutes, or reports published, written or disseminated by any of the named associations or organizations.
- (d) Whether any of those publications are still in your possession, and if so:
 - (i) A description of the publications, including the date.
 - (ii) The current location of such publications.
 - (iii) The custodian of such publications.
 - (iv) The method or manner in which such publications are maintained.

ANSWER: Yes. GARLOCK was a member of the following trade associations that may have addressed asbestos related issues in one form or another. GARLOCK will answer all subparts for each association separately

- 1. (a) Fluid Sealing Association
2017 Walnut Street
Philadelphia, Pennsylvania 19103
 - (b) 1935 to present.
 - (c) GARLOCK does not possess any minutes, publications or reports related to asbestos hazards published or disseminated by this association.
 - (d) Not applicable.
- 2. (a) Asbestos Textile Institute
P.O. Box 471
131 North York Road
Willow Grove, Pennsylvania 19090
 - (b) GARLOCK was a member of the ATI for a short period of time in the mid 1940's and from 1966 to 1979.
 - (c) The Hemeon Report, June 1947 (previously produced to Baron & Budd); ATI Minutes, March 7, 1956 (previously

produced to Baron & Budd); ATI Minutes (1966 to 1979); attached as Exhibit I.

(d) Not applicable.

3. (a) Asbestos Information Association of North America
1975 K. Street
Washington, D.C.

(b) GARLOCK has been a member of the AIA from 1974 to 1980.

(c) AIA Minutes dated December 6, 1973 and June 10, 1976, (previously produced to Baron & Budd).

(d) Not applicable.

4. (a) American Society for Testing and Materials
1916 Race Street
Philadelphia, Pennsylvania 19103

(b) GARLOCK has been a member of ASTM from 1945 to the present.

(c) GARLOCK does not possess any minutes, publications or reports relating to asbestos hazards published or disseminated by this association.

(d) Not applicable.

5. (a) National Safety Council
444 North Michigan Avenue
Chicago, Illinois 60611

(b) GARLOCK has been a member of the National Safety Council from 1922 to the present.

(c) GARLOCK does not possess any minutes, publications or

reports relating to asbestos hazards published or disseminated by the National Safety Council.

(d) Not applicable.

INTERROGATORY NO. 21:

Identify by name and location each plant or manufacturing facility in which the products listed in your answers to Interrogatory Nos. 3-6 were manufactured, assembled or prepared for sale or marketing, specifying which plants produced each item, the dates each plant is or was in operation, and the time span during which each named item was produced or manufactured.

ANSWER: GARLOCK has operated the following plants which manufactured the asbestos-containing products identified in Exhibit B during certain time periods.

1. GARLOCK INC plant in Palmyra, New York. This was GARLOCK's principal manufacturing facility and has manufactured compressed asbestos sheet material from the early 1900's to the present. Asbestos packing products were also manufactured in Palmyra from the early 1900's to 1976. All style numbers listed on Exhibit B could be manufactured at the Palmyra plant during those years.
2. GARLOCK INC plant in Sodus, New York. GARLOCK manufactured braided asbestos packing products at this plant from 1976 to 1981. All packing products listed in Exhibit B could be manufactured at the Sodus facility.
3. Garlock of Canada owned and operated a manufacturing facility at 66 Jutland in Toronto, Canada from 1962 to 1991. This plant manufactured the compressed asbestos sheet and braided packing products listed in Exhibit B. From 1991 to the present, Garlock of Canada has operated a facility at 2860 Plymouth Drive in Oakville, Ontario. Asbestos-containing braided packing products were manufactured at that facility from 1991 to March 1999. Garlock of Canada has operated a plant at 4100 Rue Sherbrooke, Quebec,

Canada from 1976 to the present. This plant manufactures and sells asbestos cloth and yarn. The compressed sheet and asbestos packing materials manufactured in Canada are not sold to customers in the United States.

4. Garlock de Mexico, SA de CV operates a plant in Mexico City, Mexico. The address is Apartado Postal 15-103; Poniente 116, No. 571; Colonia Industrial Vallejo; Delegacion Azcapotzalco; 02300, Mexico, DF. Garlock de Mexico has manufactured compressed asbestos sheet materials and braided compression packing from 1964 to the present. The compressed asbestos sheet materials manufactured in Mexico are primarily Style Numbers 900, 7021, 7405, 8748, 7006 and 7228. The braiding packing style numbers manufactured in Mexico are 117, 127, 150, 234, 731, 1019, 1020, 1021, 2601, 2602, 2603, 2611 and 5862. The asbestos-containing compression sheet and braided packing materials manufactured in Mexico are not sold to customers in the United States.
5. GARLOCK PTY, Ltd. (Sealing Technology Division) has owned and operated a plant at 10 Willis Street in Arncliffe, Australia since 1970. They began selling asbestos-containing braided packing products in 1970. This entity never sold asbestos-containing products to customers in the United States.
6. GARLOCK INC owned an interest in a textile plant (E.R.I.C.A.) in Barcelona, Spain. This plant manufactured asbestos cloth and yarn and compression packing until March , 1979.
7. GARLOCK manufactured spiral wound gaskets at the former United States Gasket plant in Camden, New Jersey from 1955 to 1964 and at a plant in Gastonia, North Carolina from 1965 to 1987.

INTERROGATORY NO. 22:

Have printed sales materials been prepared by Defendant or any of its subsidiary or predecessor companies or their agents for purposes of marketing or advertising

products containing asbestos? If so, state:

- (a) The name, address and job title of each person or entity who prepared such materials.
- (b) The name, address and job title of each person who currently has possession of such materials and their present location.
- (c) The date the materials were prepared.
- (d) The media used to disseminate the sales materials.

ANSWER: GARLOCK has published numerous catalogs over the years for the purpose of marketing and advertising the product line.

- (a) No particular individual has been responsible for the preparation of sales, marketing and advertising materials over the years. GARLOCK has a marketing/advertising department and the following individuals have managed this department over the years:

Larry Rienzo	Late 1960's to early 1970's
Joan Clement	Early 1970's to late 1970's
Gay Pllock	1979 to 1982
Tina Masters	1982 to 1989
Janine Murganberger	1989 to 1990
Laur Fawcet	1990 to 1998

- (b) The current marketing/advertising manager is Mary Cappellino. Current advertising and marketing materials are in the possession of the advertising department.
- (c) Advertising materials have been prepared and disseminated on a continuous basis by GARLOCK since the 1930's.
- (d) GARLOCK has used a variety of media to disseminate sales and advertising material, including trade publications, direct mailings to distributors, direct mailing to customers, sales calls to distributors and customers and seminars for customers and distributors.

INTERROGATORY NO. 23:

Have any written or printed materials or instructions of any kind or character been prepared by Defendant or any of its subsidiary or predecessor companies or their agents indicating how asbestos products should be used and maintained? If so, state:

- (a) The name, address and job title of each person who prepared such materials or instructions or assisted in their preparation.
- (b) The name, address and job title of each person who currently has possession of such materials or instructions and their present location.
- (c) The dates of distribution or use and the manner in which such materials or instructions were distributed to purchasers of Defendant's products or those of its subsidiaries or predecessors.
- (d) The year each such written material or instruction was prepared and disclosed to potential customers.

ANSWER: Yes. GARLOCK's product information, catalogs and advertising materials contained references on how asbestos and non-asbestos products should be used and maintained by the customers. Copies of those materials have been previously produced to Baron & Budd in GARLOCK's Response to the Subpoena Duces Tecum issued in Fulton County, Georgia Asbestos Litigation, Civil Action No. 1998 CV 02684. Additional materials may be located in the Rochester document warehouse and Baron & Budd will be provided access to those records for inspection and copying at a mutually convenient date, time and place. GARLOCK also prepared Material Safety Data Sheets regarding certain asbestos products and those documents are attached as Exhibit F.

- (a) No particular individual has been responsible for the preparation of sales and advertising materials. The marketing and advertising managers are listed in GARLOCK's Answers to Interrogatory No. 22. The MSDS Sheets were prepared by Harold Hughes.
- (b) Current materials are in the possession of the marketing and advertising departments. The MSDS Sheets are located at the GARLOCK plant in Palmyra, New York and have been

produced to Baron & Budd.

- (c) Specific dates of distribution are unknown. GARLOCK disseminated its product information, catalogs, sales and advertising materials through a variety of media, including advertisements in trade publications, direct mailings to distributors, direct mailings to customers, sales calls on distributors and customers and seminars for customers and distributors. The MSDS Sheets were available commencing in the late 1970's.
- (d) Sales and distribution materials for distribution to customers were prepared and disseminated on a continuous basis since the 1930's. The MSDS Sheets were prepared and available for distribution commencing in the late 1970's.

INTERROGATORY NO. 24:

Does Defendant have insurance policies that might cover the claims made by Plaintiffs in these cases? If so, list the name of each insurance carrier, the amount of initial coverage, amount of coverage remaining at the present time, and the effective dates of each policy. (If properly answered, this Interrogatory need not be supplemented as to the remaining amount of coverage).

ANSWER: Yes. Insurance for product liability claims filed against GARLOCK is available under various insurance policies, including the following primary policies.

<u>Carriers</u>	<u>Years of Coverage</u>
1. Travelers Insurance Co.	1951 - 1961
2. Employer's Mutual of Wausau	1961 - 1976
3. Aetna Life and Casualty	1975 - 1986
4. National Union	1986 - present

The total amount of insurance coverage available to GARLOCK for product liability claims is subject to differing views between the insured and the insurers. Available coverage is sufficient to cover asbestos related claims currently pending on a nationwide basis

against GARLOCK. Cover sheets on relevant policies will be provided under separate cover.

INTERROGATORY NO. 25:

As to the disease asbestosis, state:

- (a) The date on which Defendant or its subsidiary or predecessor first learned that such disease was caused by inhalation of asbestos fibers by humans.
- (b) How Defendant became aware of the existence of the disease.
- (c) Who within the company first discovered, recognized or understood the adverse consequences or effects of the disease and/or of asbestos exposure.
- (d) What information was disseminated within Defendant's company or its subsidiary or predecessor regarding such adverse consequences or effects.
- (e) Whether any such information is still maintained by Defendant or its subsidiary or predecessor in any written form.
- (f) Who is the custodian of such information.
- (g) The date on which you first received knowledge or information that asbestosis was caused by inhalation of asbestos fibers.

ANSWER: (a) George Houghton, ex-employee of GARLOCK may have learned that the disease asbestosis was related to excessive exposure to asbestos fibers through his participation in ATI meetings in the late 1940's. Mr. Houghton has previously been deposed regarding those activities and Baron & Budd is in possession of those transcripts. Vera Clemons, an employee in the GARLOCK textile plant in Palmyra, New York filed a worker's compensation claim in 1947 alleging that she had contracted asbestosis from occupational exposure to raw asbestos fibers used at the textile plant. GARLOCK has never received any information relating asbestosis to exposure to asbestos-containing gaskets and packings. The Industrial Hygiene Foundation generated the Hemeon Report in June, 1947 and that report relates to a

survey of dust levels in various textile plants, including GARLOCK. The report refers to asbestosis and Baron & Budd is already in possession of this report.

- (d) See Houghton's transcripts already in the possession of Baron & Budd. GARLOCK established a dust control and ventilation program in its textile plant. GARLOCK also made changes in its textile plant manufacturing methods to control the level of dust in the plant. These measures included; installing hoods over carding machines, installing exhaust fans, refining to the vacuum system, installing spinning frames, designing and installing dust hoods for looms and collecting cyclones with outdoor exhausts. Oral warnings regarding the avoidance of dust and instructions regarding housekeeping have been given to GARLOCK employees at the GARLOCK manufacturing plants for over 50 years. Respirators have been available and their use encouraged in dusty areas for over 50 years.
- (e) See Answer to Interrogatory 25(a) through 25(d).
- (f) All such information is already in possession of Baron & Budd. The historical information regarding GARLOCK's membership in the ATI is in the possession of Garrison Litigation Management and has been produced to Baron & Budd.
- (g) See Answer to Interrogatory No. 25(a).

INTERROGATORY NO. 26:

As to the disease lung cancer, state:

- (a) The date on which Defendant or its subsidiary or predecessor first learned that such disease was caused by inhalation of asbestos fibers by humans.
- (b) How Defendant or its subsidiary or predecessor became aware of the disease and its relationship to asbestos exposure.
- (c) Who within the company or its subsidiary or predecessor first discovered or recognized the adverse consequences or effects of asbestos exposure.

- (d) What information was disseminated within Defendant's company or its subsidiary or predecessor regarding such adverse consequences or effects.
- (e) Whether any such information is still maintained by Defendant or its subsidiary or predecessor in written form.
- (f) Who is the custodian of such information.
- (g) The date on which you first received knowledge or information that lung cancer was caused by inhalation of asbestos dust and fibers.

- ANSWER:**
- (a) GARLOCK first learned that excessive exposure to asbestos fibers was viewed by the medical and scientific community as a possible cause or contributor to lung cancer through the OSHA regulations and public media reports in the early 1970's. George Houghton, a former GARLOCK employee, is listed as a guest at a 1956 ATI meeting and minutes of said meeting refer to asbestos exposure and lung cancer. We refer to Mr. Houghton's deposition testimony already in the possession of Baron & Budd for details regarding that meeting.
 - (b) Media reports and the OSHA regulations
 - (c) Unknown.
 - (d) Warning labels and signs advising workers of the hazards of inhaling asbestos fibers were placed at GARLOCK plant entrances in the early 1970's per the OSHA regulations. With regard to the compressed asbestos sheet manufacturing operation in Palmyra, New York in 1977, GARLOCK purchased the following equipment: An enclosed automatic bag opener and emptier, an enclosed fluffing device, an enclosed conveyor apparatus for transferring asbestos to appropriate mixers and blenders and associated dust collection equipment. Respirators became mandatory for all employees working in dusty areas in the early 1970's as did the wearing of disposable and cloth overalls.
 - (e) GARLOCK INC.
 - (f) Early 1970's.

- (g) See Answer to Interrogatory No. 26(a).

INTERROGATORY NO. 27:

As to the pleural disease, pleural thickening or pleural plaques, state:

- (a) The date on which Defendant or its subsidiary or predecessor learned that such disease was caused by inhalation of asbestos fibers by humans.
- (b) How Defendant or its subsidiary became aware of the disease and that it was caused by exposure to asbestos.
- (c) Who within the company or its subsidiary or predecessor first discovered or recognized the adverse consequences or effects of asbestos exposure.
- (d) What information was disseminated within Defendant's company or its subsidiary or predecessor regarding such adverse consequences or effects.
- (e) Whether any such information is still maintained by Defendant or its subsidiary or predecessor in a written form.
- (f) Who is the custodian of such information.

- ANSWER:**
- (a) GARLOCK received personal injury claims commencing in the late 1980's alleging that pleural thickening or pleural plaques were conditions potentially caused by occupational exposure to asbestos fibers. The 1986 OSHA regulations also discuss pleural changes and GARLOCK received those regulations.
 - (b) Lawsuits filed against GARLOCK and the 1986 OSHA regulations.
 - (c) Unknown.
 - (d) See Answer to Interrogatory No. 26(a).
 - (e) Yes.
 - (f) GARLOCK INC.

INTERROGATORY NO. 28:

As to the disease mesothelioma, state:

- (a) The date on which Defendant or its subsidiary or predecessor first learned that such disease was caused by inhalation of asbestos fibers by humans.
- (b) The date on which Defendant first suspected that mesothelioma was caused by inhalation of asbestos dust and fibers.
- (c) How Defendant or its subsidiary or predecessor became aware of the disease and that it was caused by exposure to asbestos.
- (d) Who within the company or its subsidiary or predecessor first discovered or recognized the adverse consequences or effects of asbestos exposure.
- (e) What information was disseminated within Defendant's company or its subsidiary or predecessor regarding such adverse consequences or effects.
- (f) Whether any such information is still maintained by Defendant or its subsidiary or predecessor in a written form.
- (g) Who is the custodian of such information.
- (h) Whether Defendant agrees that there is no known medical cure for mesothelioma.

- ANSWER:**
- (a) GARLOCK believes it first became aware of the potential relationship between excessive exposure to asbestos fibers and mesothelioma in the 1970's. The source of such knowledge was the asbestos litigation which involved lawsuits alleging a causal relationship between asbestos exposure and mesothelioma.
 - (b) See Answer to Interrogatory No. 28(a).
 - (c) See Answer to Interrogatory No. 28(a).
 - (d) Unknown.

- (e) See Answer to Interrogatory No. 27(d).
- (f) Old complaints may be stored in the Rochester warehouse.
- (g) GARLOCK INC.
- (h) Objection. Calls for an expert medical opinion.

INTERROGATORY NO. 29:

As to gastrointestinal cancer, laryngeal cancer, pharyngeal cancer or lymphatic cancer, state:

- (a) The type of cancer and the date on which Defendant or its subsidiary or predecessor first learned that such diseases were caused by inhalation of asbestos fibers by humans.
- (b) What cancers has the Defendant or its subsidiary or predecessor become aware can be caused by exposure to asbestos fibers.
- (c) The date on which Defendant first suspected other cancers were caused by asbestos inhalation.
- (d) Who within the company or its subsidiary or predecessor first discovered the adverse consequences or effects of asbestos exposure.
- (e) What information was disseminated with Defendant's company or its subsidiary or predecessor regarding such adverse consequences or effects.
- (f) Whether any such information is still maintained by Defendant or its subsidiary or predecessor in a written form.
- (g) Who is the custodian of such information.

ANSWER: (a) GARLOCK became aware in the late 1980's that individuals were claiming excessive exposure to asbestos fibers could cause gastrointestinal cancer, laryngeal cancer, pharyngeal cancer or lymphatic cancer. GARLOCK does not admit such diseases are related to asbestos exposure. GARLOCK is aware there is controversy and disagreement in the medical

profession whether or not inhalation of asbestos fibers can cause or contribute to the diseases listed in this interrogatory.

- (b) Mesothelioma and lung cancer in individuals with underlying asbestosis.
- (c) Not applicable. See Answer to Interrogatory No. 29(a).
- (d) Not applicable. See Answer to Interrogatory No. 29(a).
- (e) Not applicable. See Answer to Interrogatory No. 29(a).
- (f) Not applicable. See Answer to Interrogatory No. 29(a).
- (g) Not applicable. See Answer to Interrogatory No. 29(a).

INTERROGATORY NO. 30:

Does Defendant contend that asbestos products can be manufactured or designed so as to eliminate all potential health hazards to persons working with or exposed to them? If the answer is affirmative, explain, in detail, and attach any studies or surveys on which this answer is based.

ANSWER: Yes. (As to asbestos-containing encapsulated gasket and packing products) GARLOCK has not been made aware of any competent scientific, medical, industrial hygiene or epidemiological studies which establish a causal relationship between the use of or exposure to asbestos-containing gaskets and packing products and any asbestos related disease. The manufacturing process encapsulates the asbestos fibers within the gasket and packing products and fiber release studies conducted by certified industrial hygienists, measuring exposure levels in a wide variety of occupational settings, show *de minimus* or trivial fiber release from the products. All of those studies are contained in GARLOCK's exhibit binders and we specifically identify Exhibits 15 - 126 as the relevant fiber release studies. All scientifically credible industrial hygiene fiber release studies show exposure levels well below the historical and current OSHA permissible exposure levels. OSHA does not require caution labels on gasket and packing products

and gasket and packing products are exempt from the Environmental Protection Agency's ban on asbestos products. See GARLOCK Exhibits 1 - 9.

INTERROGATORY NO. 31:

Describe in detail the types of packages or packaging which Defendant or any of its subsidiary or predecessor companies used for asbestos material or products, listing the dates each type of package was used, a physical description of each type of package, and providing a description of any printed material or trademarks that appeared thereon.

ANSWER: GARLOCK states that it does not have records which would show when it started and/or stopped using any particular type or style of packaging. For at least 50 years, the dominant colors of GARLOCK's packaging materials have been yellow, red and black. Sometimes black has predominated, and at other times yellow has been the dominant color. However, the three colors have usually been used together. GARLOCK cannot identify with any specificity the type of packaging used for particular products at particular times.

The form in which GARLOCK asbestos-containing products are shipped varies, depending upon the size and configuration of each item, the number of items called for by the customer's order, and the customer's own desires. Among the containers used are burlap bags, cardboard boxes and wooden crates. In addition, asbestos sheet is occasionally shipped flat on wooden pallets.

All of its products, both those containing asbestos and those containing no asbestos, have been sold under the GARLOCK name. In addition, the Calipers and Scale trademark was used with all of its products from about 1900 until approximately 1968. A number of secondary trademarks have also been used over the years. Principal marks which have been used in connection with asbestos-containing products, as well as non-asbestos-containing products, have been BELMONT, GUARDIAN, CHEVRON, LATTICE BRAID, PALMYRA and PAPER-PAK.

INTERROGATORY NO. 32:

Has Defendant or any of its subsidiary or predecessor companies at any time entered into a "rebranding" agreement with any other company, either as buyer or seller, concerning asbestos materials or asbestos products? If so, state as to each such agreement:

- (a) The name of the company manufacturing the asbestos products.
- (b) The trade name affixed to those products.
- (c) The periods of time covered by each such agreement.
- (d) The volume, in dollar amount, of each transaction.
- (e) The initial purchaser of the products.

ANSWER: Yes. GARLOCK has manufactured asbestos and non-asbestos products and then sold those products for resale under the labels of other companies. GARLOCK has applied customer brand names to compressed asbestos sheet material for the following companies.

Anchor Packing; Philadelphia, Pennsylvania	1979 - 1993
Sepco; Birmingham, Alabama	1973 - 1986
J.A. Sexauer; White Plains, New York	1965 - present
Vallumoid; Worcester, Massachusetts	1960 - 1980
Drew Chemical, Boonton, New Jersey	1980 - 1986
Industrial Packing, Bucksport, Maine	1988 - present
A. W. Chesterton, Woburn, Massachusetts	1960 - 1976

- (a) GARLOCK INC.
- (b) Unknown.
- (c) GARLOCK is not aware of the existence of any written rebranding agreements although any such agreements may be stored at the Rochester warehouse which contain all documents kept by GARLOCK pursuant to its record

retention policies. Baron & Budd will be given access to those documents at a mutually convenient, date, place and time and can inspect and copy any rebranding agreements which are located in the warehouse.

- (d) Unknown.
- (e) See the companies listed in the introductory paragraph to this Answer to Interrogatory.

INTERROGATORY NO. 33:

List the name and address of each company from which Defendant or its subsidiary or predecessor purchased materials or asbestos products which Defendant sold or distributed in any form, stating the form of the materials, the dates of such purchases, and the ultimate disposal of such materials.

ANSWER: GARLOCK has from time to time, purchased finished products from other manufacturers, branded those products with the GARLOCK label and sold those products to third-parties. The names of the companies who manufactured the products, the form of the product, the dates of the purchases and the ultimate purchases of these products is presently unknown to GARLOCK. Documentation regarding this issue may be located at the Rochester warehouse where documents kept by GARLOCK pursuant to its record retention policies are stored.

Baron & Budd will be provided access to those documents at a mutually convenient date, place and time and may inspect and copy any documents responsive to this interrogatory at that time.

INTERROGATORY NO. 34:

Does Defendant or any of its subsidiaries or predecessors currently have possession of any writings or contracts on those rebranding agreements set forth in the answer to Interrogatory No. 32? If the answer is affirmative, state:

- (a) The name, address and job title of each person having custody of each of those documents and their current location.
- (b) A brief description of each such document, including the dates and the parties signatory.

ANSWER: No. See Responses to Interrogatory Nos. 32 and 33 regarding documents stored at the Rochester warehouse per the GARLOCK record retention policy.

- (a) Unknown.
- (b) Unknown.

INTERROGATORY NO. 35:

Prior to 1968, did any person file a claim against a Worker's Compensation carrier covering Defendant or any of its subsidiaries or predecessors alleging that he/she contracted a disease from inhaling asbestos fibers? If so, provide:

- (a) A list of the claim, including each claimant's name, address and the date each claim was filed, and including the caption and jurisdiction of the claim.
- (b) The disease alleged in each such claim.
- (c) A brief summary of the disposition of each such claim.
- (d) The name, address and title of the person having custody of the records pertaining to each such claim.

ANSWER: (a) - (d) Yes. A listing of all asbestos related worker's compensation claims filed against GARLOCK is attached as Exhibit

J. GARLOCK believes that Baron & Budd is already in possession of the documents relating to these worker's compensation claims. GARLOCK refers to the Baron & Budd exhibit list filed in El Paso and other jurisdictions in Texas and throughout the country.

INTERROGATORY NO. 36:

Did Defendant or any of its subsidiaries or predecessors maintain written minutes of corporate meetings, either board of directors, departmental or otherwise, which reflect discussions pertaining to any subject matter related to asbestos, asbestos health hazards or asbestos products? If so, for each such set of minutes, state:

- (a) The dates of each such meeting.
- (b) The general subject matter discussed at each meeting.
- (c) Who was in attendance at each meeting.
- (d) Where and by whom the written minutes are presently maintained.
- (e) By whom the minutes were taken and put into final format.
- (f) Whether the minutes were abstracted and reports disseminated to other individuals, and if so, the names and job titles of those individuals.

ANSWER: Yes. GARLOCK created a Product Liability Committee in the late 1970's and minutes of meetings conducted by that committee are attached as Exhibit K. GARLOCK also has certain Board of Directors Meeting Minutes which refer to asbestos related issues and said minutes are attached as Exhibit L.

- (a) See Exhibit K and Exhibit L.
- (b) See Exhibit K and Exhibit L.
- (c) See Exhibit K and Exhibit L.
- (d) GARLOCK INC.

- (e) See Exhibit K and Exhibit L.
- (f) See Exhibit K and Exhibit L.

INTERROGATORY NO. 37:

Do you or any of your subsidiaries, including foreign business entities, currently manufacture any products containing asbestos? If so, state:

- (a) As to each product, whether such product is mined, manufactured and/or marketed or sold.
- (b) The names and addresses of the companies mining, manufacturing, marketing, and/or selling each of those products.
- (c) The trade or brand name of each of those products mined, manufactured, marketed and/or sold.
- (d) The date each of the named products was placed on the market.
- (e) A description of the physical (chemical) composition of each of the named products, including the type of asbestos contained in the product.
- (f) A description of the physical appearance of each product and its packaging.
- (g) A detailed description of the intended uses of the named products.
- (h) Whether there are any warning labels on said products or containers regarding potential asbestos-related health hazards.

ANSWER: Yes. Garlock of Canada and Garlock of de Mexico currently manufacture certain asbestos-containing products. GARLOCK will answer the interrogatory subparts separately for each entity.

Garlock of Canada, Ltd.

- (a) Manufactured, marketed and sold.
- (b) Garlock of Canada, Ltd., 4100 Rue Garlock, Sherbrooke, Quebec.

- (c) Garlock of Canada, Ltd. sells asbestos yarn and cloth--these products do not have trade or brand names. Garlock of Canada, Ltd. has also sold compressed asbestos sheet and braided packings. See Exhibit B for style numbers.
- (d) Garlock of Canada, Ltd. opened its textile facility in 1976 and has been manufacturing and selling asbestos yarn and cloth since that time. Garlock of Canada, Ltd. sold compressed asbestos sheet from 1962 to 1991 and braided packing from 1962 to 1999.
- (e) See Exhibit B and product information, catalogs, and advertising material products previously produced to Baron & Budd in the Fulton County, Georgia asbestos litigation. See Answer to Interrogatory No. 6.
- (f) See product information, catalogs and advertising materials previously produced to Baron & Budd in the Fulton County, Georgia asbestos litigation. See Exhibit B and Answer to Interrogatory No. 6.
- (g) See product information, catalogs and advertising materials previously produced to Baron & Budd in the Fulton County, Georgia asbestos litigation. See Exhibit B and Answer to Interrogatory No. 6.
- (h) Yes. Caution labels have been placed on asbestos textile products since 1976 and on compressed sheet and braided packing since 1977.

Garlock of de Mexico

- (a) Manufactured, marketed and sold.
- (b) Garlock de Mexico; Apartado Postal 15-103; Poniente 116, No. 571; Colonia Industrial Vallejo; Delegacion Azcapotzalco; 02300, Mexico, DF.
- (c) Asbestos products manufactured and sold by Garlock de Mexico include compressed asbestos sheet material and braided compression packing.

- (d) 1959 to the present.
- (e) See Exhibit B and product information catalogs and advertising materials previously produced to Baron & Budd in the Fulton County, Georgia asbestos litigation. Also, see Answer to Interrogatory No. 6.
- (f) See Exhibit B and product information catalogs and advertising materials previously produced to Baron & Budd in the Fulton County, Georgia asbestos litigation. Also, see Answer to Interrogatory No. 6.
- (g) See product information, catalogs and advertising materials previously produced to Baron & Budd in the Fulton County, Georgia asbestos litigation. See Answer to Interrogatory No. 6.
- (h) Yes. Caution labels have been placed on asbestos-containing products manufactured and sold by Garlock de Mexico since February, 1997.

INTERROGATORY NO. 38:

State whether you or any of your predecessors and/or subsidiaries maintain, from 1940 through the present or for any portion thereof, copies of invoices, shipping documents, bills of lading, purchase orders or other documents of a similar nature relating to the mining, manufacture, marketing, sale or distribution of asbestos products.

If so, state:

- (a) The location of such documents.
- (b) The name and address of the custodian of the documents.
- (c) The format in which the documents are kept, i.e., hard copy, microfilm, microfiche, etc.
- (d) In what form the documents can be accessed, i.e., by state, by product, etc., and if by product, whether kept according to asbestos

or non-asbestos.

ANSWER: GARLOCK states that it does not maintain separate compilations of sales records for its asbestos-containing products or for sales in specific states or sub-divisions thereof. Such older records that still exist are retained in the document warehouse in Rochester, New York. These records will be made available to plaintiff for inspection and copying at plaintiff's expense and at a mutually convenient date, time and place. It is believed that the oldest such paper records generally date from approximately 1978.

Upon receipt of specific information from the Plaintiffs as to the products to which they allege to have been exposed, the dates of the alleged exposure and the locations at issue, this Defendant will attempt to identify whether or not it sold such asbestos-containing products to the locations specified, at the time periods in question. GARLOCK maintains a microfiche database of sales documents maintained at the Rochester warehouse and GARLOCK will search specific sites or facilities relevant to Plaintiff with claims in this jurisdiction.

INTERROGATORY NO. 39:

Will you call company representatives as witnesses at the trial of any of these cases? If so, list:

- (a) The name, address and job title of each company representative who may be called.
- (b) A summary of the testimony expected to be given by each such witness.
- (c) List any and all previous times that the named witnesses have either given deposition or trial testimony in an asbestos-related case, including the jurisdiction, style of the case, case number, date of testimony, and the name of the attorney taking the deposition for the Plaintiffs in that case.

ANSWER: Defendant objects to this interrogatory to the extent that it seeks a description of a trial witness's testimony. Additionally, because it is an overly broad request, imposes an undue burden on Defendant, and seeks information protected from disclosure by the attorney/client privilege and attorney work product privilege. Subject to these objections and without waiving them, Defendant responds as follows:

This Defendant discloses the following fact witnesses who may be called to testify at trial:

1. Any present or former employee of GARLOCK. GARLOCK specifically identifies Mr. Clayton Jewett and Mr. Roy Whittaker as former employees, and Mr. James E. Heffron as a current employee, who may testify on behalf of GARLOCK. Messrs. Jewett, Whittaker and/or Heffron may provide testimony on the process involved in the manufacture of various asbestos containing and non-asbestos containing GARLOCK gaskets and packing material. Messrs. Jewett, Whittaker and/or Heffron may also describe the various products manufactured by GARLOCK and the proper application and use of said products. GARLOCK reserves the right to call any current or past GARLOCK employees in response to the evidence presented in plaintiffs' case-in-chief.
2. GARLOCK reserves the right to cross-examine any fact or expert witnesses disclosed by the plaintiffs as well as any and all treating physicians of the plaintiffs. In addition, defendants adopt, insofar as they deem it consistent with their own defenses, any fact witnesses disclosed by any co-defendants or any plaintiffs in this matter.
3. GARLOCK disclaims any duty to introduce any of the above-mentioned witnesses at trial by virtue of placing them on the list.
4. GARLOCK specifically reserves the right to call any witness listed by any party, either live or by deposition or by previous trial testimony, who may have been called to testify in this case for the purpose of impeachment, rebuttal, or any other purpose the law allows.
5. GARLOCK has not yet completed its determination of witnesses and reserves the right to supplement and amend

this list up to and including the time of trial.

6. Any and all treating physicians, attending physicians, screening physicians and pathologists of the plaintiffs' decedent and of the plaintiffs.
7. Any and all family members, friends, or other witnesses disclosed by the plaintiffs or otherwise revealed in discovery to be conducted.
8. Any and all co-workers or other employees of the employer(s) of the plaintiffs' decedent as disclosed by plaintiffs or other defendants or as otherwise may be disclosed in trial preparation and discovery.
9. See **Exhibit M** for testimony lists which includes the occasions where Messrs. Jewett, Whittaker and Heffron have given testimony in an asbestos-related case.

INTERROGATORY NO. 40:

Have Defendant or its subsidiaries or predecessors ever acquired through purchase, reorganization or merger another corporation, company, or business which manufactured, sold, process, distributed or contracted or supplied products containing asbestos? If so, for each such entity, state:

- (a) Full and correct name;
- (b) Principal place of business;
- (c) State of incorporation;
- (d) Date of acquisition by Defendant;
- (e) Whether or not the business entity was ever authorized to transact business in the State of Texas.

ANSWER: (a) - (e)

In past years, GARLOCK acquired four subsidiary companies which made and/or sold at least some asbestos-containing products. Those companies were the Belmont Packing & Rubber Company, Crandall Packing Company, Dealers' Steam Packing Company and U.S. Gasket Company. Belmont was purchased in 1930, Crandall in 1939, Dealer's Steam in 1929 and U.S. Gasket in 1955. The only asbestos-containing products of which GARLOCK is aware that were made and/or sold by these companies were sealing products substantially equivalent to similar such products made and sold by GARLOCK. The Belmont Packing & Rubber Company was located in Philadelphia, Pennsylvania; Crandall Packing Company and Dealers' Steam Packing Company were located in Palmyra, New York; and U.S. Gasket Company was located in Camden, New Jersey. Ultimately, each of the four subsidiaries was merged or otherwise absorbed into GARLOCK, including all assets and liabilities. As far as GARLOCK is aware, all business records of these former subsidiaries were destroyed many years ago in accordance with GARLOCK's long-standing record retention program. It is probable that old corporate minute books still exist, but GARLOCK would not expect them to contain any information pertinent to this litigation. In June, 1987, GARLOCK acquired The Anchor Packing Company of Philadelphia, Pennsylvania which has sold asbestos-containing gaskets, gasket materials and packing.

GARLOCK has no information regarding the state in which these entities were incorporated. GARLOCK has no information regarding whether these entities were ever authorized to do business in Texas.

INTERROGATORY NO. 41:

Was each of your asbestos products generally expected to reach, or packaged to reach, the consumer or user, without substantial change in the condition in which it was sold? If not, with respect to any such product, explain in what way the Defendant claims its products were altered or substantially changed after sale or distribution and before reaching the user.

ANSWER: Yes.

INTERROGATORY NO. 42:

For each asbestos-containing product identified in response to Interrogatory No. 6, identify all foreseeable users such as insulators, helpers, pipefitters, welders, machinists, plasterers, drywall finishers, carpenters, boiler makers, shipwrights and riggers, etc. of any of Defendant's asbestos-containing products.

ANSWER: Depending on the job definitions used at particular plants and facilities, GARLOCK believes that certain occupations such as pipefitters, millwrights, machinists and boiler makers are potential users of asbestos-containing gasket and packing products.

INTERROGATORY NO. 43:

Based upon the material contents of your asbestos-containing products, the method of manufacturing, and the method of application, can such products be generally applied without liberating asbestos fibers into the air?

- (a) If there is a different answer concerning different products manufactured, sold, distributed, or used by your company, then specify the different products by precise manufacturer's name and popular name.
- (b) If there is a difference in your answer depending on the year or years in which a particular product was used, then specify in detail what year or years you are referring to and the specific products you are referring to and year involved.

ANSWER: Yes.

INTERROGATORY NO. 44:

Was it a foreseeable use of your asbestos-containing products that they may have been removed, stripped or replaced at some time after installation?

ANSWER: Yes.

INTERROGATORY NO. 45:

Before 1970, did you or your subsidiaries or predecessor(s) ever arrange for any labor inspectors, insurance company inspectors or anyone from your company to go to job sites where your products were being used or installed to make or take dust level counts? If so, state when this procedure started, the purpose of such procedures, and all results of such procedures.

ANSWER: No.

INTERROGATORY NO. 46:

If Defendant performed or had performed any dust level counts, what action, based on the results, did your company take?

ANSWER: Not applicable.

INTERROGATORY NO. 47:

Has your company or its subsidiaries or predecessor(s) ever conducted or caused to be conducted any studies designed to assist in minimizing or eliminating the

inhalation of asbestos dust and fibers by those exposed to the use of your company's products? If so, give the following:

- (a) Name of the person or firm conducting such studies.
- (b) The date the studies began and the date they were completed.
- (c) Any publication or other written dissemination of the results of the studies.
- (d) The nature of any action to eliminate or minimize the inhalation of asbestos dust fibers.

ANSWER: No.

INTERROGATORY NO. 48:

Does your company have, has it ever had, or have your predecessor(s) or subsidiaries ever had, a Research Department? If so, give the year such Research Department was established, and whether or not such Research Department has operated continuously since being established. State also:

- (a) The amount of time and money expended each year on research concerning asbestos or asbestos-containing products?
- (b) What percentage of gross sales did your company or its predecessor(s) spend on research concerning the health effects of asbestos?
- (c) State in detail the purposes, duties and responsibilities of such Research Department.

ANSWER: A Research and Development Department existed during most of the 1960's. The exact dates of its formation and termination are not available. A new Research and Development Department was established early in 1984 and functioned for approximately two years. In both instances, the Department worked on the development of new and/or improved products and processes. The Department never conducted any medical research.

- (a) Unknown. GARLOCK has spend substantial funds researching and investigating possible substitutes for asbestos-containing products, but it is unable to quantify the dollar amount.
- (b) GARLOCK does not have a medical department and no medical research was conducted by GARLOCK on the health effects of asbestos. GARLOCK is an industrial products company primarily focused on the manufacturer and sale of fluid sealing devices.
- (c) The Research and Development Department was charged with a development and/or improvement of GARLOCK products and manufacturing processes. During the years GARLOCK did not have a formal Research and Development Department, GARLOCK continued to perform functional and performance related research.

INTERROGATORY NO. 49:

Does your company have, or has it ever had, or have your predecessor(s) or subsidiaries ever had, a Medical Department? If so, state:

- (a) The year such Medical Department was established.
- (b) Whether or not such Medical Department has operated continuously since being established.
- (c) The name of each director, chief, or head of your Medical Department year by year, beginning with the first year you had a Medical Director or Medical Department, and the last known address and phone number of each.
- (d) State the duties and responsibilities of such Medical Department.

ANSWER: No. By way of further answer, GARLOCK states that it has not employed, retained or otherwise engaged physicians, industrial hygienists or others to conduct medical research.

INTERROGATORY NO. 50:

Did your company or its predecessor(s) or subsidiaries ever place any warning directly on any of its asbestos-containing product or on their packaging? If so, identify the product(s) and year said warning was first applied.

ANSWER: See Answer to Interrogatory No. 14.

INTERROGATORY NO. 51:

Did your company or its predecessor(s) or subsidiaries ever stamp or place the name of the company, its initials, or any identifying logo on any of its asbestos-containing products? If so, please state the name brand names of such products, a description of such stamp or logo and the dates such were placed on the referred products.

ANSWER: Yes. GARLOCK has been manufacturing asbestos products since 1907. All of its products, both those containing asbestos and those without asbestos, have been sold under the GARLOCK name. In addition, a caliper and scale trademark was used on all products until 1968. A number of secondary trademarks have also been used over the years. These trademarks include Belmont, Guardian Chevron, Lattice Braid, Palmyra and Paper-Pak. It may be possible to identify GARLOCK asbestos-containing products depending on the products in question and the degree of expertise of the person making the identification. Some GARLOCK products have been labeled with the company name. The GARLOCK name has appeared on gasketing and sheet materials since the early 1900's. For braided packing product, the GARLOCK name or the trade names identified above does not appear on the materials and it could be difficult to identify them because many of GARLOCK's packing products are similar in appearance to products

manufactured and sold by competitors. However, the GARLOCK name does appear on the product packaging for braided packing materials.

The Belmont trademark has been used with a wide variety of gaskets, gasket materials, packing and seals. The Guardian trademark has been used on association with spiral wound gaskets. The Chevron trademark has been used in association with a wide variety of V-Ring packings. The Lattice Braid trademark has been used in association with a wide variety of braided packings. Each of these marks has been used for more than 50 years and each is still in use. The Palmyra trademark was used in association with a lubricated rubber and asbestos fabric packing for about 40 years, ending in 1960. The Paper-Pak trademark has been used in association with braided packings for use in the paper industry since 1960.

INTERROGATORY NO. 52:

Has your company, or your predecessor(s) or subsidiaries, ever devised a research plan to develop or actually developed or had developed, a product which did not contain asbestos and which could be substituted for one or more of your asbestos-containing products? If so, state the date that such research plan was begun and when such asbestos-free product was first placed on the market.

ANSWER: Yes. GARLOCK has always made available non-asbestos containing sealing products as well as asbestos-containing sealing products to its customers. This Defendant has not recommended asbestos containing products for any particular purpose. Customers specified the need for asbestos-containing material for certain applications requiring a heat resistant sealing product. GARLOCK has constantly been involved in supplementing and developing products to satisfy customer needs and meet specific application requirements of the customer. The non-asbestos products which most closely conformed to the properties of the asbestos-containing products were developed after 1970.

GARLOCK has made numerous changes in products over the years. Changes were made for many reasons, including cost

reduction, improved performance or because of the development of new materials. Introduction, distribution, improvement, modification and discontinuance of styles of all kinds has been a continuing process at GARLOCK. Over the years, GARLOCK has discontinued the manufacture and sale of numerous types of asbestos-containing products. Asbestos products were discontinued when new and better products became available. New products were put on the market after comprehensive design, development and testing was performed by GARLOCK's technical staff. The success of new products is dependent on customers acceptance of the product. Customers must determine if a new product meets its application requirements. Since 1970, many products have been developed by GARLOCK and been accepted by customers because these products have proven to be functionally equal or superior to the asbestos-containing products that previously were used for particular applications. However, there are certain applications for which there is no adequate replacement or substitute for asbestos-containing products. The dates asbestos-containing products were removed from GARLOCK's product line are shown on Exhibit B. GARLOCK also attaches Exhibit N, a chart which displays the "History of Gasketing." The non-asbestos substitutes for asbestos gasketing material and the years they became available are delineated in the chart.

Examples of non-asbestos gasket materials developed by Garlock for certain applications include Bluegard, Gylon, Guardian, HTC, Kevlar and Graphite.

GARLOCK developed potential substitutes and replacements for asbestos-containing packing material in the early 1980's. The new packing products include Synthepak, Carbon Packing, Kevlar, Thermosil and Fiberglass Packing. See catalogs previously produced to Baron & Budd in the Fulton County, Georgia asbestos litigation.

INTERROGATORY NO. 53:

Did your company or its predecessor(s) or subsidiaries ever recall any products containing asbestos from the market or stream of commerce? If so, state:

- (a) All details of such recall.

- (b) The name of the product recalled, including the reason for the recall and the names and current addresses of those individuals who determined that it should take place.
- (c) The dates of recall.
- (d) The purpose for the recall.

ANSWER: No.

INTERROGATORY NO. 54:

Before 1970, did you ever manufacture or sell products which did not contain asbestos and which could be substituted for your asbestos-containing products? If so, state the date such asbestos-free products were first placed on the market.

ANSWER: Yes. See Answer to Interrogatory No. 52.

INTERROGATORY NO. 55:

Have any products you identified in your response to Interrogatory Nos. 52 and 54 not performed as intended? Please list all such products that have not performed as intended.

ANSWER: Yes. All products occasionally display performance problems, and customers, have on occasion, reported that non-asbestos products developed since 1970, do not perform as well as the asbestos products designed for similar applications. The customer has the ultimate authority in choosing the particular product for a particular application and evaluating whether particular products perform as intended. For example, Bluegard manufactured with acrylic fibers did not perform well in steam applications and the accepted temperature range was downgraded to 350 degrees. GARLOCK asserts that all the products it manufactures and sells, asbestos and non-asbestos, perform their fluid sealing function in an efficient manner. They would not be marketed and sold if they did not have

the ability to perform the function for which they were designed. The customer chooses what product is appropriate for particular applications or operations. There are certain applications for which there are no adequate substitutes or replacements for asbestos-containing materials.

INTERROGATORY NO. 56:

Did your company or its predecessor(s) or subsidiaries ever make, order or arrange for any industrial hygiene surveys regarding asbestos or asbestos-containing dust? If so, give the date of such surveys and state who, or what entity, was responsible for completion of such surveys.

ANSWER: Yes. See GARLOCK' s Exhibit Binder which has been produced in its entirety to Baron & Budd. GARLOCK identifies the following studies by author and exhibit number.

<u>Author</u>	<u>Garlock Exhibit Number</u>
1. Nielsen	33 - 38
2. Mangold	18 - 31
3. McCrone	39 - 40
4. Boelter	99 - 108
5. Spencer	111 - 112

INTERROGATORY NO. 57:

As to either the threshold limit values or maximum allowable concentrations of both asbestos dust and total dust provided by the American Conference of Governmental Industrial Hygienists, state:

(a) The year in which Defendant or any predecessor(s) or subsidiaries

were first advised of such limits or concentrations.

- (b) The name of the employee or official of the company receiving such advice.
- (c) How Defendant received notice of such limits or concentrations.

ANSWER: (a) GARLOCK learned of the ACGIH Threshold Limit Value in 1947.

(b) George Houghton

(c) Hemeon Report, Industrial Hygiene Foundation--prepared for the Asbestos Textile Institute in June, 1947 (previously produced to Plaintiffs).

INTERROGATORY NO. 58:

Were the threshold limit values or maximum allowable concentrations inquired about in Interrogatory No. 57 for total dust, and not asbestos dust alone?

ANSWER: Yes.

INTERROGATORY NO. 59:

State in detail what tests, if any, Defendant ever made with regard to the quantity, quality or threshold limit values of asbestos dust or particles to which workers were exposed while using, working with or around, or installing your asbestos-containing products.

ANSWER: See Answer to Interrogatory No. 56.

INTERROGATORY NO. 60:

Please state the following with respect to each expert witness that you expect to call during trial of these cases. Please designate with specificity the expert witnesses you may call, including:

- (a) The name, address, and job classification of each such expert witness.
- (b) The subject matter on which the expert is expected to testify.
- (c) The substance of the facts and opinions to which the expert is expected to testify and a summary of the grounds for each opinion.
- (d) Whether any person identified in subparagraph (a) above has provided a report or other documentation to you, and if so, identify each such document or report.
- (e) Identify all documents that you have provided to each person identified in response to subparagraph (a) above.
- (f) Describe in detail the education and work history of, and identify any books, treatises, articles, published and unpublished reports, studies or other scholarly works authored by any individual identified in response to subparagraph (a) above. Alternatively, in lieu of said response, attach a copy of a resume or curriculum vitae and a list of publications to your answers.

ANSWER: GARLOCK's Expert Witness Disclosure is attached as Exhibit O.

INTERROGATORY NO. 61:

Please state the name, present address and present telephone number, along with the experience and qualifications, if applicable, of each and every person, known to Defendant or to Defendant's agents, having knowledge of facts relevant to this case

involving, but not limited to:

- (a) Identification of asbestos-containing products to which each and every individual Plaintiff, separate and distinct from all other Plaintiffs within the group, allegedly was exposed or facts disputing the identification of asbestos-containing products in this case.
- (b) Each and every individual Plaintiff, separate and distinct from all other Plaintiffs within the group, alleged damages, injuries and/or facts disputing each and every Plaintiff's alleged damages and/or injuries.
- (c) The negligence of any person or entity other than Defendant which Defendant contends was a cause of each and every individual Plaintiff, separate and distinct from all other Plaintiffs within the group, alleged injuries and/or damages.
- (d) Each of Defendant's defenses enumerated in Defendant's last filed Answer in each of these cases.

ANSWER: This Defendant has no record or knowledge of any such persons at this time, other than the Plaintiffs' themselves. Discovery is continuing and Defendant will supplement in accordance with the Texas Rules of Civil Procedure and court order.

INTERROGATORY NO. 62:

Please identify documents which will be used at time of trial (Exhibit List, Deposition List), which are relevant to each of Defendant's enumerated defenses in Defendant's last filed Answer.

ANSWER: GARLOCK's Exhibit List is attached as Exhibit E.

INTERROGATORY NO. 63:

When, if ever, did Defendant or any of its predecessors-in-interest first receive a copy of the article entitled "A Health Survey of Pipe Covering Operations in

Constructing Naval Vessels", published in January, 1946 in the Journal of Industrial Hygiene & Toxicology, and authored by W. Fleischer and P. Drinker, et al ("the Fleischer-Drinker Report")?

- (a) Identify the name and position of the employee or officer who received same.
- (b) Please produce all documents generated by Defendant which discusses or in any way references the "Fleischer-Drinker" study prior to 1968.
- (c) Please produce all documents upon which your responses above are based.
- (d) Please identify the name(s) and addresses(s) of any person(s) who can verify your above response.
- (e) Did Defendant ever rely on the Fleischer-Drinker Report in whole or in part as a basis that Defendant's asbestos products could be used in the workplace without risk of asbestos-related health impacts to the consumer and/or bystander.
- (f) If so, please produce every document which evidences in any way that Defendant relied on the Fleischer-Drinker Report in whole or in part for the proposition stated in Interrogatory No. 63(a) above.
- (g) If your answer to 63(e) is yes, when was the first date Defendant relied on the Fleischer-Drinker report in whole or in part for the proposition stated in 63(e) above?

ANSWER: GARLOCK has no record, knowledge or recollection of receiving a copy of the Fleischer-Drinker Report during the normal course of business at any time prior to the commencement of the asbestos litigation. GARLOCK did receive a copy of the Fleischer-Drinker report for the first time from its attorneys through the discovery process at the beginning of the asbestos litigation.

INTERROGATORY NO. 64:

When, if ever, did Defendant or any of its predecessors-in-interest first receive a copy of the article entitled "A Study of Asbestos in the Asbestos Textile Industry", published in 1938 in Public Health Bill No. 241, U.S. Public Health Service and authored by W. (c)[sic] Dreessen ("the Dreessen Report")?

- (a) Identify the name and position of the employee or officer who received same.
- (b) Please produce all documents generated by Defendant which discusses or in any way references the "Dreessen" study prior to 1968.
- (c) Please produce all documents upon which your responses above are based.
- (d) Please identify the name(s) and addresses(s) of any person(s) who can verify your above response.
- (e) Did Defendant ever rely on the Dreessen Report in whole or in part as a basis that Defendant's asbestos products could be used in the workplace without risk of asbestos-related health impacts to the consumer and/or bystander.
- (f) If so, please produce every document which evidences in any way that Defendant relied on the Dreessen Report in whole or in part for the proposition stated in Interrogatory No. 64(a) above.
- (g) If your answer to 64(e) is yes, when was the first date Defendant relied on the Dreessen report in whole or in part for the proposition stated in 64(e) above?

ANSWER: GARLOCK has no record, knowledge or recollection of receiving a copy of the Dreessen report during the normal course of business at any time prior to the commencement of the asbestos litigation. GARLOCK did receive a copy of the Dreessen report through the discovery process in the asbestos litigation.

INTERROGATORY NO. 65:

Please identify documents or things, including x-rays, MRIs, CT-scans or other materials which will be used at time of trial (Exhibit List, Deposition List), which are relevant to each of Defendant's enumerated defenses in Defendant's last filed Answer.

ANSWER: Not applicable.

REQUEST FOR. PRODUCTION TO DEFENDANT

REQUEST FOR PRODUCTION NO. 1:

Please produce a true and correct copy of each photograph of each asbestos-containing product identified in answer to Interrogatory No. 4.

RESPONSE:

GARLOCK objects to this Request on the grounds that it is overly broad, unduly burdensome, not reasonably calculated to lead to the discovery of admissible evidence, and for the further reason that the only GARLOCK products at issue in this case are those to which plaintiffs allege to have been exposed. Notwithstanding and without waiving the foregoing objections, GARLOCK states that over the years it has prepared hundreds of writings, instruction sheets, brochures and the like regarding its products. The majority of said writings have long since been discarded. All existing photographs are available for inspection and copying at plaintiff's expense at GARLOCK INC, 1666 Division Street, Palmyra, New York 14522.

REQUEST FOR PRODUCTION NO. 2:

Please produce any diagrams or schematics indicating, stating or detailing the existence of any of your subsidiaries, predecessors or divisions as defined on Page 1 of these Interrogatories and Request for Production.

RESPONSE:

Defendant has not been able to locate any documents responsive to this request. To the extent such documents exist, they are available for inspection and copying at Plaintiff's expense at GARLOCK INC, 1666 Division Street, Palmyra, New York 14522.

REQUEST FOR PRODUCTION NO. 3:

Please provide a copy of all documents and other materials and reports identified in Answer to Interrogatory No. 60(d), other than Depositions and Medical History provided by Plaintiff.

RESPONSE:

At this time, no case specific reports have been prepared. Any reports prepared by testifying experts will be produced in accordance with the Texas Rules of Civil Procedure or court order.

REQUEST FOR PRODUCTION NO. 4:

Please provide a copy of all documents and reports other than Deposition and Medical History provided by Plaintiff identified in Answer to Interrogatory No. 60(e).

RESPONSE:

At this time, GARLOCK has not provided any case specific documents to its experts. Any documents provided to an expert will be available for inspection and copying at a mutually convenient time.

REQUEST FOR PRODUCTION NO. 5:

Please provide a copy of all documents, reports, and other materials identified in Answer to Interrogatory No. 62.

RESPONSE:

Defendant objects to this request as overly broad, unduly burdensome and seeking documents outside the scope of discovery. Exhibit lists and expert designations will be produced in accordance with The Texas Rules of Civil Procedure or the applicable court order.

REQUEST FOR PRODUCTION NO. 6:

Please produce any and all x-rays, MRIs, CT-scans, videotapes or other electronically or technologically created representations, depictions, picturizations, imaging or imagery collected by Defendant in the course of discovery.

RESPONSE:

Defendant objects to this request as seeking information protected by the work product privilege and as being overly broad, vague and unduly burdensome. Furthermore, any of plaintiffs' medical information in Defendant's possession was either provided by plaintiffs or obtained by deposition on written questions. Defendant objects to producing documents plaintiffs have equal or better access to.

REQUEST FOR PRODUCTION NO. 7:

All documents which support, contradict or are otherwise relevant to Plaintiffs' claims of exposure to Defendant's products at any worksite identified in Plaintiffs' response to discovery.

RESPONSE:

Defendant objects as overly broad, unduly burdensome and as seeking documents outside the scope of discovery. Defendant further objects to being required to make a "relevancy" determination. Defendant also objects to the extent this request seeks documents protected by the work-product, attorney/client or any other confidentiality privilege.

James E. Heffron**Educational
Experience:**

1999

Roberts Wesleyan College, Rochester, N.Y.
Bachelor of Science Degree in Organizational Management

1971

Finger Lakes Community College, Canandaigua, N.Y.
Applied Science Degree in Business Administration

1969 - 1970

SUNY, Genesee, N.Y.
Course work towards a Bachelor of Science Degree in Liberal Arts**Professional
Experience:**

8/99 - present

Garlock Sealing Technologies, Palmyra, N.Y.
Director of Training
Responsible for providing coordination and facilitation for the implementation of programs designed to improve plant-wide efficiencies and effectiveness. Examples are Six Sigma and Lean Manufacturing concepts.

10/97 - 8/99

Vice President & General Manager, Hydraulic Components
Responsible for meeting and exceeding stakeholder needs, domestically and internationally, internally and externally. Responsible for product management, development, engineering, and manufacturing.

2/96 - 10/97

Vice President, Quality
Responsibility for Quality, Training, and Employee Involvement departments

8/90 - 2/96

Vice President & General Manager, Compression Packing
Responsible for product sales and marketing, process and product engineering, production and inventory control.

1/89 - 8/90

General Manager, Industrial Products
Responsible for product sales and marketing, process and product engineering, production and inventory control.

10/87 - 1/89

Operations Manager, Hydraulic Components
Responsibility for engineering, manufacturing, and production control.

1/86 - 10/87

Director, OEM Sales
Responsible for management of all product-line for sales to the Original Equipment Market (OEM). Duties included setting sales goals, expense budgets, contracts, assigning sales territories, calling on customers and hiring and firing employees and manufacturers representatives.

8/82 - 10/87

Sales & Marketing Manager, Hydraulic Components
Responsible for coordinating the development and introduction of new products, literature, pricing policies and sales strategies.

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EXHIBIT

A

EXHIBIT

Heffron 9
mw 9/10/99

4/81 - 8/82

Southwest Regional Manager

Responsible for the management of a company sales force and a network of distributors. Established sales goals, target accounts, managed distributor network, provided input as to market conditions and needs.

9/79 - 4/81

Marketing Manager, Compression Packing

Responsible for the coordination and introduction of new products, developed literature, established pricing policies and sales strategies.

10/76 - 9/79

MRO Salesman, Eastern Region

Provided account coverage on maintenance products in support of distributors. Introduced new products, made sales calls and trained distributor personnel. Provided feedback to factory on product performance, competitive situations, market conditions and sales and product projections.

8/75 - 10/76

OEM Sales Correspondent, Compression Packing

Duties included handling inquiries, entering and expediting orders and providing technical support to equipment manufacturers.

Metropolitan Life Insurance

10/74 - 8/75

Insurance Salesman

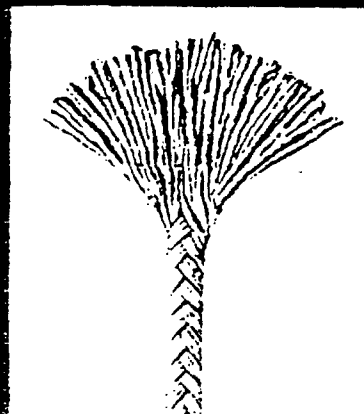
Responsible for providing sales coverage and customer support for life and health insurance in self-developed sales territory.

Garlock Packing

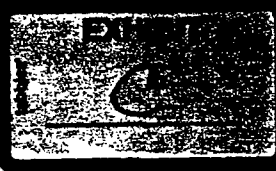
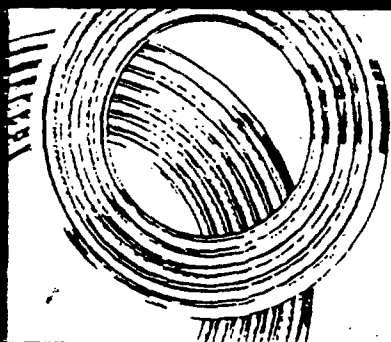
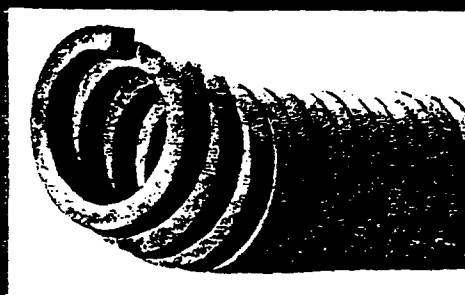
1/72 - 10/74

MRO Sales Correspondent

Provided customer service on maintenance and repair products sold to distributors. Duties included handling inquiries, entering and expediting orders and providing technical support. Responsible for all product-lines.



Anchor Packing



THE ANCHOR PACKING COMPANY

GENERAL OFFICES

401 North Broad Street, Philadelphia, Pennsylvania 19108

FACTORIES

Manheim, Pennsylvania • Elkhart, Indiana • Montreal, Canada • Toronto, Canada

DISTRICT OFFICES

Baltimore (Towson), Maryland
Boston, Massachusetts
Buffalo, New York
Chicago (Elk Grove Village), Illinois
Cincinnati, Ohio
Cleveland, Ohio
Columbus, Ohio
Dayton, Ohio
Detroit (Warren), Michigan
Houston, Texas
Indianapolis, Indiana
Los Angeles (Carson), California

Milwaukee, Wisconsin
Minneapolis, Minnesota
Montreal, Canada
New Orleans (Metairie), Louisiana
New York, New York
Philadelphia, Pennsylvania
Pittsburgh, Pennsylvania
San Francisco, California
Seattle, Washington
St. Louis, Missouri
Toledo, Ohio
Toronto, Canada



Fibrous and Metallic Packings for Every Industrial Purpose

Warranty

Anchor products are guaranteed to be free from defects in workmanship and material and to render satisfactory service when used for purposes for which they are designed. We will replace without charge, including transportation costs but not including installation or other charges, any Anchor product which our investigation shows to be defective. This shall be our maximum liability for any claims for breach of warranty, express or implied, or claims for defects in workmanship and/or material.



Lyndon E. Adams,
Founder

Anchor Packings for Every Industrial Requirement

When The Anchor Packing Company was established in 1908, the aim was to provide on an all-inclusive basis, an unmatched service in meeting all the packing requirements for every industrial service. This aim has been met to the satisfaction of the largest packing users in American industry, many of whom rely upon Anchor exclusively for their needs.

Through constant research and engineering, Anchor has not only kept abreast of, but has anticipated technological advances which have created conditions requiring new, more efficient packing formulations and constructions.

There is an Anchor product especially made for efficient sealing against steam, water, gas, oil, solvents and chemicals. From vacuum to the highest pressures, from cryogenic to the highest temperature, Anchor can meet the service conditions.

This catalog is a condensation of the most essential information for hundreds of different packings, each of which has features that make it most desirable for a particular service condition. There is a tabulation of Service Recommendations which will be helpful in selecting an Anchor packing for most purposes.

Should you have unusual requirements, Anchor will gladly work with you in meeting those needs most efficiently and with economy. All Anchor sales are direct to the user and every Anchor man is a packing specialist, qualified to recommend the most efficient solution to any packing problem.

Listed on Page 1 are the Anchor sales offices. Communicate with the one nearest you, or write the general offices. Your inquiry will be expedited.

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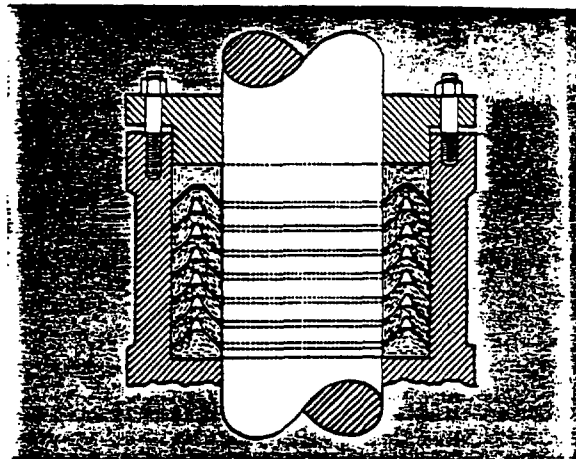
Contents

Ankorflex for Efficient and Enduring Seals

Regardless of the hydraulic or pneumatic apparatus requirement, there is an ANKORFLEX Packing Ring Set, especially engineered for a positive seal against steam, water, oils, solvents, chemicals, all types of hydraulic fluids, air and other gases—at any temperatures, any pressures.

Each of the ten types of formulations and constructions in which ANKORFLEX is regularly furnished to meet your specific service needs, has identical features.

1. Efficiency in either deep or shallow stuffing boxes.
2. A range of sizes for small rods and stems, 1" and under, to large rams, 30" and over.
3. Self-adjusting to varying pressures.
4. Sensitivity to the slightest finger gland adjustment.
5. Precision molded to dimensional accuracy.
6. Minimum frictional drag on rod or ram for lower power consumption.



Mechanical Superiority

Special lip construction, so sensitive to gland pressure, assures a perfect seal. Pressure developed in the equipment and introduced against the packing also governs the outward expansion of the lips—greater pressures increase the sealing action by increasing the tension of the lips against the moving part and the stuffing box wall.

Openings between the rings and around the circumference not only make ANKORFLEX more sensitive to quick pressure changes, but provide a reservoir for liquids being sealed against to cut down friction loss. These openings also assure against abrasion of wearing surface, since foreign matter in the system lodges in the openings.

Select the Ankorflex Type for Your Specific Requirements

TYPE	CONSTRUCTION	APPLICATION
915-ON	Duck and Neoprene	For low temperature oil and solvents. Meets specification MIL-P-2911
915-AN	Asbestos and rubber	For high temperature oils and solvents
915-OR	Duck and rubber	For low temperature water
915-AR	Asbestos and rubber	For high temperature steam
915-OF-9	Duck and butyl	For non-inflammable hydraulic fluids. Meets specification MIL-P-21099
915-DBN	Duck and Buna N	For non-inflammable hydraulic fluids, water-base
915-ABN	Asbestos and Buna N	For non-inflammable hydraulic fluids, water-base, higher temperatures
1110-TA	Anklon® and asbestos	For high temperature air, gases, chemicals, solvents, new type hydraulic fluids
1135-T	Anklon® machined and molded	Conforms to AN-6225 sizes and dimensions. For all fluids and gases—temperatures to 450°F.
1136-T	Anklon® machined and molded	For all fluids and gases—temperatures to 450°F.

Manufactured from the Best of Teflon

NOTE: ALL SPIRAL CUT RINGS ARE OF Ring Dam construction (Style 915) for service against water, steam, oil and other petroleum products.

Ankorflex Installation is Simple

Ankorflex Packing Ring Sets are used for efficient seal against all liquid pressures, air pressures and vacuums, in all stuffing boxes, shallow or deep.* The installation of pressure differs from that for vacuum as illustrated in Figs. 1 and 2.

Each Ankorflex set has a male and female adapter ring, and as many sealing rings as necessary for the equipment. The overall depth of the assembled set must be equal to the space in the stuffing box with the gland fully tightened (see A in the diagram). This depth should be fixed—not changeable by gland adjustment. Therefore the flange of the gland must be hard against the cylinder face or spacing shims if they are needed to obtain that condition when the gland is drawn up fully.

NOTE: Illustration shows method of determining the number of rings required for a flat installation. An allowance of 1/8" is made for each adapter ring, both top and bottom. However when the stuffing box is bevelled, adapter rings must be specially molded to fit the installation and a sketch of the stuffing box is required showing all measurements, including the degree of the angle of the bevel.

Before installing Ankorflex, make certain the stuffing box is free from corrosion or pitting.

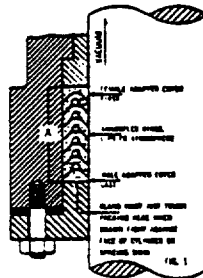
All rings must be in true alignment, which is assured by using a packing tool or stick which will prevent twisting and facilitate keeping the sealing lips parallel to the ram and stuffing box wall.

When inserting do not start from the center of the cut rings—enter one end of the ring and work it around to the other end, being sure that the bevel or butt joints are closed.

Be sure the joints of the several rings are staggered for minimum leakage and maximum tightness.

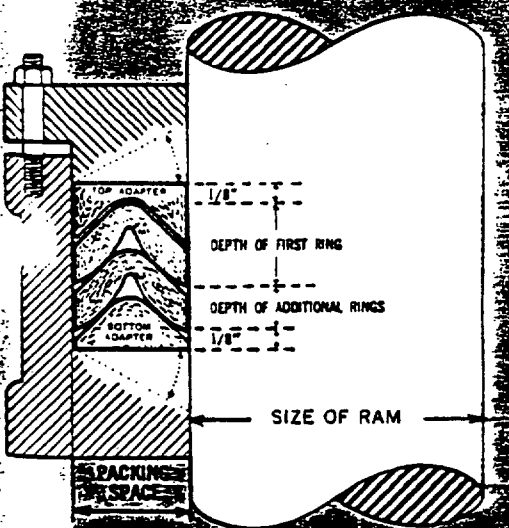
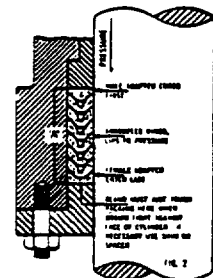
For Vacuum

Note in Figure 1 that the female adapter ring must be inserted first, followed by the pressure sealing rings with their lips away from the direction of the vacuum; the male adapter ring is inserted last.



For Pressure

Note in Figure 2 that the male adapter ring is inserted first, followed by the pressure sealing rings with their lips facing the pressure; the female adapter ring is inserted last.



Standard Packing Sizes

PACKING SPACE	Depth of First Ring	Depth of Each Additional	PACKING SPACE	Depth of First Ring	Depth of Each Additional
1/4"	.217"	.119"	15/16"	.812"	.446"
5/16"	.274"	.149"	1"	.866"	.475"
3/8"	.325"	.178"	1-1/16"	.920"	.505"
7/16"	.376"	.206"	1-1/8"	.974"	.534"
1/2"	.433"	.237"	1-3/16"	1.028"	.564"
9/16"	.488"	.268"	1-1/4"	1.083"	.594"
5/8"	.541"	.297"	1-5/16"	1.137"	.624"
11/16"	.596"	.327"	1-3/8"	1.191"	.653"
3/4"	.649"	.356"	1-7/16"	1.242"	.681"
13/16"	.703"	.385"	1-1/2"	1.299"	.712"
7/8"	.758"	.416"			

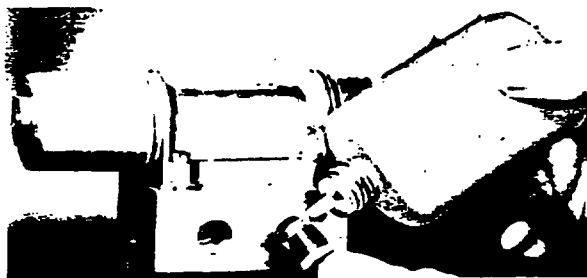
* For heavy duty service in deep stuffing boxes only, Ankorflex Adapter Rings inserted V-seals are recommended. For versatile use, Ankorflex M/F sets combined with polytetrafluoroethylene (PTFE) rings are available. Brochures are available describing both products.

Schedule of Recommended Sizes

Ankorflex packing ring sets are supplied for small rods and stems of 1" and under to large rams of 48" and over, and for pressures to 6000 pounds. The table contains recommended packing sizes for given ram sizes and pressures.

SIZE OF RAM	Up to 1000 lbs.			1000—2000 lbs.			2000—3000 lbs.			3000—4000 lbs.			4000—4500 lbs.			4500—5000 lbs.			5000—6000 lbs.		
	Pkg. Size	Package Depth	Stuffing Box Depth	Pkg. Size	Package Depth	Stuffing Box Depth	Pkg. Size	Package Depth	Stuffing Box Depth	Pkg. Size	Package Depth	Stuffing Box Depth	Pkg. Size	Package Depth	Stuffing Box Depth	Pkg. Size	Package Depth	Stuffing Box Depth	Pkg. Size	Package Depth	Stuffing Box Depth
1	3/8	1-1/4	1-7/16	3/8	1-15/32	1-21/32	3/8	1-11/16	1-7/8	1/2	2-3/32	2-11/32	1/2	2-3/32	2-11/32	1/2	2-3/32	2-11/32	1/2	2-23/64	2-39/64
2	3/8	1-1/4	1-7/16	3/8	1-15/32	1-21/32	3/8	1-11/16	1-7/8	1/2	2-3/32	2-11/32	1/2	2-3/32	2-11/32	1/2	2-3/32	2-11/32	1/2	2-23/64	2-39/64
3	3/8	1-1/4	1-7/16	3/8	1-15/32	1-21/32	3/8	1-11/16	1-7/8	1/2	2-3/32	2-11/32	1/2	2-3/32	2-11/32	1/2	2-3/32	2-11/32	1/2	2-23/64	2-39/64
4	1/2	1-9/16	1-13/16	1/2	1-53/64	2-5/64	1/2	2-3/32	2-11/32	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4	5/8	2-3/4	3-1/16
5	1/2	1-9/16	1-13/16	1/2	1-53/64	2-5/64	1/2	2-3/32	2-11/32	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4	5/8	2-3/4	3-1/16
6	1/2	1-9/16	1-13/16	1/2	1-53/64	2-5/64	1/2	2-3/32	2-11/32	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4	5/8	2-3/4	3-1/16
7	1/2	1-9/16	1-13/16	1/2	1-53/64	2-5/64	1/2	2-3/32	2-11/32	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4	5/8	2-3/4	3-1/16
8	1/2	1-9/16	1-13/16	1/2	1-53/64	2-5/64	1/2	2-3/32	2-11/32	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4	5/8	2-3/4	3-1/16
9	5/8	1-13/16	2-1/8	5/8	2-1/8	2-7/16	5/8	2-7/16	2-3/4	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
10	5/8	1-13/16	2-1/8	5/8	2-1/8	2-7/16	5/8	2-7/16	2-3/4	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
11	5/8	1-13/16	2-1/8	5/8	2-1/8	2-7/16	5/8	2-7/16	2-3/4	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
12	5/8	1-13/16	2-1/8	5/8	2-1/8	2-7/16	5/8	2-7/16	2-3/4	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
13	5/8	1-13/16	2-1/8	5/8	2-1/8	2-7/16	5/8	2-7/16	2-3/4	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
14	5/8	1-13/16	2-1/8	5/8	2-1/8	2-7/16	5/8	2-7/16	2-3/4	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
15	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
16	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
17	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
18	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
19	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
20	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
21	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
22	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
23	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
24	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	3-5/16	3-11/16
25	7/8	2-9/16	2-15/16	7/8	3	3-3/8	7/8	3-7/16	3-13/16	7/8	3-7/16	3-13/16	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4
26	7/8	2-9/16	2-15/16	7/8	3	3-3/8	7/8	3-7/16	3-13/16	7/8	3-7/16	3-13/16	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4
27	7/8	2-9/16	2-15/16	7/8	3	3-3/8	7/8	3-7/16	3-13/16	7/8	3-7/16	3-13/16	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4
28	7/8	2-9/16	2-15/16	7/8	3	3-3/8	7/8	3-7/16	3-13/16	7/8	3-7/16	3-13/16	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4
29	7/8	2-9/16	2-15/16	7/8	3	3-3/8	7/8	3-7/16	3-13/16	7/8	3-7/16	3-13/16	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4
30	7/8	2-9/16	2-15/16	7/8	3	3-3/8	7/8	3-7/16	3-13/16	7/8	3-7/16	3-13/16	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4

This is a listing of mold sizes now available. New sizes are being added regularly and molds will be manufactured for your special packing requirements.



Ankorite Hydraulic Sealant

Never a leaky thread in pipe, valves or fittings when you use this remarkable resin sealant. Hardens in an hour to make a non-corroding, non-fouling, pressure, shock and vibration proof seal at temperatures to 300°F.

Valves, gauges and fittings can be lock-sealed at any angle without over tightening. Sealing depends on hardening action of the sealant—not on wrenching. Joint can be disassembled at any time with regular tools.

2 oz. squeeze bottle with applicator nozzle.

Amflex Heavy Duty Packing Ring Sets for Deep Stuffing Boxes

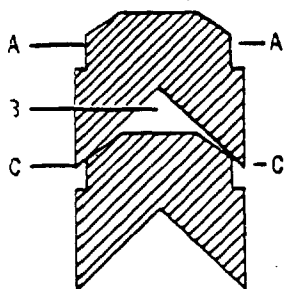
Amflex is a self-acting, heavy duty V-type ring for hydraulic rods and plungers operating at high or low pres-

sures; and involving oils, solvents, water, steam, or non-inflammable hydraulic fluids.

Unique Design Assures Perfect Seal with Economy

See the heavy, broad body cross-section—while sturdy for the heaviest duty, the construction permits the re-

tention of maximum flexibility in operation and gland adjustment, so necessary in a stacked ring packing.



Note these Important Features:

A—Recessed wall reduces drag or wear on moving parts and results in lower power consumption.

B—Annular spaces function as reservoirs for liquid being packed against and results in non-compressibility that forces lips (C) against plunger or rod for a tight seal. The reservoir of liquid also causes a film between rings which lubricates the moving part and permits each ring to operate independently.

Amflex is not recommended for Shallow Stuffing Boxes

Under such conditions ask for Anchor brochures describing ANKORFLEX fabric inserted V-Sets or sets of M.A.T. (molybdenum disulphide-urethane). Both of these products may be used in shallow or deep stuffing boxes.

TYPES	MATERIALS	APPLICATION
900-DN	Duck and Neoprene	For low temperature oils and solvents
900-AN	Asbestos and Neoprene	For high temperature oils and solvents
900-DR	Duck and Rubber	For low temperature water
900-AR	Asbestos and Rubber	For high temperature steam
900-DF-9	Duck and Butyl	For non-inflammable hydraulic fluids
900-DBN	Duck and Buna N	For non-inflammable hydraulic fluids, water base
900-ABN	Asbestos and Buna N	For non-inflammable hydraulic fluids, water base, higher temperatures

NOTE: For pressures over 2000 pounds, we recommend that sets be ordered with rock-hard top and bottom adapters.

Standard Packing Sizes*

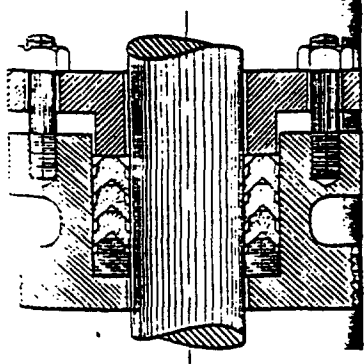
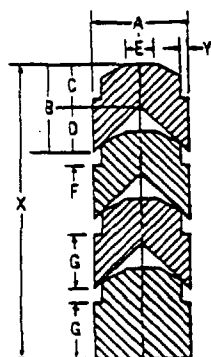
A	B	C	D	E	F	G	H	I
3/8	3/8	3/16	3/16	9/64	1/32	15/64	1-1/8	3/64
7/16	7/16	7/32	7/32	11/64	.053	.27	1-3/8	3/64
1/2	1/2	1/4	1/4	3/8	1/16	5/16	1-5/8	3/64
9/16	9/16	9/32	9/32	7/32	.088	.35	1-7/8	1/16
5/8	5/8	5/16	5/16	15/64	7/64	25/64	2-1/8	1/16
11/16	11/16	11/32	11/32	9/32	.070	.43	2-3/16	1/16
3/4	3/4	3/8	3/8	9/32	5/32	15/32	2-7/16	1/16
13/16	13/16	13/32	13/32	5/16	.115	.51	2-13/16	3/32
7/8	7/8	7/16	7/16	5/16	5/64	35/64	2-3/4	3/32
15/16	15/16	15/16	15/16	11/32	.098	.59	3	3/32
1	1	1/2	1/2	3/8	1/8	5/8	3-1/4	3/32

* Larger cross-section rings may be had on request.

Amflex is easy to install

- 1—Remove old packing and thoroughly clean stuffing box.
- 2—Insert Amflex rings—adapter ring first. Stagger joints of the following rings for maximum sealing efficiency.
- 3—IMPORTANT. Paint each ring on the inside with a heavy oil to safeguard against dry or nearly dry rods or plungers. This may also apply to water works plungers.
- 4—Carefully apply gland pressure—only to finger-tightness.
- 5—Run machine, allowing gland to leak a little to permit packing to swell and fit itself to the moving part and the stuffing box.

Recommendations



ings when you
is in an hour
ssure, shock
o 300°F.

sealed at any
ends on hard-
nching. Joint
ular tools.

e.

SCHEDULE OF RECOMMENDED SIZES

For Fabric Inserted Amflex Packing Sets

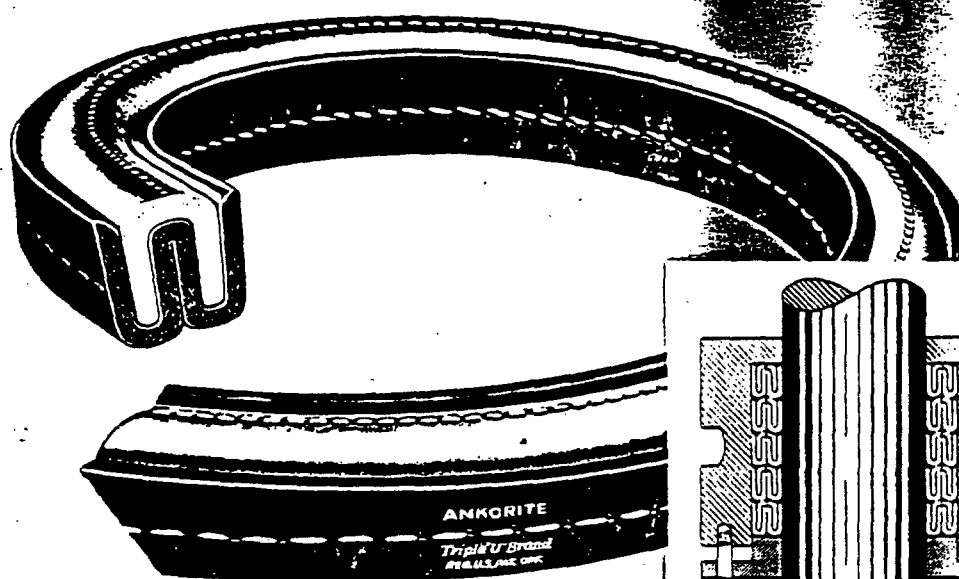
DIA. OF RAM	UP TO 1000 lbs.			1000-2000 lbs.			2000-3000 lbs.			3000-4000 lbs.			4000-4500 lbs.		
	PKG. SIZE	PKG. DEPTH	STUFF. BOX DEPTH	PKG. SIZE	PKG. DEPTH	STUFF. BOX DEPTH	PKG. SIZE	PKG. DEPTH	STUFF. BOX DEPTH	PKG. SIZE	PKG. DEPTH	STUFF. BOX DEPTH	PKG. SIZE	PKG. DEPTH	STUFF. BOX DEPTH
1"	3/8	1-1/4	1-7/16	3/8	1-15/32	1-21/32	3/8	1-11/16	1-7/8	1/2	2-3/32	2-11/32	1/2	2-3/32	2-11/32
2"	3/8	1-1/4	1-7/16	3/8	1-15/32	1-21/32	3/8	1-11/16	1-7/8	1/2	2-3/32	2-11/32	1/2	2-3/32	2-11/32
3"	3/8	1-1/4	1-7/16	3/8	1-15/32	1-21/32	3/8	1-11/16	1-7/8	1/2	2-3/32	2-11/32	1/2	2-3/32	2-11/32
4"	1/2	1-9/16	1-13/16	1/2	1-53/64	2-5/64	1/2	2-3/32	2-11/32	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4
5"	1/2	1-9/16	1-13/16	1/2	1-53/64	2-5/64	1/2	2-3/32	2-11/32	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4
6"	1/2	1-9/16	1-13/16	1/2	1-53/64	2-5/64	1/2	2-3/32	2-11/32	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4
7"	1/2	1-9/16	1-13/16	1/2	1-53/64	2-5/64	1/2	2-3/32	2-11/32	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4
8"	1/2	1-9/16	1-13/16	1/2	1-53/64	2-5/64	1/2	2-3/32	2-11/32	5/8	2-7/16	2-3/4	5/8	2-7/16	2-3/4
9"	5/8	1-13/16	2-1/8	5/8	2-1/8	2-7/16	5/8	2-7/16	2-3/4	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
10"	5/8	1-13/16	2-1/8	5/8	2-1/8	2-7/16	5/8	2-7/16	2-3/4	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
11"	5/8	1-13/16	2-1/8	5/8	2-1/8	2-7/16	5/8	2-7/16	2-3/4	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
12"	5/8	1-13/16	2-1/8	5/8	2-1/8	2-7/16	5/8	2-7/16	2-3/4	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
13"	5/8	1-13/16	2-1/8	5/8	2-1/8	2-7/16	5/8	2-7/16	2-3/4	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
14"	5/8	1-13/16	2-1/8	5/8	2-1/8	2-7/16	5/8	2-7/16	2-3/4	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
15"	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
16"	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
17"	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
18"	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
19"	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
20"	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
21"	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
22"	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
23"	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
24"	3/4	2-3/16	2-9/16	3/4	2-9/16	2-15/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16	3/4	2-15/16	3-5/16
25"	7/8	2-9/16	2-15/16	7/8	3	3-3/8	7/8	3-7/16	3-13/16	7/8	3-7/16	3-13/16	7/8	3-7/8	4-1/4
26"	7/8	2-9/16	2-15/16	7/8	3	3-3/8	7/8	3-7/16	3-13/16	7/8	3-7/16	3-13/16	7/8	3-7/8	4-1/4
27"	7/8	2-9/16	2-15/16	7/8	3	3-3/8	7/8	3-7/16	3-13/16	7/8	3-7/16	3-13/16	7/8	3-7/8	4-1/4
28"	7/8	2-9/16	2-15/16	7/8	3	3-3/8	7/8	3-7/16	3-13/16	7/8	3-7/16	3-13/16	7/8	3-7/8	4-1/4
29"	7/8	2-9/16	2-15/16	7/8	3	3-3/8	7/8	3-7/16	3-13/16	7/8	3-7/16	3-13/16	7/8	3-7/8	4-1/4
30"	7/8	2-9/16	2-15/16	7/8	3	3-3/8	7/8	3-7/16	3-13/16	7/8	3-7/16	3-13/16	7/8	3-7/8	4-1/4
DIA. OF RAM	4500-5000 lbs.			5000-6000 lbs.			6000-8000 lbs.			8000-10,000 lbs.			10,000-12,000 lbs.		
	PKG. SIZE	PKG. DEPTH	STUFF. BOX DEPTH	PKG. SIZE	PKG. DEPTH	STUFF. BOX DEPTH	PKG. SIZE	PKG. DEPTH	STUFF. BOX DEPTH	PKG. SIZE	PKG. DEPTH	STUFF. BOX DEPTH	PKG. SIZE	PKG. DEPTH	STUFF. BOX DEPTH
1"	1/2	2-3/32	2-11/32	1/2	2-23/64	2-39/64	1/2	2-1/2	2-3/4	5/8	2-7/8	3-1/4	3/4	3-3/4	4-1/4
2"	1/2	2-3/32	2-11/32	1/2	2-23/64	2-39/64	1/2	2-1/2	2-3/4	5/8	2-7/8	3-1/4	3/4	3-3/4	4-1/4
3"	1/2	2-3/32	2-11/32	1/2	2-23/64	2-39/64	1/2	2-1/2	2-3/4	5/8	2-7/8	3-1/4	3/4	3-3/4	4-1/4
4"	5/8	2-7/16	2-3/4	5/8	2-3/4	3-1/16	5/8	2-7/8	3-1/4	3/4	3-1/2	4	7/8	4-1/2	5
5"	5/8	2-7/16	2-3/4	5/8	2-3/4	3-1/16	5/8	2-7/8	3-1/4	3/4	3-1/2	4	7/8	4-1/2	5
6"	5/8	2-7/16	2-3/4	5/8	2-3/4	3-1/16	5/8	2-7/8	3-1/4	3/4	3-1/2	4	7/8	4-1/2	5
7"	5/8	2-7/16	2-3/4	5/8	2-3/4	3-1/16	5/8	2-7/8	3-1/4	3/4	3-1/2	4	7/8	4-1/2	5
8"	5/8	2-7/16	2-3/4	5/8	2-3/4	3-1/16	5/8	2-7/8	3-1/4	3/4	3-1/2	4	7/8	4-1/2	5
9"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	3/4	3-1/2	4	7/8	4-1/2	5
10"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	3/4	3-1/2	4	7/8	4-1/2	5
11"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	3/4	3-1/2	4	7/8	4-1/2	5
12"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	3/4	3-1/2	4	7/8	4-1/2	5
13"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	3/4	3-1/2	4	7/8	4-1/2	5
14"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	3/4	3-1/2	4	7/8	4-1/2	5
15"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	3/4	3-1/2	4	7/8	4-1/2	5
16"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	7/8	4-1/4	5-1/8	1-1/8	5	5-1/2
17"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	7/8	4-1/4	5-1/8	1-1/8	5	5-1/2
18"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	7/8	4-1/4	5-1/8	1-1/8	5	5-1/2
19"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	7/8	4-1/4	5-1/8	1-1/8	5	5-1/2
20"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	7/8	4-1/4	5-1/8	1-1/8	5	5-1/2
21"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	7/8	4-1/4	5-1/8	1-1/8	5	5-1/2
22"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	7/8	4-1/4	5-1/8	1-1/8	5	5-1/2
23"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	7/8	4-1/4	5-1/8	1-1/8	5	5-1/2
24"	3/4	3-5/16	3-11/16	3/4	3-5/16	3-11/16	3/4	3-1/2	3-7/8	7/8	4-1/4	5-1/8	1-1/8	5	5-1/2
25"	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4	7/8	4-1/4	4-3/4	7/8	4-1/4	5-5/8	1-1/8	5	5-1/2
26"	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4	7/8	4-1/4	4-3/4	7/8	4-1/4	5-5/8	1-1/8	5	5-1/2
27"	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4	7/8	4-1/4	4-3/4	7/8	4-1/4	5-5/8	1-1/8	5	5-1/2
28"	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4	7/8	4-1/4	4-3/4	7/8	4-1/4	5-5/8	1-1/8	5	5-1/2
29"	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4	7/8	4-1/4	4-3/4	7/8	4-1/4	5-5/8	1-1/8	5	5-1/2
30"	7/8	3-7/8	4-1/4	7/8	3-7/8	4-1/4	7/8	4-1/4	4-3/4	7/8	4-1/4	5-5/8	1-1/8	5	5-1/2

Ankorite Chrome Leather Packing

for Oil, air, water, gases—temperatures to 150° F.

Triple "U"

in coil form, continuous lengths. For deeper stuffing boxes.



TRIPLE "U": Unique patented construction employs a wide strip of leather reinforced with a center piece, which are molded and folded together, with the sides forming parallel flanges or shoulders, which under fluid pressure completely seal the space between the ram or plunger and the stuffing box wall.

Properties: Cannot score rams or plungers. Unlike hemp, cotton and fabrics, it does not shred to become trapped in critical points to cause loss of fluids and power. Resists reactions of acids and alkalis in weak solution; is not harmed by soaps and fats. Lip action

and recovery is comparable to other lip type packings.

Versatility: Whether for a single ring, or multiple turns in deep gland boxes of high pressure hydraulic machinery, it is an excellent alternative for V-sets of other constructions, the coil form providing for all ram diameters. No need for large stocks of textile and fibrous V-sets—a few coils of Triple "U" meet most emergencies—simply cut to length and skive the joints.

Sizes: From 3/8" to 1" in increments of 1/16". Also 1-1/8" and 1-1/4".

Molded Leather Shapes — Flanges, Cups, "U", "V".

Also washers, gaskets, discs, back-up washers.

Available to your specifications. 1—Supply sketches showing all dimensions. 2—Specify liquids or gases to be sealed. 3—Maximum and minimum pressures at which seal will operate. 4—Type of motion (reciprocating

or rotary). 5—Rate of motion (strokes or r.p.m.) This information will enable us to furnish the type of leather and treatment for maximum efficiency for your operation. Note: Temperature should not exceed 150° F.

STUFF.
BOX
DEPTH

2-11/32
2-11/32
2-11/32
2-3/4
2-3/4

2-3/4
2-3/4
2-3/4
3-5/16
3-5/16

3-5/16
3-5/16
3-5/16
3-5/16
3-5/16

6 3-5/16
6 3-5/16
6 3-5/16
6 3-5/16
6 3-5/16

6 3-5/16
6 3-5/16
16 3-5/16
16 3-5/16
4-1/4

4-1/4
4-1/4
4-1/4
4-1/4
4-1/4

100 lbs.

STUFF.
BOX
DEPTH

1/4 4-1/4
1/4 4-1/4
1/4 4-1/4
1/2 5
1/2 5

1/2 5
1/2 5
1/2 5
1/2 5
1/2 5

5-1/2
5-1/2
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1-1/2 6
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1-1/2 6
1-1/2 6

nents.

ANCHOR MOL-ANKO-THANE M.A.T. MOLDED PACKINGS

Molybdenum Disulphide Urethane (Elastomer)

M.A.T. has every attribute essential for an efficient, long-life seal in most air and hydraulic installations.

Self-lubricating

The Molybdenum Disulphide content provides permanent lubrication. Stick surface reduces friction to the absolute minimum.

Rugged

The Urethane elastomer imparts extra toughness and strength to resist abrasion.

Elastic and Resilient

Excellent elongation, high compressive and tensile strength, assure instant regain to dimension with no cracks or breaks under shock loads. Therefore, M.A.T. may be used with assurance of stability for a wide range of pressures and temperatures.

M.A.T. Molded V-Rings and Sets*



M.A.T. V-Rings are available in any size—for small rods and stems; for the largest rams. Efficient for deep or shallow stuffing boxes.

The height of the pressure ring edge which contacts the cylinder wall is one-half of the cross section dimension. A male and a female adapter nested (both supplied in hard construction), have the same height as two nested pressure rings.

M.A.T. Molded U-Shaped Packing

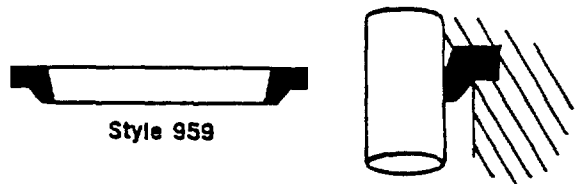


Superior for use in equipment for a positive seal where a low coefficient of friction is essential. Efficient against air, oil, water at any pressure.



M.A.T. Molded Cup Packing* (U.S. Patent #3,181,876)

This patented design is available in many sizes from 1/2" O.D. and over. It provides the ideal seal for pistons and for reciprocating motion applications.



Style 959

M.A.T. Standard Homogeneous Wiper Rings

All M.A.T. wiper rings are dimensionally interchangeable with corresponding dash numbers of AN6231 and MS28776 Wiper Rings. List of dash numbers available on request.

SERVICE RECOMMENDATIONS

Temperature

Maximum temperature for continuous operation with long life, about 260°F. May be used at temperatures over 300°F, but packing will have shorter life.

Minimum temperature, minus 25°F. Below that point M.A.T. stiffens; at minus 45°F. it becomes rigid; at minus 90°F. it becomes brittle. If essential to operate at these lower temperatures, flexing during operation can restore elasticity.

Pressure

Operating on services from vacuum to over 10,000 p.s.f.

Chemical

Excellent for hydraulic fluids; most petroleum base fuels and oils; acidic or alkaline solutions under 10% concentration; edible fats

and oils; salts; aliphatic alcohols; aliphatic hydrocarbons; mixtures containing less than 80% aromatics; solids in solution; and radiation.

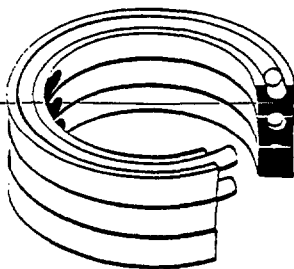
M.A.T. is not recommended for equipment handling esters, ketones, pure aromatic compounds, strong or concentrated acids, or bases, or very strong oxidizing agents.

M.A.T. is adversely affected by prolonged exposure to steam or water over 190°F. Under such conditions M.A.T. should be tested for applicability.

Mechanical

M.A.T. is not recommended for high speed rotary shafts without prior testing.

Ask about other Anchor Products designed for such applications.



M.A.T. ANKORITE POLYFLEX PACKINGS

Unique Patented Multi-purpose Seal

positive
on is es-
water at



from 1/2"
tons and



angeable
231 and
available

Interchangeable with many V-Packings, U-Packings, and O-Rings. Precision Molded to Extremely Close Tolerances. M.A.T. Polyflex is a unique design made of Mol-Anko-Thane which combines an automatic lip type seal with a squeeze type O-Ring made of synthetic rubber to provide an excellent seal from vacuum to high pressure.

M.A.T. Ankorite Polyflex Rings



M.A.T. Polyflex split or endless rings stack without the use of adapters. All rings in a stack are functional seals. The O-Ring hydrostatically converts the system pressure on the first seal into lip-sealing pressure on the following seals. Since the O-Ring pre-loads the sealing lips, seal distortion at extreme pressures does not occur. The O-Ring snaps into the groove, bridges the joint in the split ring, and holds the ring together for easy installation. The deep M.A.T. Polyflex cross section prevents rolling and twisting of the seal.

M.A.T. Ankorite Polyflex in place of U-Cups



M.A.T. Polyflex Packing Rings used singly often replace conventional U-Shapes. The O-Ring projects above the lip to function as a spacer to provide lip clearance while springing the sealing lips. No other mechanical spring loading devices or spacers are required.

M.A.T. Ankorite Polyflex Interchangeable with O-Rings



M.A.T. Polyflex fits standard O-Ring grooves and may be used interchangeably with O-Rings in single acting applications of 1/4" cross section and larger. For double acting applications two seals may be used with groove modifications. The M.A.T. construction increases packing life by its high strength and abrasion resistance, while providing an automatic lip type seal with larger wear surfaces.

Anchor Mol-Anko-Thane Design Data

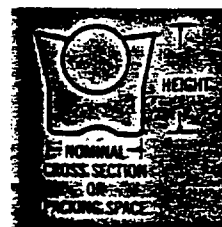
Diametric Clearances between piston & cylinder; or rod & packing gland

Piston or Rod Diameter	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"
Cylinder or Gland Bore	.001	.001	.001	.001	.001	.001
Cross Section	.001	.001	.001	.001	.001	.001
1/8"	.001	.001	.001	.001	.001	.001
3/16"	.001	.001	.001	.001	.001	.001
1/4"	.001	.001	.001	.001	.001	.001
5/16"	.001	.001	.001	.001	.001	.001
3/8"	.001	.001	.001	.001	.001	.001
1/2"	.001	.001	.001	.001	.001	.001

Surface Finishes:—Moving Surfaces 16 micro-inch RMS
• Static Surfaces 32 micro-inch RMS.

N.B. Anchor Mol-Anko-Thane qualities provide much greater latitude in design since the above standards may be deviated from widely, and still provide greater seal life than conventional materials used for packing.

Engineering Data for M.A.T. Ankorite Polyflex Packing



In the Polyflex design the M.A.T. seal element is identical in height to the packing space or nominal cross section.

Compute the height of stacked sets by multiplying the cross section dimension by the number of rings.

To compute packing space depth allow a minimum clearance over the total packing height of 10% of the packing space or cross section.

Gland pressure need not be applied to the packing since the O-Ring preloads the sealing lips and the deep cross section prevents rolling or twisting of the seal.

To replace existing packing with Polyflex, compute the nearest number of rings needed to obtain a packing height less than the depth of the packing space. If special applications require an exact packing height, space rings can be furnished.

Always use the largest cross section compatible with installation and equipment design limitations. The larger the cross section, the longer the life and reliability of the seal and the less critical are the equipment design considerations such as tolerance, clearance, surface finishes, etc.

Polyflex Cross Section in Relation to Diameter					
Piston or Rod Diameter	1/8"	3/16"	1/4"	5/16"	3/8"
Cylinder or Gland Bore	.001	.001	.001	.001	.001
Cross Section	.001	.001	.001	.001	.001
1/8"	.001	.001	.001	.001	.001
3/16"	.001	.001	.001	.001	.001
1/4"	.001	.001	.001	.001	.001
5/16"	.001	.001	.001	.001	.001
3/8"	.001	.001	.001	.001	.001

Ankorite Homogeneous Double Lip Wiper Rings

Style 1920-H

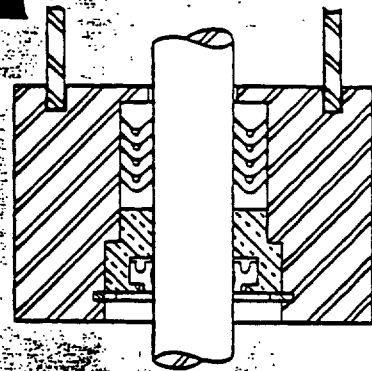
For long cylinder life with corresponding economy all hydraulic and pneumatic cylinders should be equipped with this two-fold functioning Double Lip Wiper Ring. In one direction it functions to wipe the rod clean of all foreign matter and eliminates the suction of air into the cylinder on the "in stroke", thus preventing damage to internal parts and hydraulic media. In the other direction it functions as a secondary rod seal, insuring a perfectly dry rod on the "out stroke". Beside its function as an external wiper, it is effective as an internal seal where positive sealing is required in two directions at one time.

Construction: Precision molded to fit in a square groove with the correct amount of lip interference to insure positive sealing, with minimum friction or drag. Manufactured of a Buna-N base compound, it is impervious to air, oil and water; and has flexibility which makes it easy to assemble and disassemble.

Sizes: For all rod diameters. Complete list of sizes and dimensions available on request.

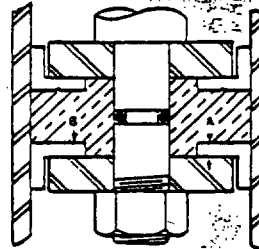


Style 1920-H



Homogeneous Cup Packing—Style 2920H

Controlled compression provides positive sealing at the I.D. of cup; prevents cold flow from excessive compression of the web of the cup, which impairs heel clearance; protects clearance molded into the cup by insuring that the web can only be compressed a predetermined amount, sufficient to seal with the aid of bead "B" in the follower plate. This predetermined amount of compression is controlled by the depth of shoulder "A", for when follower plate is bolted down, metal to metal contact occurs between follower and piston.



Cup for piston seals in reciprocating motion applications where a positive seal is essential.

Style 2920-H

Ankton Quik-Seal

Style 1175

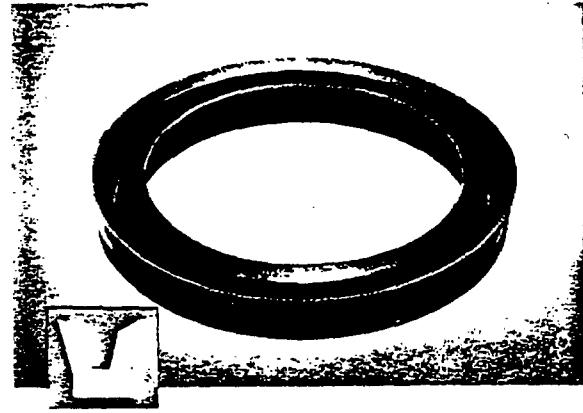
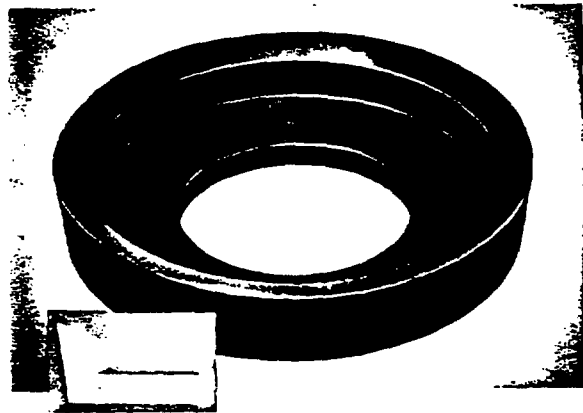
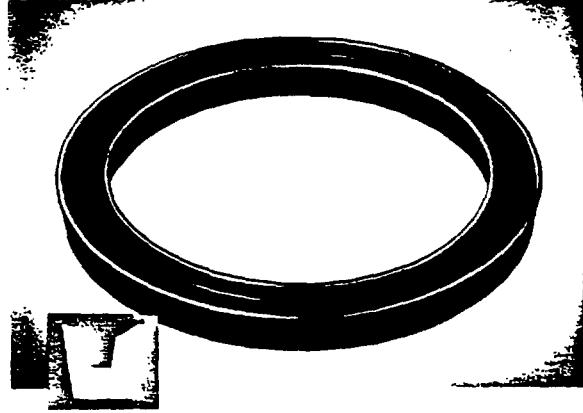
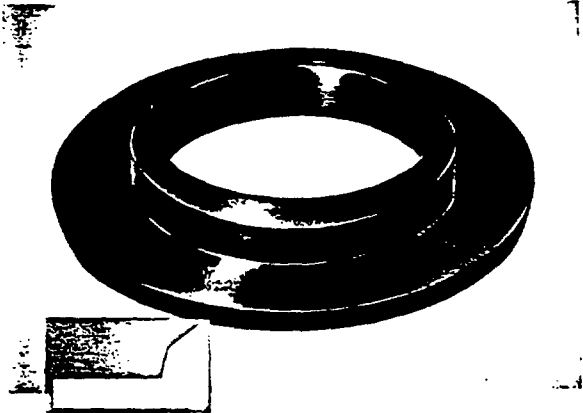
The modern, fast, clean, neat, easy way to pack valve stems. Protects against corrosion by acids, gases and solvents. Does not deteriorate; easily formed into stuffing boxes; retains its flexibility and is permanently self-lubricating. Sizes: 1/8" in diameter (25' to the roll), 3/16" and 5/32" (15' to the roll).



Ankorite Molded Fabric Inserted Packings

for Oil, Air, Water, Gasoline, Solvents or Gases

Flange-Shape • Cup-Shape • U-Shape • Flared "U"



These Ankorite packings are accurately molded from a strong cotton duck frictioned with an oil and solvent resisting compound. This formulation meets most service requirements of temperatures from sub-zero to 450° F.; pressures to 2,000 p.s.i.

Two Types: Dense or Flexible

Style 11: Dense Type

For high pressure presses, pumps, clutches, welding equipment, lifts, jacks, etc. Also where a low coefficient of friction is required.

Style 43: Flexible Type

For equipment requiring a very sensitive packing to insure a positive seal. This type is also used to advantage where cylinders and rods are scored, slightly worn or remachined.

Sizes: Cylinder diameters from 3/8" to 28". Complete list of mold sizes and dimensions is available on request.

Style 924-F Flared "U"

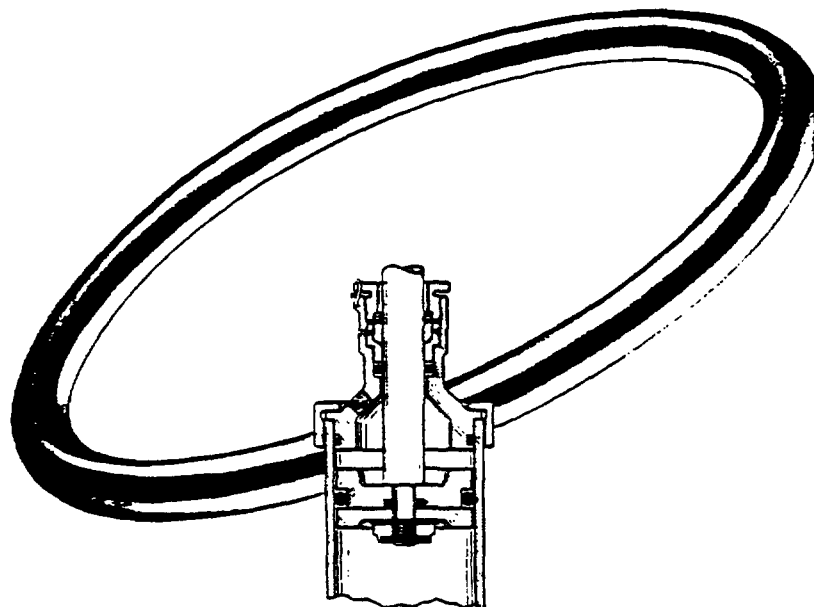
Flexible Type Style 43—Dense Type Style 11

This efficient design has a cross section which is in direct proportion to each diameter, resulting in the same installation and operating characteristics in all of the integrated sizes. Complete list of sizes and dimensions available on request.

For Special Service Requirements

Styles 11 and 43 are also available in a wide variety of compounds, including fluorocarbons, silicones and synthetics to meet every need for packing against any fluid or gas at any temperature or pressure.

For Molded Leather Packings See Page 9.



ANKORITE PART 50 O-RINGS

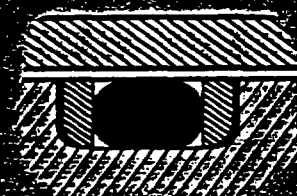
Conform to Specifications AN 6227 and AN 6230
A complete line for all industrial, aeronautical and military requirements

ANKORITE Part 50 O-Ring packings are recommended for most static and dynamic conditions. For continuous oscillating or rotary movement except at very low rubbing speeds, all installations should be performance tested. For most installations using O-Rings as gaskets or static seals, metal-to-metal contact can be maintained, thus allowing almost unlimited pressures even under extreme vibration and repeated impulsing. ANKORITE O-Rings give effective sealing through wide ranges of pressure, temperature and movement with the added advantages of sealing pressure in both directions

and having low running friction on moving parts. ANKORITE O-Rings not only reduce production costs through simplification of product designs and installation methods, but also hold maintenance costs at a minimum since special assembly tools are not necessary and no critical gland adjustments need be made. An important economy is that one ring only is required on piston or rod with frequent replacement unnecessary. With correct design and machining of grooves and mating parts, long, fluid-tight packing life is assured.

Anchor Part 50-56, Standard Size Back-up Rings

For use with Ankorite Part 50 O-Rings in dynamic glands dimensioned in accordance with diameters indicated on Ankorite Part 50 Tables. List of dash numbers available on request.



Many Anchor Compounds to Meet All Service Needs of O-Rings, U-Packings, V-Rings, Cups, Diaphragms, and Other Molded Products

Acrylate	Fluoro-Silicone
Buna-N	Natural
Butyl	Neoprene
Ethylene-Propylene	Polyurethane
All Fluoro-Elastomers	Silicone

These listed base materials are available in countless formulations. Anchor will gladly recommend the com-

pound for your specific service requirements if you will give us the following data: 1—Specify liquids or gases to be sealed. 2—Maximum and minimum temperatures. 3—Normal operating temperature. 4—Maximum and minimum pressure at which seal will operate. 5—Type of motion (reciprocal or rotary). 6—Rate of motion (strokes or revolutions per minute). 7—Installation drawings.

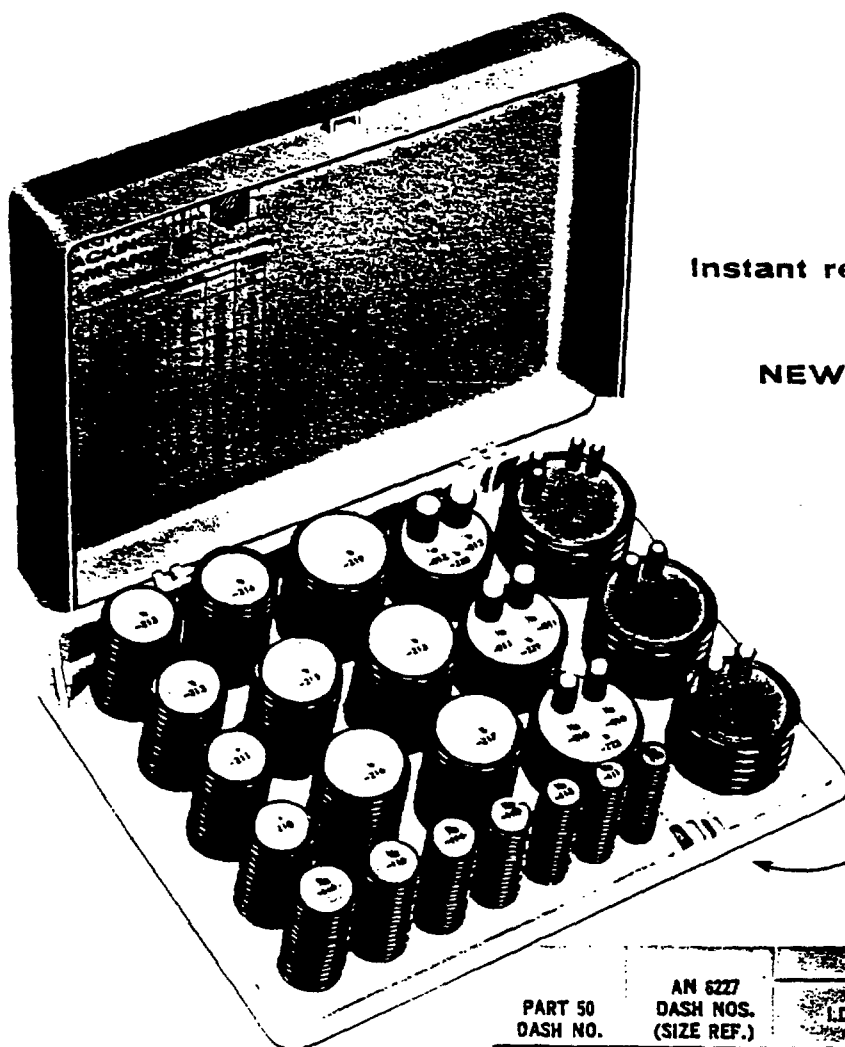
type 11

which is in di-
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nd dimensions

nents

wide variety of
cones and syn-
against any fluid

igs See Page 9.



**Instant replacement of O-Rings
with the indispensable
NEW ANCHOR O-RING KIT**

Unique built-in gauge
for checking ring sizes

Sturdy hinged case keeps stock on color coded posts for quick selection.

The O-Rings in the Anchor Kit conform dimensionally to the Anchorite Part 50 Series, and to the AN6227 sizes.

Made of a nitrile compound . . . Also available in various other formulations to meet any service requirement for O-Rings.

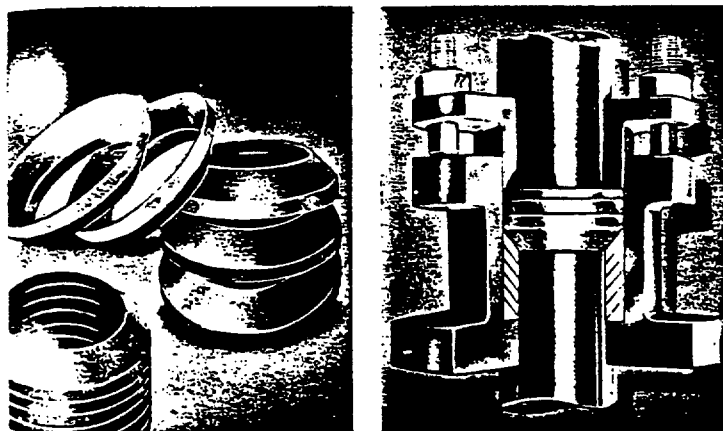
Use against air, gas, oil and chemicals. Temperatures from -40°F to +300°F.

Contains a quantity of each of 30 most used rings, a total of 380 rings, 25% more rings than in other assortments.

PART 50 DASH NO.	AN 6227 DASH NOS. (SIZE REF.)	NOMINAL SIZE			NUMBER OF RINGS IN EACH SIZE
		I.D.	O.D.	W.	
-006	-1	1/8	1/4	1/16	16
-007	-2	5/32	9/32	1/16	16
-008	-3	3/16	5/16	1/16	16
-009	-4	7/32	11/32	1/16	16
-010	-5	1/4	3/8	1/16	16
-011	-6	5/16	7/16	1/16	16
-012	-7	3/8	1/2	1/16	16
-110	-8	3/8	9/16	3/32	16
-111	-9	7/16	5/8	3/32	16
-112	-10	1/2	11/16	3/32	16
-113	-11	9/16	3/4	3/32	16
-114	-12	5/8	13/16	3/32	16
-115	-13	11/16	7/8	3/32	16
-116	-14	3/4	15/16	3/32	16
-210	-15	3/4	1	1/8	12
-211	-16	13/16	1-1/16	1/8	12
-212	-17	7/8	1-1/8	1/8	12
-213	-18	15/16	1-3/16	1/8	12
-214	-19	1	1-1/4	1/8	12
-215	-20	1-1/16	1-5/16	1/8	12
-216	-21	1-1/8	1-3/8	1/8	12
-217	-22	1-3/16	1-7/16	1/8	12
-218	-23	1-1/4	1-1/2	1/8	12
-219	-24	1-5/16	1-9/16	1/8	12
-220	-25	1-3/8	1-5/8	1/8	7
-221	-26	1-7/16	1-11/16	1/8	7
-222	-27	1-1/2	1-3/4	1/8	7
-325	-28	1-1/2	1-7/8	3/16	5
-326	-29	1-5/8	2	3/16	5
-327	-30	1-3/4	2-1/8	3/16	5

ANKOR-NEST RINGS

Self-Setting—Withstand Variable Gland Pressures



Assembly for Ankor-Nest Rings must be installed so pressure will deflect the packing ring toward the rod

Ankor-Nest ring sets consist of several thin molded conical rings, each formed to a 45° bevel, allowing nesting inside the packing space. Ankor-Nest rings, positioned at the correct angle, respond to pressure which holds them firmly to the rod to create an unusually constant, low friction seal. The design is furnished in a variety of constructions to meet every normal service requirement

Uses

For any size rod or valve stem in turbines . . . governors . . . high speed engines . . . dynamo engines . . . soot blowers . . . high pressure, high temperature steam header valves . . . for rotary work where stuffing boxes can receive nest rings, or where adapter rings may be used for conformation to the bevel ring construction

Temperatures to 600° F.—Any pressure					Thicknesses of Ankor-Nest Rings		
Style No.	Sizes	Construction	Application	Maximum Temperature	Rod Diameter	Standard	Heavy Duty
960		Standard: non-metallic high-grade asbestos cloth	where slight friction is demanded	600° F.	Under 1"	3/16"	3/8"
961	for I.D.s. from 1/2" to 18" max.	Metallic high-grade asbestos cloth	high pressure header valve stems	600° F.	1" through 3"	1/4"	3/8"
962		Duck and rubber	for water at low pressures	250° F.	Over 3" under 6 1/2"	5/16"	1/2"
963		Duck and Ankoprene (Synthetic rubber)	for oils at low pressures and temperatures	250° F.	6 1/2" under 10"	3/8"	5/8"
964		Asbestos and Ankoprene (Synthetic rubber)	for hot oils	600° F.	10" and over	3/8"	3/4"
163		Anklon TFE (Fluorocarbon)	for chemicals, solvents, and new type hydraulic fluids	500° F.			

How to Order Ankor-Nest Rings Specify Style No., rod diameter, thickness (see table); or furnish exact stuffing box dimensions. Be sure to indicate whether endless or split rings are wanted. If rings are to be used against oil, be sure to specify Ankoprene binder

Note: Special order form available on request

ANCHOR VY/FLEX RINGS

Stainless steel floss packing for superheat and high pressures

Anchor VY/FLEX is highly specialized to withstand the highest temperatures encountered in general and chemical process industries. It is furnished in pre-formed endless ring sets only, and is preferred in the angular or convex cross section, although square or rectangular cross sections are available. VY/FLEX may be furnished to any dimensional specification

* Split rings on special order

Uses:

adaptable to a wide range of applications including blowers . . . power plants . . . steel mills . . . railroads . . . chemical plants . . . on throttle valves, reducing valves, headers and hot blast valves . . . water column

gaskets . . . tar . . . asphalt and acid pumps . . . high temperature gases . . . air compressors . . . expansion joints . . . oil refineries (temperatures to 1200° F.)



Style 943
Angular
Cross Section



Style 944
Square
Cross Section



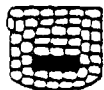
Style 945
Rectangular
Cross Section

How to Order Anchor VY/FLEX Specify Style No. and furnish sketch showing rod and stuffing box dimensions. For Style 943 indicate if they are to be furnished with or without adapters. For all styles state either graphite or mica treatment

Anchor High Pressure Packing

These packings are made from carefully selected asbestos fibre, woven into a tightly meshed cloth, impregnated with a high heat-resisting compound. The cloth is then formed into packing sections which are furnished as cut rings, or 25 ft. long spirals or coils. Except for the smallest sizes, the styles illustrated have either a rubber cushion back, a rubber center core, or a dry graphite center core. The construction of these packings results

ANKORITE—Temperature range to 500° F. cross-section rubber cushion back



Styles: No. 110 ring; No. 210 spiral; No. 310 coil

Sizes: 1/8" and up in increments of 1/16" rubber cushion back on sizes 1/2" and over

NOTE: Style No. 110, and other high pressure packings, are often used in combination with various types of duck and rubber, such as Style No. 130, to create Duplex sets of alternating materials; for example, Duplex Set No. 1030-A, see Page 35

For all superheat and high temperature conditions

SUPERHEAT RB—Temperature range to 600° F.

Meets Specification HH. P.36



Styles: No. 105RB, ring; No. 205RB, spiral; No. 305RB, coil

Sizes: 1/8" and up in increments of 1/16". Rubber center core on sizes 1/2" and over

SUPERHEAT CC—Temperature range to 600° F.

Meets Specification HH. P.36



Styles: No. 107CC, ring; No. 207CC, spiral; No. 307CC, coil

Sizes: 1/8" and up in increments of 1/16". Rubber center core on sizes 3/8" and over

SUPREME—Temperature range to 600° F.



Styles: No. 101, ring; No. 201, spiral; No. 301, coil

Sizes: 1/8" and up in increments of 1/16". Dry graphite center core on sizes 3/8" and over

WEDGE DIAGONAL—Temperature range to 500° F. for steam hammers, etc.



Styles: 122-AW Ring, 222-AW Spiral, 322-AW Coil

Sizes: 1/2" and up

Construction consists of wedges made of asbestos cloth rolled and molded into shape. This special diagonal has a braided cotton cover

PACKING SPECIFICATIONS

Size	Style No. 210		Style No. 212		Style No. 312	
	Weight per 25 ft.	Weight per 100 ft.	Weight per 25 ft.	Weight per 100 ft.	Weight per 25 ft.	Weight per 100 ft.
1/4"						
5/16"						
3/8"						
7/16"						
1/2"						
9/16"						
5/8"						
11/16"						
3/4"						
7/8"						
1"						

in high resiliency for easy flexing without binding or seizing. They are efficient and enduring in the services for which they are designed

USES

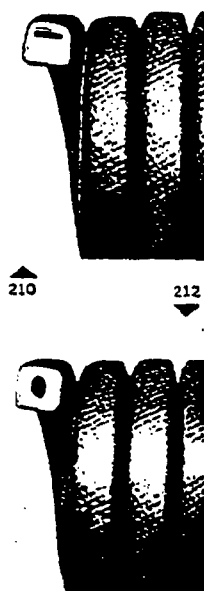
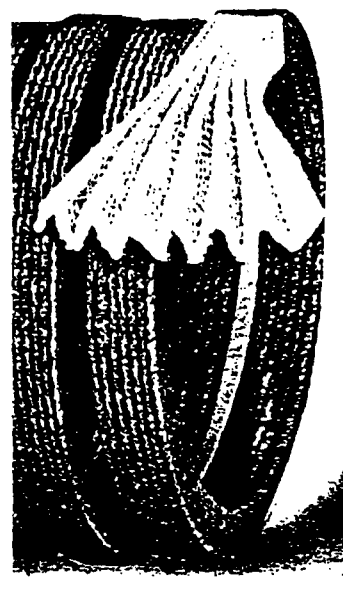
Against steam, air and gases or reciprocating rods of steam, dynamo and stoker engines, air compressors, expansion joints and valve stems

CAPSTAN—Temperature range to 500° F. cross-section rubber center core



Styles: No. 112 ring; No. 212 spiral; No. 312 coil

Sizes: 1/8" and up in increments of 1/16" rubber center core in sizes 3/8" and over



High Pressure Asbestos Accordion Pleated
Temperature range to 500° F.

This superior asbestos cloth packing is so constructed that the wear will occur on the endwise plies. It is regularly furnished impregnated with Ankoprene, the dependable Anchor synthetic rubber compound, highly resistant to oil, gasoline and many solvents; and also without impregnation for general use. It is also available with a natural rubber impregnation for steam and hot water applications

Style: No. 913—rubber impregnated; ring, spiral

USES

For packing inside pistons against hot water, steam, hot oils and solvents. Also for use in ball joints and expansion joints

Sizes: 3/8" and up in increments of 1/16"

Spirals 25 ft. long

Anchor Braided and Twisted Packings

For Every Service

Anchor Braided and Twisted Packings cover a wide range of constructions, using many different fibers, binders and lubricants. There is an Anchor braided or twisted packing to satisfy the most exacting requirements for pressure, temperature, viscosity, abrasion resistance, long life, and economy; for positive seal against air, water, steam, oil, gases, foods and chemicals of every description.

MATERIALS

White Asbestos. Only long spinning grades of the finest quality Canadian chrysolite asbestos are used.

Blue Asbestos. Where the qualities of this exceptional fiber are required, only the pure African Crocidolite Cape Blue variety is used.

CHEMICAL COMPARISON

	Chrysolite White Asbestos	Crocidolite Cape Blue Asbestos
Magnesium Oxide (MgO)	40.0	25.0
Silica (SiO ₂)	55.0	75.0
Iron Oxide (FeO)	2.0	3.0
Sodium Oxide (Na ₂ O)	0.5	0.5
Alumina (Al ₂ O ₃)	0.5	0.5
Water of Crystallization (H ₂ O)	12.0	12.0

Flax, Cotton, Jute, and Synthetic Yarns. In all cases top grade fibers which have been milled, cleaned, and carded are spun into yarns which are twisted to the proper size and weight for the specific packing. Synthetic filaments such as TFE are made to Anchor's rigid specifications.

Binders, Compounds, and Lubricants. Many types of natural and synthetic materials are used as binders and compounds for the many Anchor constructions. Lubricants include graphite, waxes, and various selected oils, depending on the services for which specific packings are designed (Most Anchor styles are also available dry).

BRAIDS

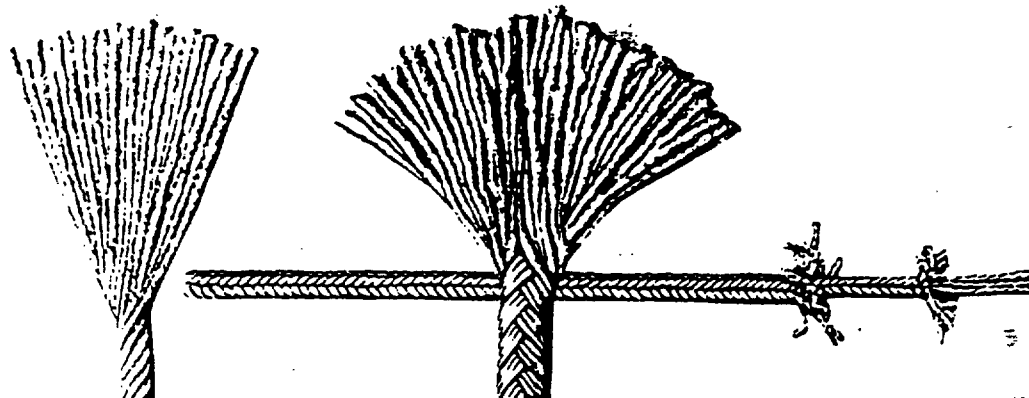
Ankorlok Braid is the pre-dominant quality braided packing construction unsurpassed for long life and efficient sealing. The diagonal weave throughout the body and surface of the packing results in maximum flexibility to minimize stress when forming rings. It will not ravel, wear through, slough off, or distort. It is as nearly homogeneous as other than a molded packing can be and the lubrication stays locked in. With Ankorlok re-packings are very infrequent as compared to other braids and since, when installed, it is ready for instant service; gland adjustment is negligible. It is used for centrifugal rotary shafts, valve stems, expansion joints, reciprocating rods, plungers and rams. See Pages 20, 25, 26, 27, for the many styles of Ankorlok Braid.

Square or Plaited Braid. This construction consists of eight strands or ropes, which are plaited to a square cross section. This type of braid is generally used for high-speed rotary equipment.

Braid-over-braid. Tubular braids are braided over each other until the desired size of packing results. Many styles have the tubular braids around a center core of twisted fibers, rubber, or other material. Braid-over-braid packing is often referred to as "Valve stem" packing. It is generally used on valve stems, slow moving rods, and slow speed rotary motion; also used for centrifugals handling liquids with sediment.

Twisted Packings

Yarns of various kinds are twisted around each other to obtain a wide range of sizes. Easily untwisted to remove strands, thus facilitating reduction of size when desired.



Ankorlok Asbestos Braid Packings

The Flexible Braid that Stays—will not ravel, slough off, or distort
For rotary or centrifugal shafts, reciprocating rods, plungers, rams, valve stems, expansion joints

Styles: No. 1300 Ring, Coil; No. 1301 Ring, Coil (dry, without lubrication)

Sizes: 1/4" and up

Materials: Ankorlok construction made from plain white asbestos, lubricated and graphited

Uses: Against steam, hot and cold water, alkalis and weak acids on rotary or centrifugal shafts, reciprocating rods, expansion joints, valve stems

Style: No 1302 PSR; Ring, Coil

Sizes: 1/4" and up

Materials: Ankorlok construction made from plain white asbestos with a petroleum solvent-resistant lubricant. Graphited throughout

Uses: Against gasoline, benzol, naphtha, kerosene, warm and cold oil on rotary or centrifugal shafts, reciprocating rods, plungers, rams, expansion joints, valve stems

Style: No. 1304 Ring, Coil

Sizes: 1/4" and up

Materials: Ankorlok construction made from plain white asbestos with a lubricant compounded from vegetable and marine oil. Graphited throughout

Uses: Against steam, water and gases on rotary or centrifugal shafts, reciprocating rods, valve stems, expansion joints

Approximate Weights—Pounds per 100 Linear Feet						
Style	Style	Style	Style	Style	Style	Style
1300	1302 PSR	1304	1309	1314-AC	1316	1342
1/4"	1.625	1.625	1.625	1.625	1.625	1.625
3/8"	2.25	2.25	2.25	2.25	2.25	2.25
1/2"	3.125	3.125	3.125	3.125	3.125	3.125
3/4"	4.25	4.25	4.25	4.25	4.25	4.25
1"	5.625	5.625	5.625	5.625	5.625	5.625
1 1/4"	7.5	7.5	7.5	7.5	7.5	7.5
1 1/2"	9.375	9.375	9.375	9.375	9.375	9.375
2"	12.5	12.5	12.5	12.5	12.5	12.5
2 1/2"	15.625	15.625	15.625	15.625	15.625	15.625
3"	18.75	18.75	18.75	18.75	18.75	18.75
3 1/2"	21.875	21.875	21.875	21.875	21.875	21.875
4"	25	25	25	25	25	25
4 1/2"	28.125	28.125	28.125	28.125	28.125	28.125
5"	31.25	31.25	31.25	31.25	31.25	31.25

Style: No. 1309 Ring, Coil

Sizes: 1/4" and up

Materials: Ankorlok construction made from blue asbestos with an acid-resistant lubricant. Graphited throughout

Uses: Against mineral acids and caustics on rotary shafts, centrifugal shafts, reciprocating rods, valve stems

Style: No. 1314-AC Ring, Coil

Sizes: 1/4" and up

Materials: Ankorlok construction made from white asbestos with copper wire insertion and wire-armored corners. Lubricated and graphited throughout

Uses: Against high pressure steam, air, inert gases, hot or cold oils on valve stems and reciprocating rods

Style: No. 1316 Ring, Coil

Sizes: 1/4" and up

Materials: Ankorlok construction made from white asbestos with copper wire insertion. Same as No. 1314-AC, except corners are not wire-armored

Uses: Against steam, air inert gases, hot or cold oils on valve stems and reciprocating rods

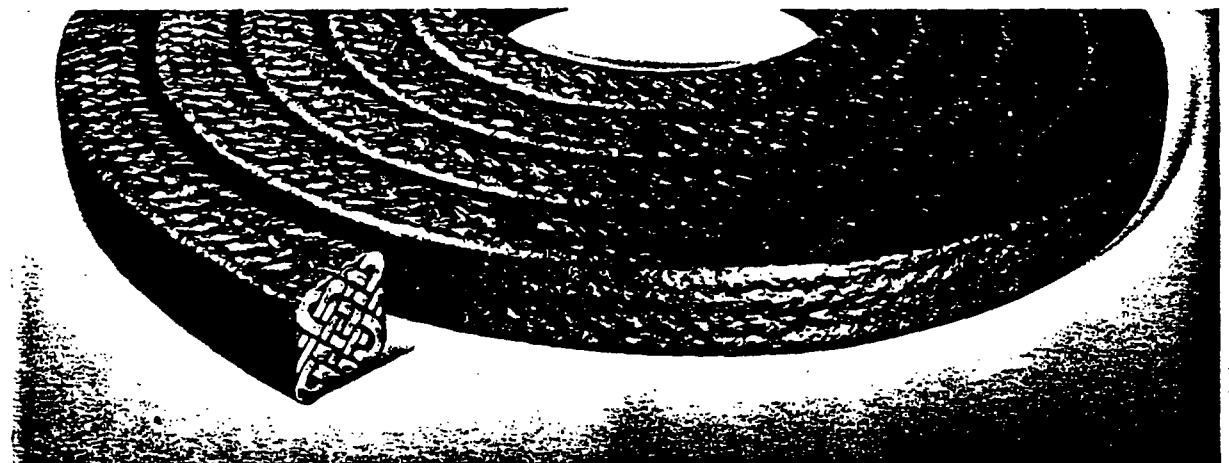
Graphite Filament

Style: No. 1342 Coils, butt joint rings

Sizes: 1/4" and up

Description: Ankorlok construction, new graphite filament packing has astonishing long life and surpasses performance of conventional packings. Resists chemicals except oxidizing agents. Temperatures in excess of 500° F.

Uses: For all pump services; agitators, churns, dryers, blowers, where severe conditions exist in all chemical process and other industries



Each style
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maximum
the materi
enable the
for his ap
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See Page
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Materials
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Uses: Ag
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Material:
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No. 317-P.

Style	2
905	3
909	4

Anchor Braided and Twisted Asbestos Packings

For rotary or centrifugal shafts, reciprocating rods, plungers, rams, valve stems, expansion joints

Each style in the extensive line of Anchor Braided and Twisted Asbestos Packings is especially designed for maximum efficiency on specific services. Reference to the materials and uses data, given for each style, will enable the user to determine the packing most suitable for his apparatus, and the fluid or gas which must be sealed against. However, if there is any question, the customer is free to call any office of The Anchor Packing Company for assistance. Every Anchor man is a packing specialist backed by over fifty years of company research and engineering knowledge of packing requirements. See Page 19 for an explanation of the various braided and twisted constructions

Sulu Square Plaited White Asbestos Packing



Styles: No. 117 Ring; No. 317 Coil (no wire insert)

Sizes: 1/8" and up. In sizes 1/8" to 3/8", it is also available on one-pound spools

Materials: Square braid construction made from white asbestos yarn, each strand of which is thoroughly lubricated and graphited before braiding

Uses: Against steam, air, water, oil—especially on high-speed centrifugal pump shafts

Style: No. 117-W Ring; No. 317-W Coil (can be furnished on special order to meet Specification MIL-P-17577)

Sizes: 1/8" and up. In sizes 1/8" to 3/8", it is also available on one-pound spools

Materials: Identical with Style No. 117, except that into each strand of asbestos yarn, a fine brass wire is twisted before lubricating and braiding

Uses: Same as for Style Nos. 117 and 118

If Sulu Square Plaited packing is to be used against gasoline, kerosene or similar solvents, please order No. 317-K; No. 317-9929; or No. 317-P. For packing against caustics please order No. 317-CA

Style	Approx. Weight, Pounds per 100 feet
905	3.45
909	3.30

Ankorite Square Braided Asbestos Packing

Multipurpose packing for temperatures to 450° F.



Style: No. 905 Ring, Coil

Sizes: 1/4" and up

Materials: Square braided white asbestos construction around a solid core of Ankoprene, which is Anchor's synthetic rubber (plastic polymer of chloroprene). An Ankoprene binder is used throughout, which thoroughly coats the asbestos fibers and protects the braid from destruction by many acid and alkali solutions

Uses: Against gasoline, butane, propane and all petroleum-derived hydrocarbon solvents, gas, oil and most chemicals, on reciprocating pump rods where temperatures do not exceed 450° F.



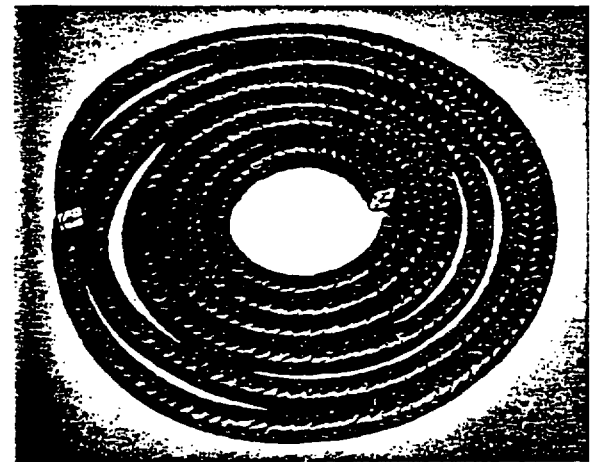
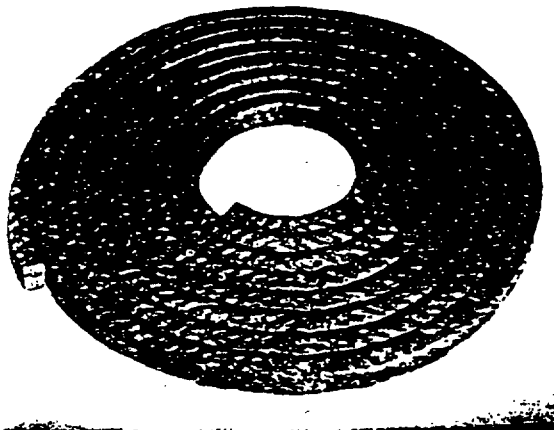
Style: No. 909 Ring, Coil

Sizes: 1/4" and up

Materials: Square braided white asbestos construction, extremely soft and pliable; thoroughly lubricated with high temperature castor oil only—no graphite

Uses: Against food materials and ingredients, gasoline and other hydrocarbon solvents, on stainless steel parts, reciprocating or centrifugal motion. Non-contaminating in food-processing machinery. Temperatures to 450° F.

PACKING SPECIFICATIONS							
Style No. 317, Continuous Length Coils in Boxes							
Size	Approx. lbs. per box	Approx. lbs. per 100 ft.	Approx. ft. per box	Size	Approx. lbs. per box	Approx. lbs. per 100 ft.	Approx. ft. per box
1/2"	11.15	11.15	100	1/2"	14	15.61	90
9/16"	2.43	2.43	100	9/16"	14	19.78	70
5/8"	4.23	4.23	100	5/8"	14	25.62	55
3/4"	5.87	5.87	100	3/4"	14	34.28	40
7/8"	8.80	8.80	100	7/8"	20	49.40	40
1"	11.88	11.88	100	1"	20	62.83	32



Anchor Braided and Twisted Asbestos Packings For Valve Stems, Rods and Shapes

Sultan Braid-over-Braid



Styles: No. 118 Ring; No. 318 Coil;
No. 318-W (brass wire insertion)

Sizes: 1/8" and up. Available on one-pound
and five-pound spools. Large sizes in
standard coil boxes

Materials: Braid-over-braid construction thoroughly lubri-
cated and graphited

Uses: Against steam, air, oil, water on valve stems, rods
and shafts

Note: If Sultan Braid-over-braid Squared packing is to be used against
gasoline, kerosene or solvents, please order No. 318-K; No. 318-9929;
No. 318-P; or No. 318-C. For packing against caustics, please order
No. 318-CA

Valve Stem Packings on Spools



Style: No. 319—Coils or Boxed Spools

Sizes: 1/16" and up. One-pound or five-
pound spools available

Materials: Round braid-over-braid construc-
tion lubricated and graphited throughout

Uses: Against steam, air, oil, water on valve stems, rods
and shafts

Twisted

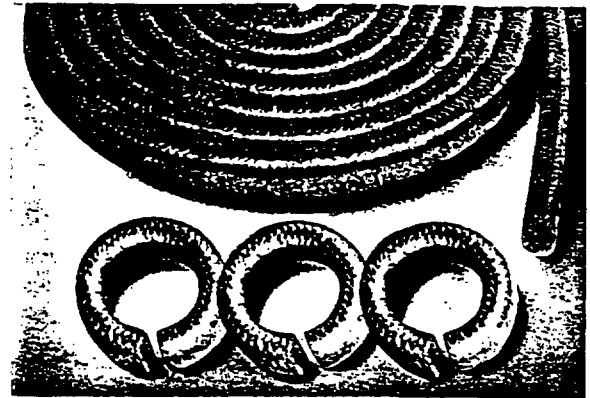


Style: No. 314
Reels; Spools

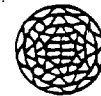
Sizes: 1/16" to
1/2". Avail-
able on boxed one-pound,
five-pound spools and
reels

Materials: Twisted construc-
tion, white asbestos yarn,
all strands of which are
thoroughly lubricated and
graphited before being
twisted together

Uses: Against steam, air, oil
and water on valve stems



CabCock



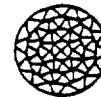
Style: No. 316

Sizes: 1/8" to 3/8". On boxed one-pound
and five-pound spools

Materials: White asbestos braid-over-braid
dry construction without internal grease
or oil lubricant. Surface is rubberized and then
coated with flake graphite

Uses: Known as CabCock packing, it is ideal for use on
valve stems in cabs of high pressure steam locomotives,
or on any valves or parts where temperatures
are up to 600° F.

Braided and Rubbered



Style: No. 315

Sizes: 1/8" to 3/8". On boxed one-pound
and five-pound spools

Materials: White asbestos braid-over-braid
construction, thoroughly treated with a
heat-resisting rubber compound and graphited on the
outside only

Uses: Against steam, air, oil and water on valve stems

PACKING SPECIFICATIONS									
Continuous length coils—one coil per box, size and length are approximate									
Size	STYLE NO. 318			STYLE NO. 319			STYLE NO. 315		
	Pounds Per Box	Feet Per Box	Pounds Per 100 Feet	Pounds Per 100 Feet	Feet Per Box	Pounds Per 100 Feet	Pounds Per Box	Feet Per Box	Pounds Per 100 Feet
1/8"	1.00	10.00	1.00	0.86	10.00	1.00	1.00	10.00	1.00
3/16"	2.00	20.00	2.00	1.87	20.00	2.00	2.00	20.00	2.00
1/4"	3.00	30.00	3.00	3.44	30.00	3.00	3.00	30.00	3.00
5/16"	4.00	40.00	4.00	5.75	40.00	4.00	4.00	40.00	4.00
3/8"	5.00	50.00	5.00	8.50	50.00	5.00	5.00	50.00	5.00
7/16"	6.00	60.00	6.00	11.00	60.00	6.00	6.00	60.00	6.00
1/2"	7.00	70.00	7.00	15.06	70.00	7.00	7.00	70.00	7.00
9/16"	8.00	80.00	8.00	18.00	80.00	8.00	8.00	80.00	8.00
5/8"	9.00	90.00	9.00	23.74	90.00	9.00	9.00	90.00	9.00
3/4"	10.00	100.00	10.00	33.83	100.00	10.00	10.00	100.00	10.00
7/8"	11.00	110.00	11.00	47.50	110.00	11.00	11.00	110.00	11.00
1"	12.00	120.00	12.00	58.87	120.00	12.00	12.00	120.00	12.00

* Style No. 318, 1/8" and 3/16" sizes on one pound spools only; 1/4" size also available on one pound spools

Anchor Braided and Twisted Asbestos Packings

High Temperatures

Anchor Braided Asbestos Packings for Acids



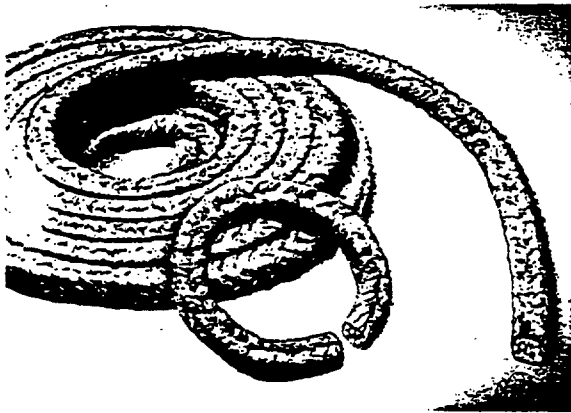
Blue Asbestos for Acids

Style: No. 888 Ring, Coil

Sizes: 1/8" and up

Materials: Square braided* construction from African Cape blue asbestos yarn lubricated with a non-nitrating solution. (Also available without lubricant)

Uses: Against acids and strong caustics; acid or alkali combinations in oil refineries. It is highly abrasive and when used for moving parts, is superior when they are special hard metal alloys. Use on valves, expansion joints, and shafts. Temperatures to 500° F.



Anchor Cracking Coil Packing



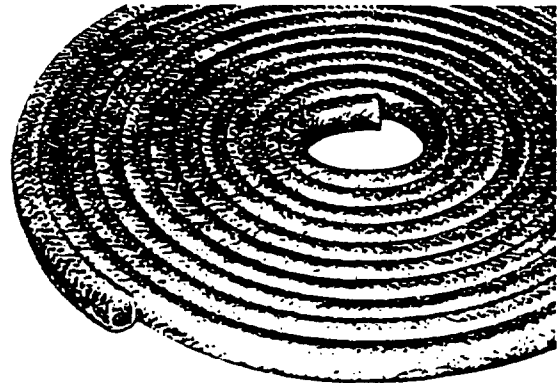
For Oil Refineries

Styles: No. 103 Ring; No. 303 Coil

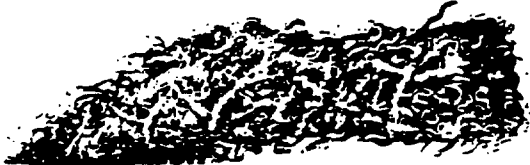
Sizes: 1/8" and up

Materials: A white asbestos core with braided outer jacket of asbestos yarn. Exterior graphite finish

Uses: Alone or in combination with flexible metallic rings against high pressure hot oil service on cracking still coils, on valve stems and expansion joints; in combination with flexible metallic rings on hot oil plungers; also as a furnace door packing



Blue Asbestos Rope for Acids. Style: No. 1550



Sizes: 1/2", 3/4", 1" round section: 100-foot coils only
Materials: Long fiber strands of 100% pure Cape blue asbestos are twisted into rope of the required sizes

Uses: Against acids—for caulking around acid towers, acid pipes, etc. Also for heat insulation against temperatures to 750° F. Containing no cotton or other additive, the full advantages of pure blue asbestos are obtained in service

PACKING SPECIFICATIONS											
Continuous length coils, one coil per box						Continuous length coils, one coil per box					
and lengths are approximate						and lengths are approximate					
STYLE NO. 303				STYLE NO. 103		STYLE NO. 888 LUBRICATED				STYLE NO. 1550	
Sizes	lbs. per box	feet per box	lbs. per 100 feet	Sizes	feet per box	Sizes	lbs. per box	feet per box	lbs. per 100 feet	Sizes	lbs. per 100 ft. coil
1/8"			1.01	1/8"		1/8"				1/8"	
3/16"			2.38	3/16"		3/16"				3/16"	
1/4"	11	220	4.88	1/4"	230	1/4"	230			1/4"	
5/16"	11	200	5.23	5/16"	154	5/16"	154			5/16"	
3/8"	11	135	8.11	3/8"	100	3/8"	100			3/8"	
7/16"	11			7/16"		7/16"				7/16"	
1/2"	14	90	15.39	1/2"	82	1/2"	82			1/2"	
5/8"	14			5/8"		5/8"				5/8"	
3/4"	14	64	21.80	3/4"	49	3/4"	49			3/4"	
7/8"	14	54	25.60	7/8"	37	7/8"	37			7/8"	
1"	20	63	31.50	1"		1"				1"	
1"	20	48	41.00	1"		1"				1"	

*On special order braid-over-braid construction can be furnished—order Style No. 889

Anchor White Asbestos Products For Caulking and Heat Insulation

Anchorite White Asbestos Wick

Style: No. 1500 Balls, Reels

Sizes: 1/4", 3/8" and 1/2". Quarter, half, and one-pound balls; and 25 or 50-pound reels

Materials: Dry white asbestos rovings are twisted into wicks of the required sizes

Uses: Emergency packing for caulking and heat insulation when temperatures do not exceed 450° F. Use on furnaces, brick work, furnace doors, foundry molds and as a wrap-around for insulating hot pipes

Anchor Tapco

Styles: No. 138 (with lead); No. 149 (without lead)

Sizes: Any size O.D. may be ordered

Materials: White asbestos, lubricated, graphited yarn and soft lead strands are twisted together and made into an approved braid from which these small square cross-section split packing rings are die-formed to dimensional accuracy. Lead insertion may be omitted if desired

Uses: Against steam, air, oil or water on valve stems, faucets, control valve regulators, and countless parts where small packing rings are required for quick, easy assembly

White Asbestos Luting

Style: No. 892 Coil, Reel

Sizes: 3/8" and up in coils of standard length 25 ft.; also on reels of continuous length

Available on special order: 1. No outside friction
2. Non-met (no wire insertion) 3. Graphite finish

Materials: Tightly woven wire-inserted asbestos cloth frictioned with a high heat-resisting compound, accordion pleated and wrapped with cloth. Also available in roll-up construction

Uses: Against heat or flame dissipation on furnace doors and other applications where luting is necessary. Easily tamped into grooves

Anchorite White Asbestos Rope

Style: No. 1502, no jacket; No. 1503, single jacket; No. 1504, double jacket

Sizes: 1/4" to 1-1/2". Larger sizes on special order. Style No. 1502 is regularly furnished in 25 or 50-pound packages. Style Nos. 1503 and 1504 are furnished on 25 or 50-pound reels

Materials: Firmly twisted strands of dry, white asbestos wick are twisted into rope of the required sizes.* Jackets on No. 1503 and 1504 are braided from asbestos yarn

Uses: For caulking and heat insulation when temperatures do not exceed 450° F. Use on furnaces, brick work, furnace doors, foundry molds, as a wrap-around for insulating hot pipes

Anchor Small Endless Unit Rings

Style: No. 156

Sizes: To 1" O.D. Larger sizes are available made from rubbered cloth of roll-up construction

Materials: Impregnated white asbestos is tightly braided in tubular form, sections of which are die formed into endless rings of dimensional accuracy. Sizes over 1" O.D. are made of rubbered cloth of roll-up construction

Uses: The term "unit" applied to this unique product means one ring constitutes the entire packing set. Used for parts requiring small packing sets and when large quantities are used in manufacturing apparatus where rapid assembly is essential



Approximate Weights and Feet per Pound, White Asbestos Wick and Rope

Style	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"
Wicks	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Ropes	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Units	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Reels	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Coils	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Rolls	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Packages	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Boxes	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Cases	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Drums	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Trucks	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Wagons	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Trains	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Ships	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Airplanes	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Automobiles	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Trucks	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Wagons	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Trains	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Ships	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Airplanes	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.
Automobiles	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.	25 lb.

* Strands may be untwisted to form smaller sizes

Anklon (TFE) Braided Packing

for centrifugal shafts* • reciprocating shafts • valve stems

Against acids and caustics to 500° F. —low, medium and high pressures

Anklon is the Anchor name for TFE, a polymerization product of tetrafluorethylene. The name Anklon is applied not only to TFE filaments used for weaving braid, but also, to TFE colloidal suspensions used for impregnating asbestos and other fibers

Anklon is inert to all types of chemicals except molten alkali metals and fluorine at elevated temperatures and pressures. It is especially valuable in packing against weak acids and caustics and in applications where graphite and lubrication are undesirable

Virgin Anklon (TFE) Ankorlok Braid

Style: No. 1120 Ring, Coil
Sizes: 1/4" to 5/8". Sizes under 1/4" available only in square braid construction
Materials: Ankorlok construction made from virgin Anklon (TFE) fine filament, without any impregnation
Uses: Against all chemicals, at light pressure, on valve stems

Style: No. 1121 Ring, Coil
Sizes: 1/4" to 3/4". Sizes under 1/4" available only in square braid construction
Materials: Ankorlok construction made from virgin Anklon (TFE) fine filament, with Anklon (TFE) suspension impregnation
Uses: Against all chemicals on centrifugal* pumps and valve stems. To keep friction to a minimum on high speed shafts, rings of lubricated asbestos should be alternated with Anklon rings

Style: No. 1122 Ring, Coil
Sizes: 1/4" to 3/4". Sizes under 1/4" available only in square braid construction
Materials: Ankorlok construction made from virgin Anklon (TFE) fine filament, with a special high temperature TFE oil lubrication
Uses: Against all chemicals on centrifugal* pumps and valve stems

Style: No. 1123 Ring, Coil

Sizes: 1/4" to 3/4"

Materials: Ankorlok construction made from prelubricated virgin Anklon (TFE) fiber. The braid is further impregnated with a TFE dispersion and a special inert high temperature lubricant, which results in a soft, flexible product to snug into any shape

Uses: Against all chemicals at temperatures to 550° F. on pumps and valves where a super life packing is needed. Style 1123 stands up in severe service as much as sixty times longer than conventional packing. Requires minimum gland pressure; there is negligible friction and heat build-up, even around high-speed shafts, and there is no glazing

Style: No. 1160 Coil

Sizes: 1/4" and up. Sizes 1/8" and 3/16" available only in square braid construction

Materials: Ankorlok construction made of Anklon (TFE) filament and ribbon for superior flexibility

Uses: Against all chemicals on slow-moving shafts and valve stems

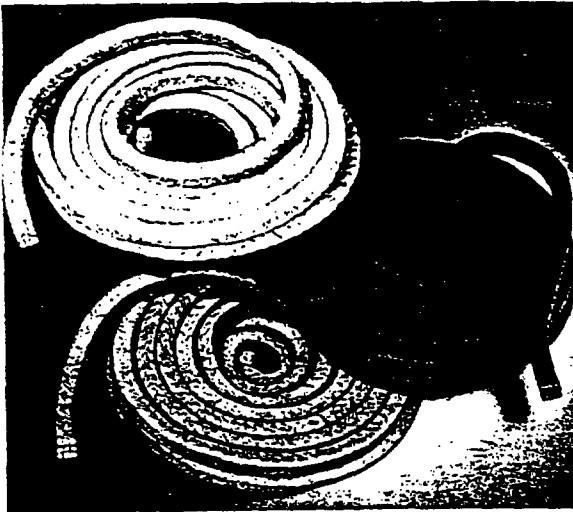
Note: See Page 26 for Weights

*On high-speed shafts in order to keep friction to a minimum, it is advisable to alternate Anklon rings with the proper type of lubricated asbestos rings

PACKING SPECIFICATIONS WHITE LISTING			
Approximate Weights per 100 Feet			
Style	Size	Weight	Weight
1120	1/4"	1.5	1.5
1120	3/8"	3.0	3.0
1120	1/2"	4.5	4.5
1120	5/8"	6.0	6.0
1121	1/4"	1.5	1.5
1121	3/8"	3.0	3.0
1121	1/2"	4.5	4.5
1121	5/8"	6.0	6.0
1122	1/4"	1.5	1.5
1122	3/8"	3.0	3.0
1122	1/2"	4.5	4.5
1122	5/8"	6.0	6.0
1123	1/4"	1.5	1.5
1123	3/8"	3.0	3.0
1123	1/2"	4.5	4.5
1123	5/8"	6.0	6.0
1160	1/4"	1.5	1.5
1160	3/8"	3.0	3.0
1160	1/2"	4.5	4.5
1160	5/8"	6.0	6.0



Virgin Anklon (TFE) Anklorlok and Square Braid



Style: No. 1161 Coil
Sizes: 1/4" and up
 Under 1/4" in square braid construction
Materials: Anklorlok construction made from blue asbestos impregnated with an Anklon (TFE) suspensoid
Uses: Against strong acids and caustics on centrifugal* pumps, reciprocating shafts and valve stems

Style: No. 1162 Coil
Sizes: 1/4" and up
 Under 1/4" in square braid construction
Materials: Anklorlok construction made from white asbestos impregnated with an Anklon (TFE) suspensoid
Uses: Against weak acids and caustics at high pressures and temperatures to 500° F. on centrifugal* and reciprocating shafts and valve stems where graphite and lubrication are undesirable

Style: No. 1108 Ring, Coil
Sizes: 1/8" and up
Materials: Square braided white asbestos with virgin Anklon TFE 35% impregnation
Uses: Against weak acids and caustics at high pressure. Temperatures to 500° F.

*On high-speed shafts in order to keep friction to a minimum, it is advisable to alternate Anklon rings with the proper type of lubricated asbestos rings

Approximate Weights per 100 Feet

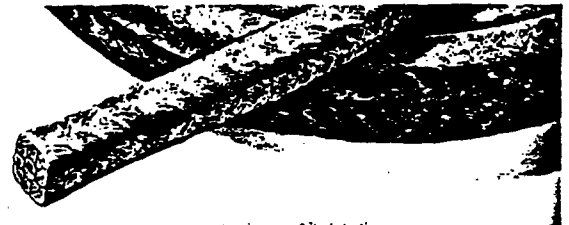
SIZE	STYLE	STYLE	STYLE	STYLE	STYLE	STYLE	STYLE
1/8"	1108	1109	1110	1111	1112	1113	1114
1/4"	1115	1116	1117	1118	1119	1120	1121
3/8"	1122	1123	1124	1125	1126	1127	1128
1/2"	1129	1130	1131	1132	1133	1134	1135
5/8"	1136	1137	1138	1139	1140	1141	1142
3/4"	1143	1144	1145	1146	1147	1148	1149
7/8"	1150	1151	1152	1153	1154	1155	1156
1"	1157	1158	1159	1160	1161	1162	1163
1 1/8"	1164	1165	1166	1167	1168	1169	1170
1 1/4"	1171	1172	1173	1174	1175	1176	1177
1 1/2"	1178	1179	1180	1181	1182	1183	1184
1 3/4"	1185	1186	1187	1188	1189	1190	1191
2"	1192	1193	1194	1195	1196	1197	1198
2 1/4"	1199	1200	1201	1202	1203	1204	1205
2 1/2"	1206	1207	1208	1209	1210	1211	1212
2 3/4"	1213	1214	1215	1216	1217	1218	1219
3"	1220	1221	1222	1223	1224	1225	1226

Style: No. 1109 Ring, Coil
Sizes: 1/8" and up
Materials: Square braided blue asbestos with virgin Anklon TFE 35% impregnation
Uses: Against strong acids and caustics at high pressure. Temperatures to 500° F.

Style: No. 1101 Ring, Coil
Sizes: 1/8" and up
Materials: Square braided white asbestos with virgin Anklon TFE 15% impregnation
Uses: Against weak acids and caustics at low pressure. Temperatures to 500° F.

Style: No. 1102 Ring, Coil
Sizes: 1/8" and up
Materials: Square braided blue asbestos with virgin Anklon TFE 15% impregnation
Uses: Against strong acids and caustics at low pressure. Temperatures to 500° F.

Style: No. 1104 Ring, Coil
Sizes: 1/8" and up
Materials: Braided cotton jacket over a core of Anklon TFE plasticized blue asbestos. Angular or square cross-section
Uses: Against strong acids and caustics on high speed centrifugal* pumps. Solid Anklon TFE spacer rings should be used



Style: No. 1129-TL Ring, Coil
Sizes: 1/8" and up
Materials: Tightly braided square plaited construction of white asbestos fiber, each strand of which is thoroughly lubricated before braiding. The braid is encased in dry virgin Anklon TFE
Uses: For caustic services, especially in paper mills

Approximate Weights per 100 Feet

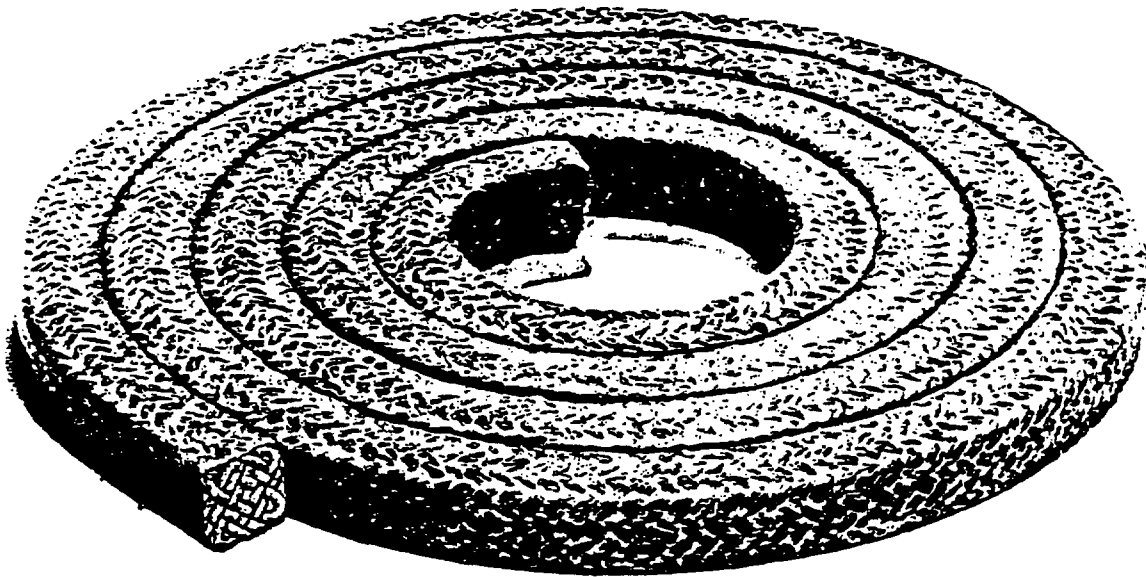
SIZE	STYLE	STYLE	STYLE	STYLE	STYLE	STYLE	STYLE
1/8"	1108	1109	1110	1111	1112	1113	1114
1/4"	1115	1116	1117	1118	1119	1120	1121
3/8"	1122	1123	1124	1125	1126	1127	1128
1/2"	1129	1130	1131	1132	1133	1134	1135
5/8"	1136	1137	1138	1139	1140	1141	1142
3/4"	1143	1144	1145	1146	1147	1148	1149
7/8"	1150	1151	1152	1153	1154	1155	1156
1"	1157	1158	1159	1160	1161	1162	1163
1 1/8"	1164	1165	1166	1167	1168	1169	1170
1 1/4"	1171	1172	1173	1174	1175	1176	1177
1 1/2"	1178	1179	1180	1181	1182	1183	1184
1 3/4"	1185	1186	1187	1188	1189	1190	1191
2"	1192	1193	1194	1195	1196	1197	1198
2 1/4"	1199	1200	1201	1202	1203	1204	1205
2 1/2"	1206	1207	1208	1209	1210	1211	1212
2 3/4"	1213	1214	1215	1216	1217	1218	1219
3"	1220	1221	1222	1223	1224	1225	1226

Anchor Flax and Flax Type Packings

For marine use and hydraulic applications on reciprocating rods, rotary rods, pump plungers, ship propeller shafts and hydraulic apparatus of various kinds

In the extensive assortment of Anchor natural fiber packings employing flax, cotton, jute, ramie; and synthetics such as rayon, users are enabled to select exactly the fiber and construction ideally suited to their service requirements. These fibers used as spun yarns for braiding and twisting, or for weaving into fabric, are processed to form the finished product. Double rendered pure tallow, petroleum wax, mineral oil, vegetable

oil, animal fat and graphite are used for lubricants. Rubber, neoprene and other synthetics are used for elastomers for binders, cores and backing. Each packing is constructed to meet a specific service need. In your choice, the Anchor specialist in your territory will gladly assist you in determining the style for greatest efficiency and maximum economy in your operation



Ankorlok Flax and Cotton Braid

For rotary or centrifugal shafts, reciprocating rods, plungers, rams

Style: No. 1320 Ring, Coil

Sizes: 1/4" and up

Materials: Ankorlok construction made from plain flax and lubricated throughout—not graphited

Uses: Against cold water on rotary shafts, reciprocating rods, plungers and rams

Style: No. 1322 Ring, Coil (Same as Style No. 1320, except it is dry—no lubrication)

Style: No. 1324 Ring, Coil

Sizes: 1/4" and up

Materials: Ankorlok construction made from plain flax with a waterproof hydraulic lubricant—graphited

Uses: Against cold water and cold oil for heavy duty service on reciprocating rods, plungers and rams

Style: No. 1330 Ring, Coil

Sizes: 1/4" and up

Materials: Ankorlok construction made from high quality cotton yarn lubricated and graphited throughout

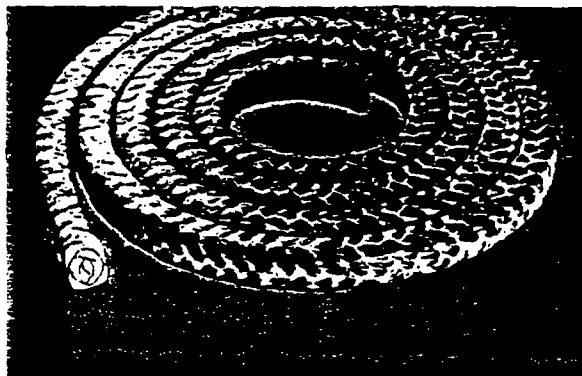
Uses: Against hot and cold water on rotary shafts

Approximate Weights: Pounds per 100 lineal feet

Size	STYLE 1320	STYLE 1322	STYLE 1330
1/4"	3.33	3.40	2.50
3/8"	7.54	7.90	6.38
1/2"	12.88	12.88	12.11
5/8"	19.11	19.11	17.60
3/4"	27.38	27.38	25.50
1"	48.35	48.35	43.75

Square Braided Flax and Flax Type Packings

For marine service, hydraulic apparatus, reciprocating and rotary rods, plungers Temperatures to 175° F.



Ankorite 380



Styles: No. 180 Ring; No. 380 Coil
Sizes: 1/4" and up

Materials: Square braided from Belgian Line No. 1 flax of fiber length which meets U.S. Navy and U.S. Federal Specifications.

Thoroughly lubricated with double-rendered tallow to minimize rancidity

Uses: Against cold water, brine and cold oils on reciprocating and rotary rods and plungers of pumps

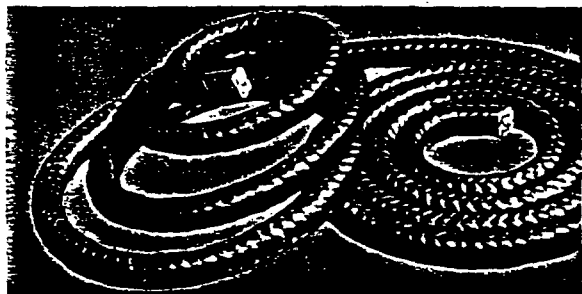
Capstan



Styles: No. 181 Ring; No. 381 Coil
Sizes: 1/8" and up

Materials: Square braided from Belgian medium long fiber flax and thoroughly lubricated with pure tallow

Uses: Against cold water, brine and cold oils on reciprocating and rotary rods and plungers of pumps



Ankorite Black Raven



Styles: No. 186 Ring; No. 386 Coil
Sizes: 1/8" and up

Materials: Square braided from long-fiber flax, each strand of which has been thoroughly lubricated and graphited before braiding, to minimize friction on metal parts

Uses: Against hot or cold water on revolving shafts; on rotary pumps with brass or bronze sleeves, propeller shafts, etc.

Ankorite 350-WPH



Styles: No. 150-WPH Ring; No. 350-WPH Coil
Sizes: 1/4" and up

Materials: Square braided from Belgian No. 1 long fiber flax and thoroughly lubricated with a special compound which makes the packing practically waterproof

Uses: Against liquid service on hydraulic jacks, accumulators, and pumps

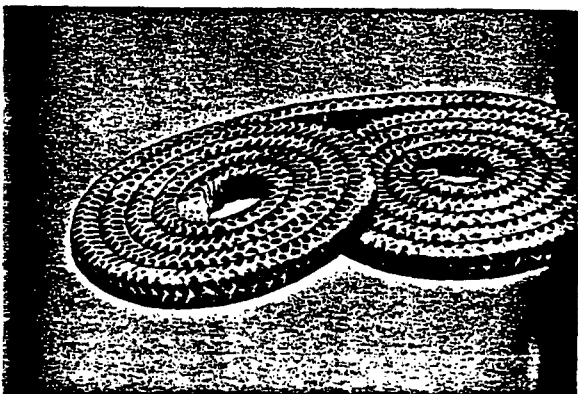
Capstan WPH



Styles: No. 151-WPH Coil; No. 351-WPH Coil
Sizes: 1/8" and up

Materials: Square braided from Belgian medium-long fiber flax and thoroughly impregnated with a special waterproofing lubricant

Uses: Against liquid service on hydraulic jacks, accumulators, and pumps



Ankorite Jute



Styles: No. 183 Ring; No. 383 Coil
Sizes: 1/8" and up

Materials: Square braided from the finest India jute and lubricated with pure tallow

Uses: Against cold water and dilute liquid solutions for low and medium pressures on rods and outside packed plungers of reciprocating pumps, rotary shafts and valve stems

Waterproof Jute



Styles: No. 153-WPH Ring; No. 353-WPH Coil
Sizes: 1/8" and up

Materials: Square braided from the finest India jute and waterproofed by impregnation with a special lubricating compound

Uses: Against cold water and dilute liquid solutions on hydraulic jacks, accumulators and hydraulic pumps

Cotton Torch Wick

Style: No. 390

Size: 1/8" to 1-1/2"

Materials: A soft interior of dry parallel cotton yarn over which is braided a cotton jacket

50 F.

WPH Coil

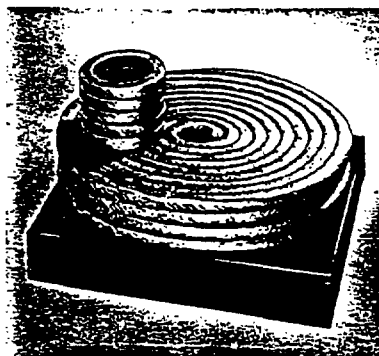
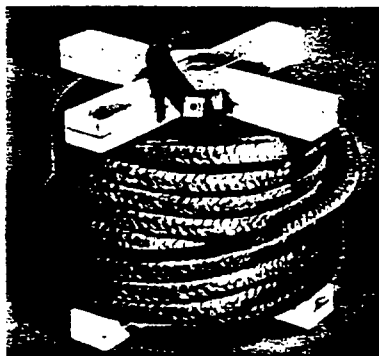
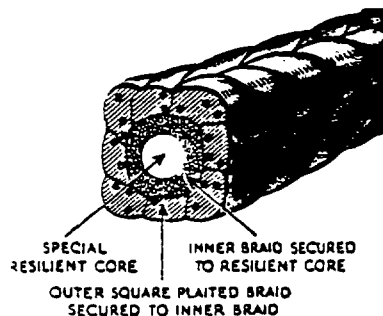
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Am. Jrite 387-F

Styles: No. 187-F Ring; No. 387-F Coil or Reels

Sizes: 1/4" and up

Materials: Resilient Ankoprene core bonded to an inner braid of flax, which makes the interior impervious to liquid pressure. The interior unit is then bonded to an outer square braided flax cover, the fibers of which are interspersed with soft lead wires which promote low friction contact to moving metal parts of the apparatus.

U 3: Against fresh or salt water at any pressure on circulating pumps, high pressure hydraulic apparatus, hydroturbine shafts, water works pumps, and ship propeller shafts

Approximate Weights: Pounds per 100 feet

1/4"	3/8"	1/2"	5/8"	3/4"	1"
6.79	12.62	17.19	24.64	43.25	70.62

Ramor Packing

Styles: No. 162 Tallow Ring

No. 362 Tallow Coil; No. 163-WPH Ring;
No. 363-WPH Coil

Sizes: 1/8" and up

Materials: Square

Materials: Square braided from strong lustrous ramie fiber, which is flax-like, but less abrasive than flax. It maintains its tensile strength when wet. It is furnished with tallow lubrication or with a special waterproofing lubrication compound.

Uses: Against cold water and dilute liquid applications for low and medium pressures on rods and outside-packed plungers of reciprocating pumps, rotary shafts and valve stems



Square Braided Cotton

Styles: No. 189 Ring; No. 389 Coil

Sizes: 1/8" and up

Materials: Square braided from long fiber cotton. Thoroughly lubricated and graphitized; also available dry

Uses: Against cold oil or liquids which will not disintegrate cotton fiber, on pumps. Useful on cold caustic applications where temperatures are under 200° F.

the finest
pure tallow
lute liquid
n rods and
ng pumps.

3-WPH Coil

the finest
impregnation
compounds on
oil pumps

otton yams

PACKING SPECIFICATIONS: Coils in continuous lengths and boxed. Weights and lengths are approximate

SIZE	STYLE NO. 306PH				STYLE NO. 306PH				SIZE	STYLE NO. 383				STYLE NO. 380				STYLE NO. 381			
	Lbs. per box	Coils per box	Feet per coil	Lbs. per 100 ft.	Lbs. per box	Coils per box	Feet per coil	Lbs. per 100 ft.		Lbs. per box	Coils per box	Feet per coil	Lbs. per 100 ft.	Lbs. per box	Coils per box	Feet per coil	Lbs. per 100 ft.	Lbs. per box	Coils per box	Feet per coil	Lbs. per 100 ft.
1/2"	35	8	44	3.37	35	8	44	3.37	35	8	44	3.37	35	8	44	3.20	35	8	40	3.37	
3/4"	30	7	31	5.35	30	7	31	5.35	30	7	31	5.35	30	7	31	5.00	30	7	30	5.45	
1"	27	6	27	6.80	27	6	27	6.80	27	6	27	6.80	27	6	27	6.80	27	6	24	7.55	
1 1/4"	23	5	23	9.60	23	5	23	9.60	23	5	23	9.60	23	5	23	10.15	23	5	45	10.15	
1 1/2"	28	4	28	12.40	28	4	28	12.40	28	4	28	12.40	28	4	28	13.50	28	4	28	12.74	
1 3/4"	22	4	22	15.55	22	4	22	15.55	22	4	22	15.55	22	4	22	16.75	22	4	22	15.63	
2"	19	3	19	24.80	19	3	19	24.80	19	3	19	24.80	19	3	19	20.00	19	3	25	18.52	
2 1/4"	15	3	15	32.50	15	3	15	32.50	15	3	15	32.50	15	3	15	24.80	15	3	21	21.72	
2 1/2"	15	3	15	42.00	15	3	15	42.00	15	3	15	42.00	15	3	15	29.60	15	3	19	24.92	
2 3/4"	15	3	15	42.00	15	3	15	42.00	15	3	15	42.00	15	3	15	37.90	15	3	15	33.77	
3"	15	3	15	42.00	15	3	15	42.00	15	3	15	42.00	15	3	15	47.00	15	3	15	44.05	

Ankorite Duck and Rubber

For rotary or centrifugal shafts, reciprocating rods, plungers, rams, valve stems, expansion joints

Anchor offers duck and rubber packing in every service-proven construction and formulation. The cotton duck employed is of high quality in weights suitable for the various constructions. The binders are natural rubber; Ankoprene, Anchor's own synthetic rubber compound; and other synthetics. In all constructions, the components produce packings of high resiliency which are incomparable in hot water service where many other types of packing have a tendency to swell.

The constructions are basically of two types

(1) Laminated. Duck and the binder are press lami-

nated, flat or diagonally, into slab form and afterwards fabricated into coils or spirals from which rings are cut.

(2) Rolled. Rubber coated fabrics with a hollow core which allows expansion and contraction; or around a rubber core which facilitates flexing without binding or seizing.

The styles described offer a wide choice for all possible services. The Anchor man in your area is always available to assist you in selecting the most efficient type for your specific requirement.

Ankorite Hydraulic

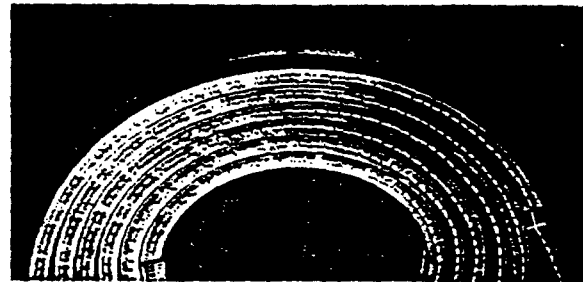


Styles: No. 140 Ring, No. 240 Spiral, No. 340 Coil

Sizes: 1/4" square and up in increments of 1/16". 20-foot coils. Be sure to specify regular or rock hard cure. In ordering rings specify type of joint: endless, bevel, butt or step. Style No. 140 is also available in solid ring form cut from slab.

Materials: Alternate layers of closely woven heavy duck and rubber vulcanized and white frictioned with a durable compound form this tough, long-life sheeting. May be had in two cures: regular, for applications to 200° F.; rock hard for applications to 250° F.

Uses: Against hot or cold hydraulic fluids in inside packed pistons, where repacking should be minimum.



Ankorite Stitched Hydraulic



Styles: No. 134 Ring, No. 234 Spiral, No. 334 Coil

Sizes: 1/4" square and up to 1" in increments of 1/16". Sizes 1/2" to 1" may be double-stitched if specified. Larger sizes available in rectangular form with maximum thickness of 3/4". Be sure to specify regular, or rock hard cure. In ordering rings, specify types of joint: bevel, butt or step. 20-foot coils.

Materials: Same as Style No. 140, except it is stitched through the center to guard against ply separation in service.

Uses: Against hot or cold hydraulic fluids. Regular cure for water; semi-hard and rock hard cures for oil, gasoline, naphtha and other distillates.

Square Tucks



Styles: No. 139 Ring, No. 339 Coil

Sizes: 3/8" square and up

Materials: Plies of coarse duck fabric with binder impregnation are pressed together to form this flexible hydraulic packing.

Uses: Against hot and cold water in hydraulic apparatus.

Packing Specifications Approximate Weights per 20 Foot Coils

Size, Square	STYLE NO. 334 NO. 340		STYLE NO. 339		Size, Square	STYLE NO. 334 NO. 340		STYLE NO. 339	
	Pounds	Coils Per Box	Pounds	Coils Per Box		Pounds	Coils Per Box	Pounds	Coils Per Box
1/4"	10	2	10	2	3/4"	210	2	210	2
5/16"	16	2	16	2	13/16"	220	2	220	2
3/8"	22	2	22	2	7/8"	230	2	230	2
7/16"	28	2	28	2	1"	240	2	240	2
1/2"	34	2	34	2	1 1/8"	250	2	250	2
9/16"	40	2	40	2	1 1/4"	260	2	260	2
5/8"	46	2	46	2	1 3/8"	270	2	270	2
11/8"	52	2	52	2	1 7/8"	280	2	280	2
1 1/16"	58	2	58	2	2"	290	2	290	2

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Ankorite



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Material: ber co be ob

Uses: A gasoline tons Also plung

Ankorite Extra S

Styles: Sizes: 3

Material: plies 130 are diffe

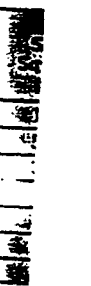
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apparatus



Ankorite Duck and Rubber



**Styles: No. 137 Ring, No. 237 Spiral,
No. 337 Coil**

Sizes: 1/4" and up in increments of 1/16".
In ordering rings specify type of joint:
bevel, butt or step. 20-foot spirals or coils.

Also available in solid ring form cut from slab to non-standard dimensions

Materials: Heavy duck fabric treated with natural rubber compound and vulcanized for regular cure. (May be obtained with rock hard cure on special order)

Uses: Against cold or warm liquids—from water to oil, gasoline and other solvents—on inside packed pistons where temperature does not exceed 200° F. Also suitable for use on outside packed rods or plungers

Ankorite Diagonal Ring and Ankorite E... a Sectional Ring

Styles: No. 130 Diagonal Ring; No. 126 Sectional Ring
 Sizes: 3/8" cross-section and up

Materials: Superior quality duck and rubber with the plies laminated into slab form, from which Style No. 130 rings are fabricated. Style No. 126 sectional rings are fabricated from the same quality slab stock; the difference is in the degree of the diagonal cut

Uses: Against liquids, air or low pressure steam on rods and plungers where easy response to pressure is desirable; requires only light gland pressure and makes it especially useful where there is rod misalignment. Temperatures to 200° F.

Ankorite Pure Rubber Ammonia Packing

Styles: No. 124 Ring, No. 324 Coil
 Sizes: 1/4" to 3/4" in increments of 1/8". Random
 length coils average 100 feet

Materials: Specially compounded 60 Durometer rubber
Uses: Against ammonia on rods of reciprocating compressors. This packing may be used in combination with other packing to compensate for temperature changes

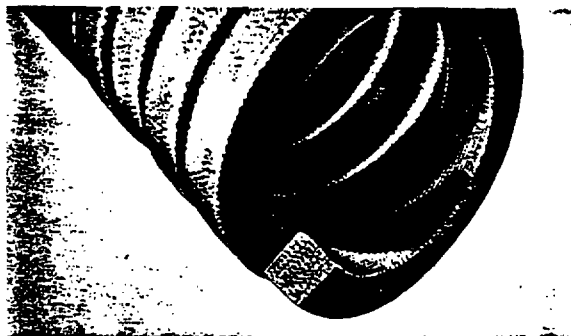
Ankorite Extra

Styles: No. 125 Ring, No. 225 Spiral, No. 325 Coil

Sizes: 1/8" and up. Spirals and coils approximately 20-feet long. Endless rings may be cut to accurate I.D. and O.D. from the slab stock, valuable where dimensions do not permit cutting from spiral or where endless rings are required

Materials: Extra quality duck and rubber which have been press laminated into slab form, from which this top quality packing is fabricated

Uses: For a wide variety of applications on low pressure steam, rods and plungers, and on hydraulic equipment. Temperatures to 200° F.



ANKORITE EXTRA

Ankorite Ammonia Packing

Styles: No. 127 Ring, No. 227 Spiral, No. 327 Coil

Sizes: 1/8" and up. Spirals and coils approximately 20 feet long

Materials: Duck and rubber laminate thoroughly lubricated for extreme softness

Uses: Against ammonia on reciprocating rods operating at not more than 500 feet per minute. Temperatures to 200° F.

Ankorite Ammonia Ring Sets

Styles: No. 127 Plain Ring; No. 128 Sectional Ring with 30° angle

Sizes: 1/8" and up. Specify I.D. and O.D. No. 127 and 128 may be ordered separately or if Duplex sets are desired, order Style No. 2728-A

Materials: Same as Ankorite Ammonia Packing

Uses: Same as Ankorite Ammonia Packing

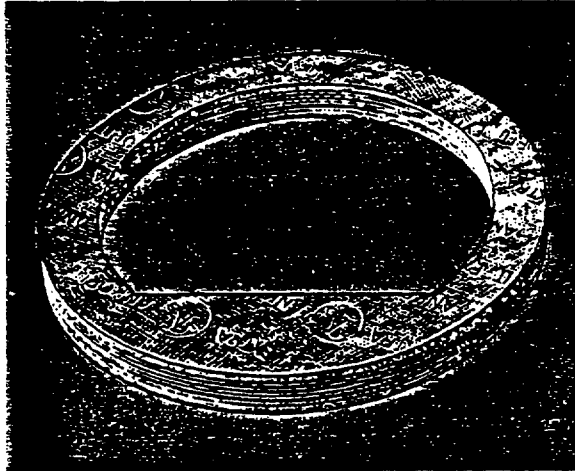
Packing Specifications—Approximate Weights per 20 Foot Coils or Spirals. Spirals are Boxed Singly

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Duck and Rubber Packings

Ankorite Standard

Styles: No. 135 Ring, No. 235 Spiral, No. 335 Coil
 Sizes: 3/16" and up. Spirals and coils approximately 20 feet long
 Materials: Plyed duck of medium grade frictioned with high quality rubber
 Uses: All services requiring a medium-priced duck and rubber packing for moderate pressures



Steam Hammer Rings

Styles: No. 125-H plain ring; No. 126-H, flat side wedge section with 30° bevel
 Materials: Extra quality duck and rubber which have been press laminated into slab form, from which these rings are fabricated
 Uses: For steam hammer rods with one flat side, two flat sides, or hexagonal
 Ordering: Furnish sketch showing shape and dimensions. For rods with one flat side, order No. 125-H; if flat side wedge section is wanted, order No. 126-H. For hexagonal rods order rings from dimensional sketch

Ankorite Topnoch



Styles: No. 147 Ring; No. 247 Spiral; No. 347 Coil
 Sizes: Spirals and coils in 12-foot lengths. Also available in endless construction. Ask your Anchor salesman for list of available sizes. Standard sizes are listed
 Materials: Heavy duck and rubber are vulcanized and molded for this flexible lip-type packing, which functions with slight gland pressure. When Topnoch rings are installed with the notch toward the pressure end, they will adjust to plunger misalignment because of the pressure action against the lip. Topnoch may also be furnished with lead dowels on the inside wearing surface. For temperatures beyond 250° F., Topnoch may be furnished in asbestos construction

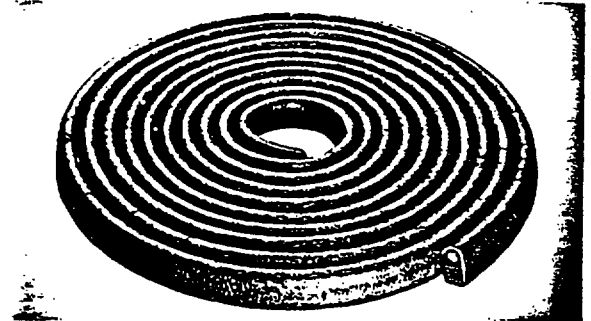
Uses: Against hot or cold water. Especially adapted for use on elevator plungers; and outside packed plunger pumps

Anchor Century Diagonal



Styles: No. 100 Ring; No. 200 Spiral; No. 300 Coil
 Sizes: 3/8" and up

Materials: Diagonal plies of duck and rubber are vulcanized and molded to form this packing. The diagonal design results in a lateral expansion against pressure which compensates for gland pressure change and wear; and adjusts to out-of-alignment and slightly worn parts
 Uses: Against water on large rams, rods and plungers of hydraulic apparatus at temperatures up to 200° F.



Ankorite Special Diagonal



Styles: No. 195 Ring; No. 295 Spiral; No. 395 Coil
 Sizes: 3/8" and up

Materials: Angular split duck and rubber are combined with a round duck and rubber cushion, and held together by a substantial braided cotton jacket to make a packing which is very responsive to gland pressure and is self-adjusting

Uses: Against low pressure steam, hot and cold water, on mine pumps, steam hammers and other apparatus at temperatures up to 200° F.

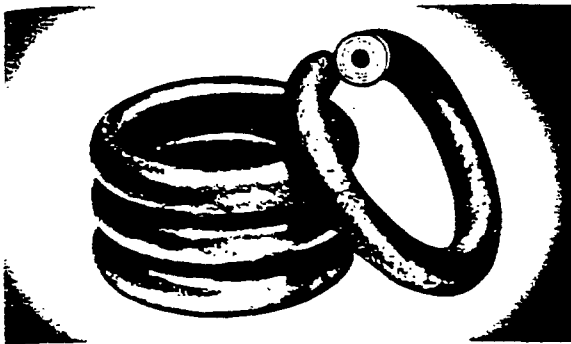
Approximate Weights: Pounds per 100 feet

3/8"	1/2"	5/8"	3/4"	7/8"	1"
13.5	27.0	42.0	50.0	83.0	90.0

STYLE NO. 347				PACKING SPECIFICATIONS	
Approximate Weights of Spirals and coils—12 foot lengths without lead dowels				20 Foot Coils	
Approximate Weights				Spirals are 200' Coils	
Approximate Weights				Approximate Weights	
Size	Width	Depth	Pounds per 100 Feet of Coil	Size	Coils Per Box
5/16" x 9/16"	1/8"	15.16	3/16"	27.0	
3/8" x 5/8"	1/8"	27.0	1/2"	42.0	
7/16" x 7/8"	1/8"	29.16	3/4"	50.0	
1/2" x 7/8"	1/8"	29.16	7/8"	83.0	
3/16" x 5/8"	1/8"	29.16	1"	90.0	
3/8" x 1 1/8"	1/8"	39.16			
5/16" x 1 3/8"	1/8"	39.16			
3/4" x 1 3/8"	1/8"	53.44			
3/16" x 1 5/8"	1/8"	43.44			
1/2" x 1 5/8"	1/8"	43.44			
5/8" x 1 5/8"	1/8"	43.44			
3/16" x 1 7/8"	1/8"	43.44			
1/2" x 1 7/8"	1/8"	43.44			
5/8" x 1 7/8"	1/8"	43.44			
3/16" x 2"	1/8"	43.44			
1/2" x 2"	1/8"	43.44			
5/8" x 2"	1/8"	43.44			
3/16" x 2 1/4"	1/8"	43.44			
1/2" x 2 1/4"	1/8"	43.44			
5/8" x 2 1/4"	1/8"	43.44			
3/16" x 2 3/4"	1/8"	43.44			
1/2" x 2 3/4"	1/8"	43.44			
5/8" x 2 3/4"	1/8"	43.44			
3/16" x 3"	1/8"	43.44			
1/2" x 3"	1/8"	43.44			
5/8" x 3"	1/8"	43.44			
3/16" x 3 1/4"	1/8"	43.44			
1/2" x 3 1/4"	1/8"	43.44			
5/8" x 3 1/4"	1/8"	43.44			
3/16" x 3 3/4"	1/8"	43.44			
1/2" x 3 3/4"	1/8"	43.44			
5/8" x 3 3/4"	1/8"	43.44			
3/16" x 4"	1/8"	43.44			
1/2" x 4"	1/8"	43.44			
5/8" x 4"	1/8"	43.44			
3/16" x 4 1/4"	1/8"	43.44			
1/2" x 4 1/4"	1/8"	43.44			
5/8" x 4 1/4"	1/8"	43.44			
3/16" x 4 3/4"	1/8"	43.44			
1/2" x 4 3/4"	1/8"	43.44			
5/8" x 4 3/4"	1/8"	43.44			
3/16" x 5"	1/8"	43.44			
1/2" x 5"	1/8"	43.44			
5/8" x 5"	1/8"	43.44			
3/16" x 5 1/4"	1/8"	43.44			
1/2" x 5 1/4"	1/8"	43.44			
5/8" x 5 1/4"	1/8"	43.44			
3/16" x 5 3/4"	1/8"	43.44			
1/2" x 5 3/4"	1/8"	43.44			
5/8" x 5 3/4"	1/8"	43.44			
3/16" x 6"	1/8"	43.44			
1/2" x 6"	1/8"	43.44			
5/8" x 6"	1/8"	43.44			
3/16" x 6 1/4"	1/8"	43.44			
1/2" x 6 1/4"	1/8"	43.44			
5/8" x 6 1/4"	1/8"	43.44			
3/16" x 6 3/4"	1/8"	43.44			
1/2" x 6 3/4"	1/8"	43.44			
5/8" x 6 3/4"	1/8"	43.44			
3/16" x 7"	1/8"	43.44			
1/2" x 7"	1/8"	43.44			
5/8" x 7"	1/8"	43.44			
3/16" x 7 1/4"	1/8"	43.44			
1/2" x 7 1/4"	1/8"	43.44			
5/8" x 7 1/4"	1/8"	43.44			
3/16" x 7 3/4"	1/8"	43.44			
1/2" x 7 3/4"	1/8"	43.44			
5/8" x 7 3/4"	1/8"	43.44			
3/16" x 8"	1/8"	43.44			
1/2" x 8"	1/8"	43.44			
5/8" x 8"	1/8"	43.44			
3/16" x 8 1/4"	1/8"	43.44			
1/2" x 8 1/4"	1/8"	43.44			
5/8" x 8 1/4"	1/8"	43.44			
3/16" x 8 3/4"	1/8"	43.44			
1/2" x 8 3/4"	1/8"	43.44			
5/8" x 8 3/4"	1/8"	43.44			
3/16" x 9"	1/8"	43.44			
1/2" x 9"	1/8"	43.44			
5/8" x 9"	1/8"	43.44			
3/16" x 9 1/4"	1/8"	43.44			
1/2" x 9 1/4"	1/8"	43.44			
5/8" x 9 1/4"	1/8"	43.44			
3/16" x 9 3/4"	1/8"	43.44			
1/2" x 9 3/4"	1/8"	43.44			
5/8" x 9 3/4"	1/8"	43.44			
3/16" x 10"	1/8"	43.44			
1/2" x 10"	1/8"	43.44			
5/8" x 10"	1/8"	43.44			
3/16" x 10 1/4"	1/8"	43.44			
1/2" x 10 1/4"	1/8"	43.44			
5/8" x 10 1/4"	1/8"	43.44			
3/16" x 10 3/4"	1/8"	43.44			
1/2" x 10 3/4"	1/8"	43.44			
5/8" x 10 3/4"	1/8"	43.44			
3/16" x 11"	1/8"	43.44			
1/2" x 11"	1/8"	43.44			
5/8" x 11"	1/8"	43.44			
3/16" x 11 1/4"	1/8"	43.44			
1/2" x 11 1/4"	1/8"	43.44			
5/8" x 11 1/4"	1/8"	43.44			
3/16" x 11 3/4"	1/8"	43.44			
1/2" x 11 3/4"	1/8"	43.44			
5/8" x 11 3/4"	1/8"	43.44			
3/16" x 12"	1/8"	43.44			
1/2" x 12"	1/8"	43.44			
5/8" x 12"	1/8"	43.44			

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Round Red Core

Styles: No. 158 Ring; No. 258 Spiral;
No. 358 Coil
Sizes: 1/4" and up

Materials: A round rubber core surrounded by duck and rubber to provide a versatile packing of good flexibility

Uses: Against medium steam pressure, hot or cold water, on rods, plungers and valve stems of hydraulic apparatus, when temperatures do not exceed 200° F. These round cross-section rings may be alternated with square cross-section rings to form an annular void between the packing and rod which acts as a reservoir to trap lubrication or condensation; also reduces friction and compensates for swelling. This packing also may be furnished in square cross-section for steam hammers or to alternate with the round construction



Ankorite Springbak



Styles: No. 123 Ring; No. 223 Spiral;
No. 323 Coil

Sizes: 1/4" and up in increments of 1/16".
Spirals and coils approximately 12 feet long

Materials: Duck and rubber unique construction with hollow center provide the "spring" action which makes the packing very responsive to pressure and easy to adjust

Uses: Against low pressure steam, hot or cold water, ammonia and air, for outside packed boiler feed pump plungers and rods, reciprocating ammonia rods, low pressure steam expansion joints, and water and air line joints at temperatures up to 210° F.

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Anchor Duck Channel Flax and other Channel Construction Packing



Sizes: 1/2" to 1-1/2" in increments of 1/8".
15 foot lengths

Styles: No. 146 Ring; No. 346 Coil

Materials: Square braided long fiber flax core is reinforced on three sides by a channel of strong duck and rubber, which construction in effect creates a packing where gasket rings are interposed with packing rings

Uses: Against hot and cold water on plungers and reciprocating rods with a speed not exceeding 150 feet per minute, and temperatures to 175° F.

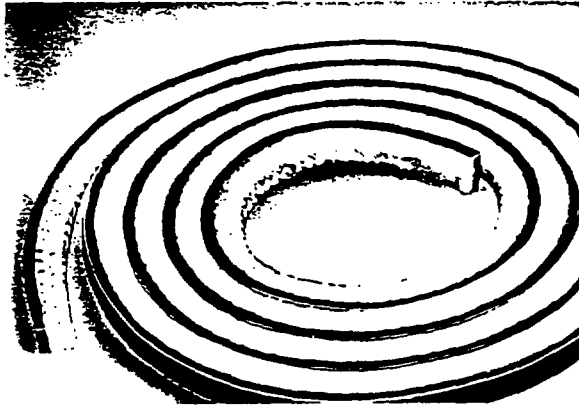


Note: All styles may be furnished dry if specified; otherwise, lubricated packing will be supplied.
Also, jute cores may be substituted for flax if specified

Approximate Weights—Pounds per 100 Feet—Standard 15 Foot Lengths

Size	Style No. 346	Style No. 346	Style No. 346-HD	Style No. 346-RB	Style No. 346-RTS	Style No. 346	Style No. 346	Style No. 346-HD	Style No. 346-RB	Style No. 346-RTS
Square Cross-Section	Lubricated	Dry	Lubricated	Lubricated	Lubricated	Square Cross-Section	Lubricated	Dry	Lubricated	Lubricated
1/4"	1.4	1.4	1.4	1.4	1.4	1/4"	1.4	1.4	1.4	1.4
3/8"	2.1	2.1	2.1	2.1	2.1	3/8"	2.1	2.1	2.1	2.1
1/2"	2.8	2.8	2.8	2.8	2.8	1/2"	2.8	2.8	2.8	2.8
5/8"	3.5	3.5	3.5	3.5	3.5	5/8"	3.5	3.5	3.5	3.5
3/4"	4.2	4.2	4.2	4.2	4.2	3/4"	4.2	4.2	4.2	4.2
7/8"	4.9	4.9	4.9	4.9	4.9	7/8"	4.9	4.9	4.9	4.9
1"	5.6	5.6	5.6	5.6	5.6	1"	5.6	5.6	5.6	5.6
1 1/8"	6.3	6.3	6.3	6.3	6.3	1 1/8"	6.3	6.3	6.3	6.3
1 1/4"	7.0	7.0	7.0	7.0	7.0	1 1/4"	7.0	7.0	7.0	7.0
1 3/8"	7.7	7.7	7.7	7.7	7.7	1 3/8"	7.7	7.7	7.7	7.7
1 1/2"	8.4	8.4	8.4	8.4	8.4	1 1/2"	8.4	8.4	8.4	8.4

Anchor Rubber and Fiber Constructions



Ankorite Rubber Back Flax

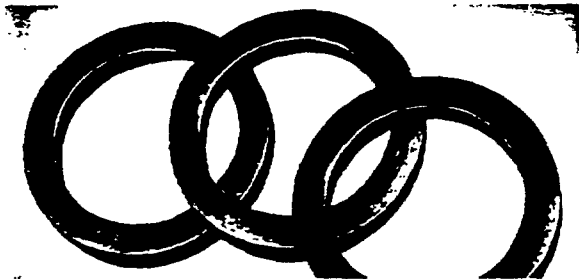


Styles: No. 185 Ring; No. 385 Coil
 Sizes: 1/2" to 1-1/2" in increments of 1/8".
 15 foot lengths. May be furnished dry if
 specified; otherwise, lubricated packing
 will be supplied

Materials: High quality flax yarn is square braided and
 backed with a securely vulcanized strong rubber sec-
 tion of special non-aging quality for maximum re-
 siliency

Uses: Against liquids for hydraulic lifts, press plungers,
 and slow moving rods. Temperatures to 175° F.
 Especially recommended for rods or plungers which
 are worn or out of alignment

APPROXIMATE WEIGHTS			
Pounds per 100 feet—Standard 15 foot lengths			
Style No. 385 lubricated			
1/4" sq.	3/8" sq.	1/2" sq.	5/8" sq.
3/4" sq.	1" sq.	1 1/8" sq.	1 1/4" sq.
1 1/8" sq.	1 3/8" sq.	1 7/8" sq.	2 1/4" sq.
2 3/8" sq.	3" sq.	3 1/2" sq.	4" sq.

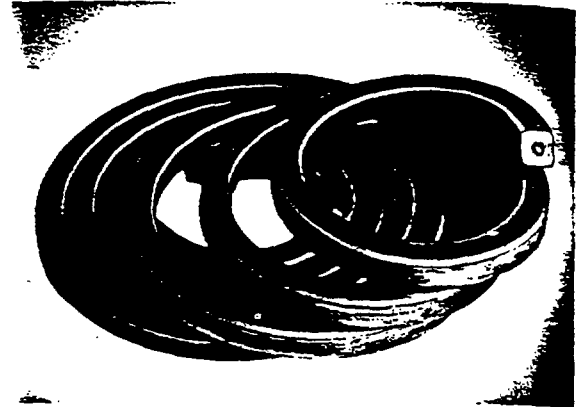


Ankorite Whal-Bon Piston Ring Packing

Materials: 80 Durometer (Type D) hard rubber-fiber
 composition, molded and cured to proper density
 under high pressure; and accurately machined to
 required dimensions

Uses: Against hot water, petroleum products and some
 acids on pistons at temperatures up to 250° F.

How to Order: Finished rings will be made to your speci-
 fication and a dimensional sketch should be fur-
 nished. Ankorite Whal-Bon sleeves and bushings are
 available for the convenience of customers who may
 wish to machine their own rings and bushings



Anchor Universal Hydraulic Hollow Center



Styles: No. 178 Ring; No. 278 Spiral; No.
 378 Coil
 Sizes: 1/4" and up in increments of 1/16".
 Spirals and coils are approximately 12
 feet long

Materials: High grade duck frictioned with a durable
 rubber compound with a hollow center to permit
 ready accommodation to gland pressure or to the ac-
 tion of pressure against it. Asbestos construction is
 also available

Uses: Against hydraulic fluids on any type of hydraulic
 equipment. Especially adaptable if rods or plungers
 are out of alignment or somewhat worn

Ankolite® Piston Rings

Materials: A synthetic resin is combined with either a
 linen fabric or asbestos cloth, densely compressed
 and accurately machined to required dimensions

Uses: Against hot water, oil and gasoline at tempera-
 tures up to 250° F., if the resin and linen construc-
 tion is used. For temperatures to 375° F., the resin
 and asbestos cloth construction should be used.
 Rings should be cut to permit expansion and con-
 traction

How to Order: Unless the resin and asbestos cloth con-
 struction is specified, the resin-linen construction
 will be furnished. Rings will be cut to your speci-
 fication, and a dimensional sketch should be fur-
 nished

PACKING SPECIFICATIONS—STYLE NO. 323			
Spiral and Coils are approximately 12 feet long			
All rings are split with bevel cut; Weights are			
Size	Spiral Packing Box	Pounds Per Box	Coil Packing Box
1/4" sq.	10	10	10
3/8" sq.	10	10	10
1/2" sq.	10	10	10
5/8" sq.	10	10	10
3/4" sq.	10	10	10
1" sq.	10	10	10
1 1/8" sq.	10	10	10
1 1/4" sq.	10	10	10
1 3/8" sq.	10	10	10
1 7/8" sq.	10	10	10
2 1/4" sq.	10	10	10
3" sq.	10	10	10
3 1/2" sq.	10	10	10
4" sq.	10	10	10

*Style No. 323 minimum size is 3/8"

Moldolite—for Heavy Duty—Molded Fabric Non-Metallic

styles: No. 1637—for lubrication by water; No. 1640—for lubrication by oil or grease; No. 1637CR—caustic-resisting; No. 1637AR—acid-resisting; No. 1645HT—for temperatures to 500° F.; No. 1645—self-lubricated where loads and operating conditions are not excessive

Materials: Molded fabric (non-metallic) is densely compressed with different binders selected to meet the specification of the style numbers listed above. It is non-toxic, odorless, and tasteless. The construction produces a material which will withstand great shock, has minimum friction, and will provide long service. For the uses recommended, Moldolite can be far more economical than metallic packings

Uses: Against heavy pressures, wear and heat where this non-metallic material will safeguard excessive bearing wear and damage to equipment parts in steel rolling mills, paper mills, stone crushers, etc. Moldolite is widely used in food-processing because of its non-toxic, odorless, and tasteless properties

How to Order: Moldolite is furnished in all shapes and flat sheets to accurate dimensions. Slipper bearings, roll neck bearings, metal reinforced bearings, bushings, piston rings, thrust collars, wear plates, wear rings, or other forms may be furnished to exact specifications. Be sure to supply sketches showing shapes and dimensions

Anchor Duplex Sets for Better Packing Performance

Greater service life and better packing performance is often possible by alternating rings of different constructions. Dimensionally, Anchor rings are generally interchangeable and users may select combinations from the all-inclusive line which Anchor provides to meet every possible requirement. However, to meet the needs of many applications where Duplex rings are advisable, Anchor offers the combinations listed

In the variety offered, it will be noted that flexible metallic rings are suggested in combination with non-metallic rings for some services. Such combinations are especially advantageous where there is vibration or where slight rod or shaft misalignment occurs

Styles: No. 800-850 Ring Sets

Sizes: 3/16" square and up. Rings sets of any stack height

Materials: Style No. 800 has a wedge-shaped core of soft, low frictional metal set in a channel of asbestos, lubricated and graphited. Metal surfaces are staggered for tight contact with rod. Style No. 850 is made of low frictional lead metal foil, lubricated and spirally wrapped—will not score rods, plungers, or shafts (Meets Specification MIL-P-17416)

Uses: Against ammonia, steam, oil, hot or cold water on piston rods or pumps at temperatures to 450° F. The two different styles should be alternated in the stuffing box. Do not use on bronze or brass rods

Styles: No. 850-858 Ring Sets

Sizes: 1/4" square and up. Ring sets of any stack height

Materials: Style No. 850 is made of low frictional lead-metal foil, lubricated and spirally wound—will not score rods, plungers, or shafts (meets Specification MIL-P-17416). Style No. 858 is fabricated with a Carbonite plastic core made from long-fiber graphited asbestos, and encased in a Babbitt foil-wrapped jacket (meets Specification MIL-P-17303, Class 1, Type C)

Uses: Against ammonia, oil, gasoline, etc.; on steel, stainless steel, Monel metal, and cast iron rods, plungers and shafts for rotary or reciprocating motion apparatus at temperatures up to 450° F. Do not use on rods or shafts where misalignment exists

Style: No. 1030-A Ring Sets

Sizes: 3/8" square and up. Ring sets of any stack height

Materials: For the end rings, Style No. 110 is used. This is a high pressure packing made from a tightly woven asbestos cloth impregnated with a high heat-resisting compound and incorporating a rubber cushion back. For the intermediate or alternating rings, Style No. 130 is used. This is formed from slab stock of plied layers of duck and rubber, which construction results in a self-adjusting packing quickly responsive to pressure and requiring minimum gland adjustment

Uses: Against low pressure steam, liquids, or air on reciprocating rods, hot water plungers, long stroke rods. Many applications where a self-adjusting packing is desirable

Anchor Duplex Sets for Better Packing Performance

Style: No. 811-137

Sizes: 1/4" square and up. Ring sets of any stack height

Materials: Style 811, formed from folded and crimped lead foil with graphite and high temperature mineral oil lubricant is alternated with Style 137 separator rings, which are made from regular cure slab stock of heavy duck fabric and natural rubber

Uses: Against cold or warm liquids—from water to oil, gasoline and other solvents on Triplex pumps having steel, stainless steel or Monel metal plungers—pressures from 250 psi to 3,000 psi. When installing this duplex set, metal rings must be tamped into place to eliminate voids

Style: No. 1258-A

Sizes: 3/8" square and up. Ring sets of any stack height

Materials: Style No. 112 high pressure square cross-section packing made from tightly woven asbestos cloth impregnated with a high heat-resisting compound and incorporating a rubber center core, is furnished in combination with Style No. 158. This is a round section packing with rubber core surrounded by duck and rubber

Uses: Against medium steam pressures and hydraulic fluids, on rods, plungers and valves, temperatures to 200° F., this combination of square and round cross-sections, forms an annular void between packing and rod which traps lubrication or condensation, reduces friction, and compensates for expansion

NOTE: When using this duplex set, the packing must be installed in the correct order and the correct amount of each must be used.

Style: No. 2530-A

Sizes: 3/8" square and up. Ring sets of any stack height

Materials: Style No. 125, a square cross-section laminated duck and rubber packing, is furnished in combination with Style No. 130, square cross-section of laminated duck and rubber, which construction makes the packing set readily responsive to pressure, and requiring minimum gland adjustment

Uses: Against liquids, air or low pressure steam on rods and plungers where easy response to pressure is desirable, or where there is rod weave or lateral movement. Temperatures to 200° F.

Style: No. 7830-A

Sizes: 3/8" square and up. Ring sets of any stack height

Materials: Style No. 178 (square cross-section) high grade duck frictioned with a rubber compound around a hollow center, is alternated with Style No. 130, also square, made of laminated duck and rubber. This combination results in excellent accommodation to gland pressure, and to pressure action against the packing set

Uses: Against hydraulic fluids on any type of equipment and particularly where rods or plungers are out of alignment or somewhat worn. Temperatures to 200° F.

Style: No. 1103-A

Sizes: 1/8" square and up. Ring sets of any stack height

Materials: Style No. 811, folded and crimped lead foil with graphite and high temperature mineral oil lubricant, is alternated with Style No. 103, white asbestos core with braid-over-braid construction and asbestos yarn outer jacket

Uses: Against hot oil at pressures to 1,000 psi on cracking still coils, valve stems, plungers, and rods where stuffing boxes are water or oil-jacketed for maximum temperature of 450° F.



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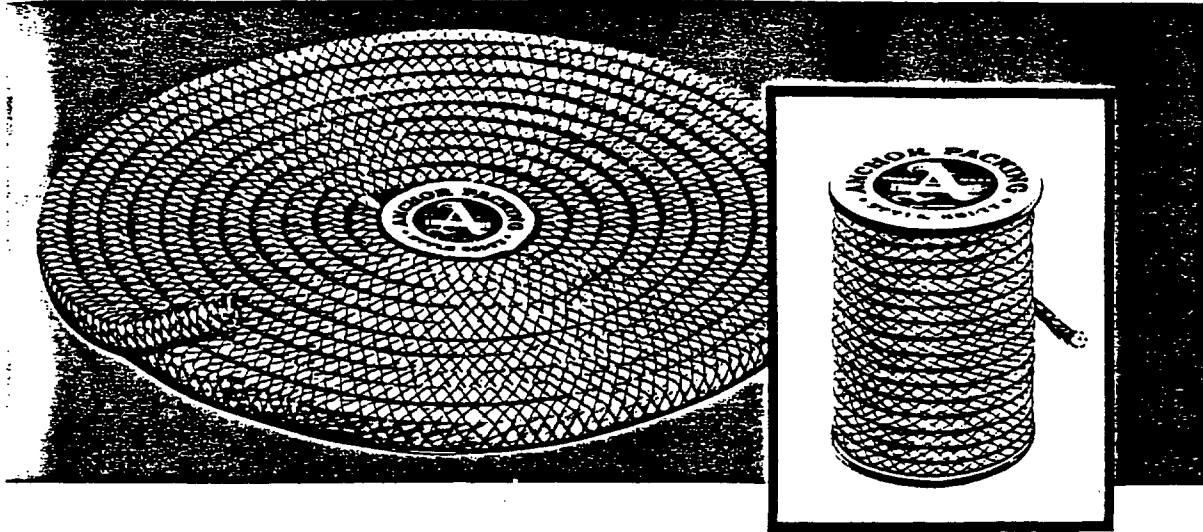
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Anchor Metallic Packings

**Resilient—Strong—Long Service Life—
Lead, Aluminum, Copper—Many Constructions for Every Service**

Anchor furnishes metallic packings for every service requirement at any pressure, any temperature. Flexibility and resiliency assure easy installation and proper compressibility for tight sealing with long service life. For many applications, metallic packings are mandatory; for others, metallic rings in combination with

other types of rings meet requirements. Anchor, with its background of research and experience in meeting the needs of packing for every type of service, is always ready to make recommendations for styles to give maximum efficiency on your equipment with economy



Anchor Armored Asbestos Packing

Style: 851TT Die-formed Rings, Coils

Sizes: 1/4" up square section on coils as illustrated. Also 10, 25, and 50 and 100-pound reels or continuous lengths available. May also be procured in round cross-section on one and five pound spools 1/8", 3/16", 1/4", 5/16", 3/8"

Materials: A unique construction of long fiber asbestos yarn armored with low friction lead and lubricated with a special compound. Strands with an all-metal wearing surface are twisted with multiple asbestos cushions; result in a soft, pliable packing of great resiliency and flexibility which, in ease of application and ready adjustment to gland pressure, are comparable to fabric packing

Uses: For any service at high or low pressure at temperatures to 450° F. where lead is suitable on high speed turbines and centrifugal pumps. Do not use on bronze

How to install: (1) Place the packing firmly in the stuffing box
(2) Break the joints and, with a blunt tool, tamp each ring as installed
(3) When stuffing box is filled, set up tight on the gland to complete seating or molding the packing to the rod, then slack off slightly. If the packing runs hot, slack off. Follow up carefully when packing is cool

Ankorite Metallic Braided Core

Style: No. 851 Ring, Spiral

Sizes: 1/4" and up. Spirals in 15-foot lengths. Rings and sets of any dimension

Materials: A lubricated braided asbestos core is spirally wrapped with soft lead foil producing a very flexible packing of square cross-section

Uses: Against any service for use in Monel metal, steel or stainless steel shafts and rods to 450° F.

APPROXIMATE WEIGHTS—Pounds per 100 feet					
1/4"	3/8"	1/2"	5/8"	3/4"	1"
15.98	27.30	38.63	46.95	58.27	74.57

PACKING SPECIFICATIONS STYLE 851TT

Round Section: 1/8", 3/16", 1/4", 5/16", 3/8", 1 & 5 lb. spools
Square Section in flat coils, one per box

Square Section (Inches)	Feet Per Box	Round Section (Inches)	Feet Per Box
1/4"	22	1/4"	22
3/8"	16	3/8"	16
1/2"	11	1/2"	11
5/8"	8	5/8"	8
3/4"	6	3/4"	6
1"	4	1"	4

Anchor Metallic Packings

Lead Metal Foil

Styles: No. 811 (cotton jacketed) Ring, Spiral (square cross-section); No. 811NJ (no cotton jacket); No. 811FM on Spools (round cross-section)

Sizes: Nos. 811 and 811NJ, 1/8" square and up. 15-foot spirals or rings and sets of any dimension. No. 811FM, 1/8" to 3/8" in increments of 1/16" furnished in one-pound spools

Materials: Folded and crimped lead foil with interstices filled with graphite and a high temperature mineral oil lubricant. Excellent flexibility. Furnished with or without a cotton jacket

Uses: Against water, oil or gasoline at temperatures to 450° F., on steel or cast iron rods, shafts or plungers. (Do not use on bronze unless operating at low speed)

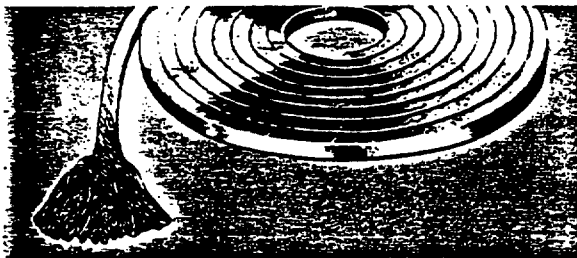
Spirally Wound Lead Foil

Style: No. 850 Ring, Spiral

Sizes: 1/8" and up. Spirals in 14-foot lengths. Rings and sets of any dimension

Materials: Made of low frictional lead foil, lubricated, spirally wound and compressed to square cross-section. Meets Specification MIL-P-17416

Uses: Against water, oil, gasoline, and other fluids at temperatures to 450° F. on steel or cast iron rods, shafts, or plungers. (Not recommended for brass or bronze rods or shafts). This low friction packing will not score or wear equipment. Style No. 850 rings are ideal where they are alternated with packing rings of other types. See Pages 35 and 36, Anchor Duplex Sets



Standard and Navy Grades

Style: No. 853 Ring, Spiral

Sizes: 1/2" and up. Standard length spirals, approximately 14 feet

Materials: Standard No. 853 has a regular tallow lubricated flax core, spirally wrapped with low friction lead foil. Navy Grade No. 853 to meet Specification MIL-P-16374-A, has a special flax core and lubrication

Uses: Standard No. 853 against cold water on centrifugal pump shafts and other services using steel, cast iron, or Monel metal rods or plungers. Navy Grade No. 853 against water for stern tube and propeller use. Both grades, temperatures to 450° F.

Anchor Shredded Metal Packing

Style: 801 Bulk, Ring, Coil

Sizes: Bulk—in five and ten-pound cans, eleven feet per five-pound tin.

Coils—square-formed cross-section sizes, 1/4" to 1"—approximately 25 feet per coil.

Preformed rings in any size. Die-formed rings, any shape or size

Materials: BULK: Strands of pure shredded lead are lubricated and graphited throughout, and packed in five and ten-pound cans. User may separate strands and twist them together to form required size

RING, COIL: The same material is twisted, formed in square cross-section and finished with a cotton jacket. Die-formed rings are also available

Uses: For a wide variety of apparatus and also useful for combination with many fabric styles, when used in ring form. Specially recommended for crankshaft packing on rotary compressors in refrigeration service—for proper applications rings should be preformed to exact dimensions. Die-formed rings are excellent for use against solvent gases (carbon dioxide; methylchloride, Freon, etc.) and against air or ammonia on compressor rods or shafts. Temperatures up to 450° F.

STYLE NO. 801—COIL			
Approximate Weights per Coil— (Coils are approximately 25 ft. long)			
Size	Pounds per Coil	Size	Pounds per Coil
1/8"	1-9/16	1/2"	20-5/16
1/4"	6-1/4	3/4"	37-1/2
3/8"	12-1/2	1"	87-1/2



PACKING SPECIFICATIONS					
Weights and lengths are approximate					
STYLE NO. 850 14 foot spirals 1 to the box			STYLE NO. 811 14 foot spirals. 1 per box		STYLE NO. 801 11 ft. per 5 lb. can
Size	Lbs. per box	Lbs. per 100 ft.	Size	Lbs. per box	Size Round
1/4"	2-1/16	14.7	1/4"	1	1/8"
3/8"	5-3/8	39.2	1/2"	2	3/16"
1/2"	10-1/4	72.8	5/8"	2-1/2	1/4"
5/8"	15-3/8	109.2	3/4"	3	5/16"
3/4"	25	175.0			3/8"
7/8"	28	196.0			
1"	45	315.0			

APPROXIMATE WEIGHTS—Pounds per 100 feet:					
1/4"	3/8"	1/2"	3/4"	1"	
14.59	25.91	39.96	61.27	91.24	

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Braided Copper

Style: No. 199 Ring; No. 399 Coil

Sizes: 1/4" and up in coils

Materials: Square plaited fine, soft annealed copper wire. No lubrication; square cross-

section

Uses: Heavy duty hydraulic service. For end of bush-
ing rings, used in combination with other style
packings, where excessive clearances exist between
rod and packing gland or throat. May be used
alone on steel rods, on contractors' locomotives, gas
engines, or wherever rods can be lubricated while
in use. Often mandatory on hot oil-pump plungers
because of high temperatures

NOTE: Copper packings, while more frictional than fabric or
lead base packings, will not wear or score steel rods if some
lubrication is provided. Their use should be confined to cases
where temperature or other conditions require packing which
is a high fusion point

Approximate Weights: Pounds per 100 feet

1/4"	3/8"	1/2"	5/8"	3/4"	1"
14.00	32.00	57.00	88.00	127.00	225.00

Aluminum Packings (All Aluminum)

Style: No. 861 Spiral

Sizes: 1/8" and up

Materials: Soft annealed aluminum foil. Folded, crimped,
and formed into uniform packing, square cross-sec-
tion. No fabric core

Uses: As end rings for temperatures to 1,000° F.

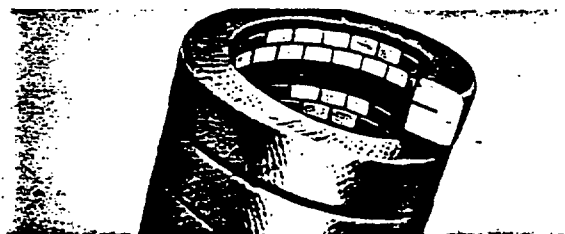
Aluminum, Dry Asbestos Core

Style: No. 862, Spiral

Sizes: 1/8" and up

Materials: Twisted crimped aluminum foil over a high-
grade dry asbestos core, produces a soft, flexible
packing

Uses: Against hot oil on high-speed pumps in modern
refinery processes. Temperatures to 1,000° F.



Security Wedge Semi-Metallic

Style: No. 800 Rings, Spirals, Sets

Sizes: 3/16" and up. Spirals about 10 to 12 feet long.
Rings and sets of any dimensions

Materials: Low frictional soft metal is formed into a
wedge-shaped core which is set in a lubricated and
graphited channel of high grade asbestos. Wearing
surfaces of the metal are staggered to ensure tight
contact with the rod

Uses: Against steam, oil, ammonia, paper mill stock,
and other liquids or slurries on high speed piston
rods, Corliss engines, large and small valve stems,
expansion joints, reciprocating rods, plungers, steam
hammers, shotgun feeds, pumps. Should not be used
on bronze or brass. Temperatures to 500° F.

APPROXIMATE WEIGHTS—Pounds per 100 feet

1/4"	3/8"	1/2"	5/8"	3/4"	1"
14.70	26.00	54.00	73.00	108.00	167.00

Aluminum Jacketed Asbestos Cord

Style: No. 864 Coil—round or square section

Sizes: Round section: 1/8", 3/16", 1/4" on 6 oz. and
1-3/4 lb. spools. Square section: 1/4" and up in
coils of from 14 to 24 feet, depending on size

Materials: Strands of dry asbestos yarn wrapped with
aluminum foil are twisted in multiples to form vari-
ous sizes of packing sections

Uses: Against hot oil, steam, hot water on high speed
pumps, valve stems, and on hardened shafts of high-
pressure, high-speed boiler feed pumps. Tempera-
tures to 1,000° F.

Aluminum, Lubricated Asbestos Core

Style: No. 863 Spiral

Sizes: 1/8" and up

Materials: High-grade asbestos core, thoroughly lubri-
cated, over which is twisted, crimped aluminum foil
and formed to square cross-section. Packing is soft
and yieldable

Uses: On high temperature services to 1,000° F.

PACKING SPECIFICATIONS—Weights are Approximate

STYLES NO. 861, 862, 863 Spiral form only				STYLE NO. 864 One coil per box		STYLES NO. 861, 862, 863 Spiral form only				STYLE NO. 864 One coil per box	
Square Section Size	Length Feet	Weight Pounds Spiral	No. Spirals Per Box	Length Feet	Weight Pounds Box	Square Section Size	Length Feet	Weight Pounds Spiral	No. Spirals Per Box	Length Feet	Weight Pounds Box
1/8"	18	5.16	4	24	20.64	1/8"	18	5.16	4	24	20.64
3/16"	18	9.40	2	24	22.56	3/16"	18	9.40	2	24	22.56
1/4"	18	13.64	2	24	32.72	1/4"	18	13.64	2	24	32.72
5/16"	18	17.88	1	18	32.16	5/16"	18	17.88	1	18	32.16
3/8"	18	22.12	1	18	39.82	3/8"	18	22.12	1	18	39.82
1/2"	18	26.36	1	24	63.24	1/2"	18	26.36	1	24	63.24

Style No. 864 in sizes 1/8", 3/16" and 1/4" are round section supplied on 6 oz. and 1-3/4 lb. spools.

Anchor Plastic Packings

Anchor offers a complete line of plastic packings which contain no cotton in their body structures to carbonize or burn out. Carbonite, the special Anchor plastic, is formulated exclusively to meet the rigorous demands of packing service. It is employed in most Anchor plas-

tic packings, but in styles where virgin Carbonite is not used, the packing is of the Carbonite type employing a plastic core formulated especially for the specific long-life service for which it is designed. All types are soft and conformable to stuffing boxes

Anchorite High Temperature Plastic Packings

This group covers every requirement for high temperature valve stem service and for expansion joints handling superheated steam, hot gases, and oils. These ANKORITE styles all have a plastic core of the Carbonite type



Ring, Coil

Style: No. 806



Style: No. 807

Sizes: 1/8" and up—square cross section*

Materials: Both styles have a corrosion-inhibiting Carbonite type plastic core surrounded by pure woven asbestos, Monel metal wire inserted. Style No. 806 is furnished with a graphite coating. Style No. 807 is without graphite. Temperatures to 1,000° F.



Ring, Coil

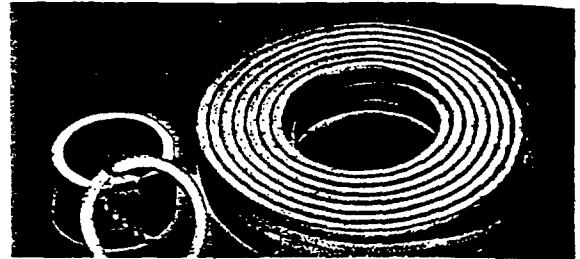
Style: No. 809



Style: No. 810

Sizes: 1/8" and up—square-cross section

Materials: Both styles have a corrosion-inhibiting Carbonite type plastic core surrounded by pure woven asbestos. Inconel metal wire inserted. Style No. 809 is graphite-coated and meets Specification MIL-P-17303C, Class 2, Type E, Symbol 1111. Style No. 810 is without graphite. Temperatures to 1,250° F.



Style: No. 804 Ring, Coil

Sizes: 1/8" and up—square cross-section*

Materials: A corrosion-inhibiting Carbonite type core containing pure asbestos and graphite surrounded by pure woven asbestos, Monel metal wire inserted. Meets Specification MIL-P-17303C, Class 2, Type C, Symbol 1108. Temperatures to 800° F.

Special Uses: Against high pressure superheated steam, hot and dry gases, and hot oils where a heavy-duty packing seal which will stay soft is required. It is excellent on valve stems, throttle valves, control valves, expansion joints, autoclaves, furnace doors—any application where a superior packing is needed for rugged service and long life

*Style Nos. 806, 807, 809, 810 and 804 are also available in die-formed conical shaped rings, where dimensions permit

Anchorite Plastic Type Rings

Styles: No. 191-DF, No. 191-NDF

Sizes: Styles 191-DF refers to die-formed rings. Style 191-NDF refers to cut rings, not die-formed. Both styles are available in any size, rectangular cross-section, except for small in-

side diameters, wall thickness must not be less than 3/32"

Materials: A homogeneous plastic mixture of pure asbestos fiber and graphite has a heat-resisting binder

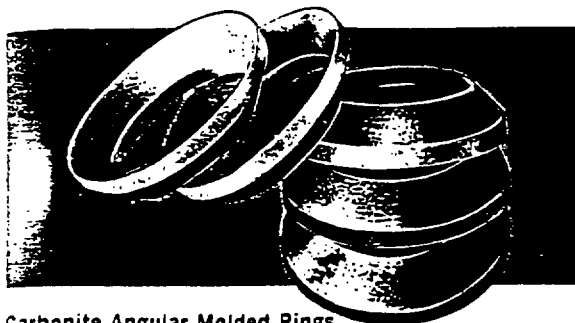
Uses: For a wide variety of services requiring rugged rings

PACKING SPECIFICATIONS—Weights and Lengths are approximate

STYLE NO. 806—Coil						STYLE NO. 804—Coil					
Size	Feet	Pounds	Feet	Pounds	Feet	Size	Feet	Pounds	Feet	Pounds	Feet
1/8"	100	1.45	100	1.45	100	1/8"	100	1.45	100	1.45	100
1/4"	100	1.85	100	1.85	100	1/4"	100	1.85	100	1.85	100
3/8"	100	2.25	100	2.25	100	3/8"	100	2.25	100	2.25	100
1/2"	100	2.65	100	2.65	100	1/2"	100	2.65	100	2.65	100
5/8"	100	3.05	100	3.05	100	5/8"	100	3.05	100	3.05	100
3/4"	100	3.45	100	3.45	100	3/4"	100	3.45	100	3.45	100
7/8"	100	3.85	100	3.85	100	7/8"	100	3.85	100	3.85	100
1"	100	4.25	100	4.25	100	1"	100	4.25	100	4.25	100

*On spools

Carbonite is employed in specific types are



Carbonite Angular Molded Rings

Style: No. 808-Q (Type 1)

Sizes: Any size to your specifications

Materials: Carbonite Type 1 is used in the precision molding of this extremely durable packing

Uses: Against high-temperature and high-pressure for turbine control valves, expansion joints, header valves—wherever a long-life packing is needed for rugged service. Temperatures to 900° F.

APPROXIMATE WEIGHTS—Pounds per 100 feet
Style No. 858CWB

1/4"	3/8"	1/2"	5/8"	3/4"	1"
7.79	11.66	27.47	35.30	81.25	121.88

Anchor Carbonite Plastic Type Packings

There are five special formulations of Anchor Carbonite which enable the construction of packings of different styles to meet the range of service demands

Anchor Carbonite in Bulk

Each of the five formulations is available in loose bulk form, and are essential for emergency use in all types of plants. The loose packing is easily installed by tamping into stuffing box and compressing it to a homogeneous mass by tightening the gland

Sizes: Each type is furnished in one-pound and five-pound cans

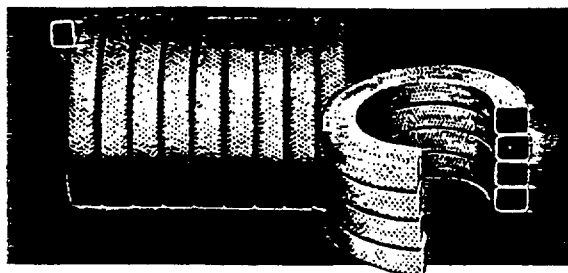
Styles: No. 808 Type 1—Standard Carbonite—no additives

No. 808 Type 2—Carbonite with Ankoprene

No. 808 Type 3—Carbonite with Ankoprene and lead chips

No. 808 Type 4—White Carbonite for food service—no additives

No. 808 Type 5—Standard Carbonite interspersed with lead chips



Plastic Core—Braided Copper Jacket

Style: No. 858-CWB Spiral, Ring

Sizes: 3/16" and up. Spirals in 10-foot lengths. Rings, any diameter

Materials: Lubricated asbestos-graphite mixture with soft metal particles is bound with a plastic to form the core which is encased in a jacket of fine braided copper wire. Meets Specification MIL-P-17303, Class 2, Type F

Uses: Against steam, hot oil and other high-temperature services on rods, plungers, valve stems and expansion joints. Temperatures to 750° F. May be used alone or in combination with other packings

Carbonite Type 1, Graphited Asbestos Core

Styles: No. 808-C Cotton jacketed; No. 808-A Asbestos jacketed

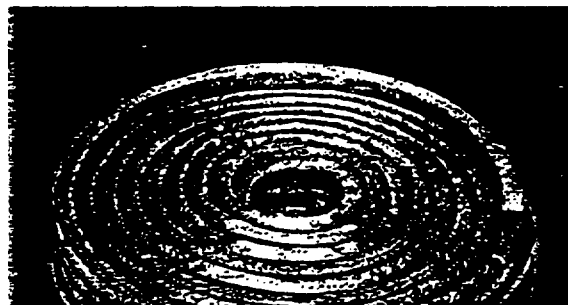
Sizes: Style 808-C cotton jacketed—3/16" and up

Style 808-A—Asbestos jacketed—1/4" and up

One-pound spools and five-pound coil boxes

Materials: Long fiber asbestos and pure flake graphite combine with Type 1 Carbonite. Soft, fluffy, dry fibers—no wax or tar. Square cross-section

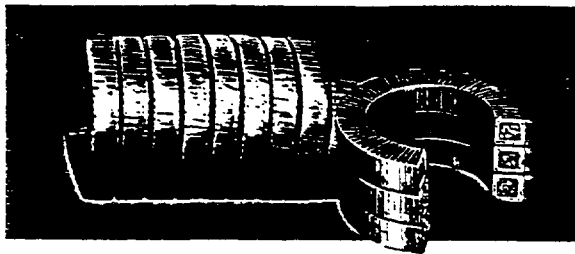
Uses: Against organic or mineral substances for high or low-speed rotary shafts, reciprocating rods and plungers, expansion joints and valve stems



APPROXIMATE WEIGHTS—Pounds per 100 feet

Style	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
808-C	7.79	11.66	27.47	35.30	81.25	121.88		
808-A								

* Sizes are round cross-section—others are square cross-section



Carbonite Core—Foil-Wrapped

Style: No. 858 Spiral, Ring

Sizes: 3/16" and up. Spirals in 12-foot lengths. Rings in any diameter

Materials: Carbonite plastic and a long-fiber asbestos graphite mixture form the core which is encased in a Babbitt foil-wrapped jacket. Meets Specification MIL-P-17303, Class 1, Type C

Uses: Where durability and ease of installation are required for a wide variety of services up to 450°

Carbonite Type 2, Graphited Asbestos Ankoprene—Lead Chips

Style: No. 820 Ring, Coil

Sizes: 3/16" and up. One-pound spools and five-pound boxes

Materials: Long fiber asbestos and pure flake graphite combine with Type 2 Carbonite (Ankoprene binder) and interspersed with lead chips*
Open cotton jacket. Square cross-section

Uses: Against oils and solvents

*May be supplied without lead chips, if specified

White Carbonite for Food Service

Style: No. 808-W Ring, Spiral, Coil; No. 808-W-NJ (no jacket) Ring, Spiral

Sizes: Style No. 808-W 1/8" and up; Style No. 808-W-NJ, 1/8" and up. Both styles are furnished on one-pound spools and five-pound boxes

Materials: Type 4 Carbonite (white) is lubricated with powdered white mica—non-contaminating throughout. With or without cotton jacket. Rectangular cross-section compensates for compression after installation

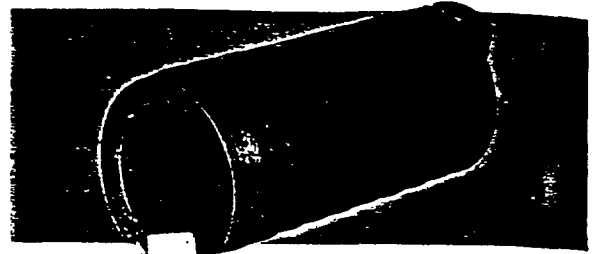
Uses: For all uses in the processing and handling of milk and all food products. Temperatures to 750°F.

Military Specification Packings

Style: No. 808-C Type 5 Coil

Sizes: 3/16" and up. Specify round or square cross-section

Materials: Long fiber asbestos and pure flake graphite combined with Type 5 Carbonite (with lead chips). Formed to round or square cross-section and cotton jacketed. Meets Specification MIL-P-17303, Class 1, Type B, Symbol 1433



Asbestos, Graphite, Buna N

Style: No. 820N J Spiral, Ring

Sizes: 1/8" and up. Rings of any stack height. Spirals about 10 inches deep. Rectangular cross-section compensates for compression after installation

Materials: This Carbonite type packing combines pure asbestos, graphite, and Buna N to form a homogeneous mass of rectangular cross-section requiring no jacket. Meets Specification MIL-L-17303C, Class 2, Type D

Uses: Against steam for reciprocating rods and against chemicals, acids, solvents, water, oil, gasoline and other volatiles on rotary shafts. Many other uses for this versatile packing. Rings are easily cut—no die-forming required. Temperatures to 750°F. and under certain conditions temperatures may be higher

PACKING SPECIFICATIONS—Style 820N J

Packed one spiral per box—

Weights and coil lengths are approximate

Standard Size	Standard Weight	Standard Length	Standard Size	Standard Weight	Standard Length
Spiral Size	Pack Size	Feet	Spiral Size	Pack Size	Feet
1/8" Dia	1.00 lb	18'	1/8" Dia	1.00 lb	18'
3/16"	1.25	15'	1/2"	3.00	14'
1/4"	1.50	12'	5/8"	2.50	12'
5/16"	1.75	10'	3/4"	2.00	10'
3/8"	2.00	8'	7/8"	1.50	8'
1/2"	2.50	6'	1"	1.00	6'
5/8"	3.00	4'			
3/4"	3.50	3'			
7/8"	4.00	2'			
1"	4.50	1'			



Carbolon Plastic Dough

Sizes: One-pound cans—small enough for any maintenance man's kit

Materials: Spinning grade asbestos fiber combined with TFE and a chemically inert permanent lubricant, forms a clean, non-contaminating, non-deteriorating plastic mass, easily kneaded and compressed into any size or shape packing nut or stuffing box by tightening nut or gland

Uses: Against most acids, solvents, chemicals and other fluids, for valves and other types of equipment with relatively small stuffing boxes. Carbolon is economical—unused portion need not be removed

Note: Where stem clearances are large, use Anchor end ring or rings (Style No. 1108) to prevent extrusion of Carbolon

Anchor Sheet Packing for Gaskets

Every Material—Every Construction

The Anchor line of sheet packing comprises every material and construction suitable for the making of gaskets. To meet the sealing requirements of every duty, every gas at temperatures from cryogenic to superheat; with working pressures to the highest employed by any industry, necessitates an unlimited variety of sheet formulations and constructions. It is logical that Anchor, whose business is devoted exclusively to supplying products for every packing and

sealing requirement of all industry, should offer this unlimited range of sheet packing. Every item listed has proved itself under the severest conditions imposed by the service for which it was designed. You buy direct from Anchor—strategically nationally located branches are manned by packing experts who are always ready to assist users in selecting the most efficient packing, with economy for their particular service needs

"TAURIL"
REG. U. S. PAT. OFF.

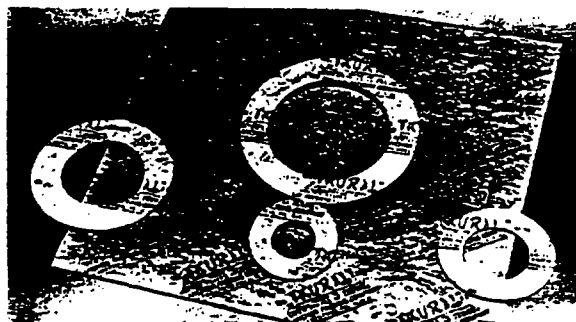
SUPER SERVICE SHEET PACKING

for: High Pressures and Temperatures

Description: This top quality sheet is approved by the Underwriters Laboratories and meets ASTM Specification 1161-A. Tauril is made from long fiber asbestos, thoroughly impregnated with (SBR) binder, pressure bonded and vulcanized into a dense sheet of uniform thickness and surface finish. Special processing produces a strong, tough gasket material preferred by engineers for its long life and superior resistance to superheat and high pressures

Uses: For temperatures to 800° F.

Sizes: Sheets 50" x 50"; 50" x 150"; in thicknesses of 1/64", 1/32", 1/16", 3/32" and 1/8"



TARGET
REG. U. S. PAT. OFF.

FOR SEVERE SERVICE

Description: This compressed asbestos fiber sheet, bonded with Buna N (NBR) is approved by the Underwriters Laboratories; meets the following specifications: MIL G 12803A; ASTM 1170 P1141A; AMS 3232. A heat-resisting synthetic impregnation provides immunity to the action of oil and many petroleum solvents. Gaskets made from Target withstand the severest conditions imposed on a compressed gasket

Uses: For chemical and acid services where oil or solvents might be harmful to gaskets containing natural rubber; against fuels, oils, refrigerants, aromatics. Temperatures: -80° F. to +800° F.

Sizes: 50" x 50"; 60" x 60"; 50" x 150"; 60" x 120"; thicknesses 1/64", 1/32", 1/16", 3/32", 1/8"

Approximate Weights per 50" x 50" Sheet

1/64"—2 1/2 pounds • 1/32"—5 pounds • 1/16"—10 pounds
3/32"—15 pounds • 1/8"—20 pounds

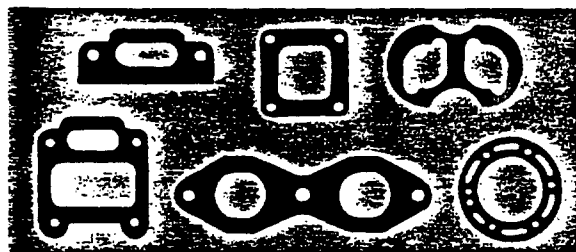
TWICOM

Compressed Asbestos, SBR Binder

Description: Compressed asbestos, SBR binder, with close-mesh, steel wire gauze reinforcement, graphited both sides. Available on special order only

Uses: For rugged service gaskets, any purpose

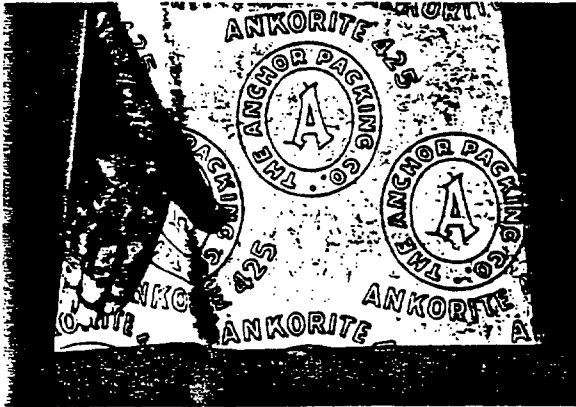
Sizes: 1/64", 1/32", and 1/8" thick; sheets, 59" x 40" and 59" x 80"



Tauril, Target and Twicom Gaskets are available in any size and shape to your drawings

ANKORITE 425

A Superior General Purpose Gasket Sheet



Styles: No. 425 Sheet; No. 525 Cut Gaskets
Sizes: Stock sheets, 50" x 50"; 50" x 150"; in thicknesses of 1/64", 1/32", 1/16", 3/32", 1/8" and 1/4". Other sheet sizes on application. Cut gaskets, Style 525, for most standard flange sizes may be furnished from stock

Description: This superior quality homogeneous sheet is specially processed from long fiber asbestos and a combination of heat-resisting bonding compounds, compressed under high pressure. Meets specification MIL-A-17472

Uses: Against steam for power plants and all around industrial work. Also used extensively in chemical plants. Temperatures to 750° F.

ANKOPRENE BONDED SHEET

Styles: No. 450, Sheet; No. 550, Cut Gaskets
Sizes: Sheets, 50" x 50", 60" x 60", 120" x 120", 50" x 150", 60" x 120", 150" x 150" in thicknesses of 1/64", 1/32", 1/16", 3/32" and 1/8"

Description: This homogeneous sheet is made from pure asbestos fiber with Neoprene (CR) binder and compressed. It is approved by the Underwriters Laboratories and meets ASTM Specification 1170-P 1151-A and AMS Specification 3232

Uses: Against petroleum oils and distillates, gasoline and all petroleum derived solvents; for refrigerating compressors handling Freon or other refrigerants. Temperatures from -50° F. to +650° F.

Ankprene Bonded Sheet

Specification MIL-A-7021, Class 1

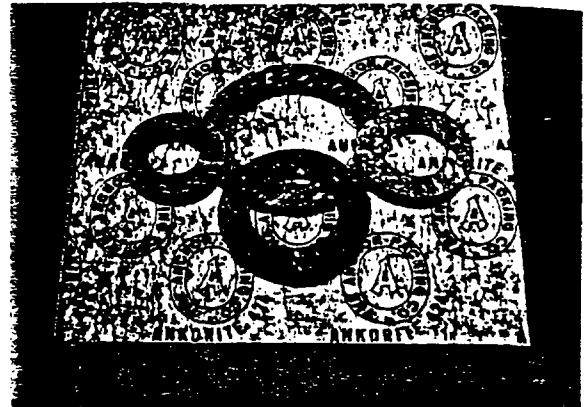
Styles: No. 449, Sheet; No. 549, Cut Gaskets
Sizes: 50" x 50"; 60" x 60"; 50" x 150"; 60" x 120"; thicknesses 1/64", 1/32", 1/16", 3/32" and 1/8"

Description: Homogeneous asbestos Ankprene bonded sheet similar to Style No. 450, with the additional feature of meeting Specification MIL-A-7021, Class 1

Uses: For refrigeration work on copper and brass flanges

ANKORITE HIGH PRESSURE SHEET

A Versatile Material



Styles: No. 424; No. 424G (graphited both sides); No. 524; No. 524G Cut Gaskets; in thicknesses of sheets listed below

Sizes: Sheets, 50" x 50"; 60" x 60"; 120" x 120"; 50" x 150"; 60" x 120"; 150" x 150" in thicknesses of 1/64", 1/32", 1/16", 3/32" and 1/8"

Description: Compressed asbestos compounded to withstand long periods in storage, this sheet has excellent physical properties and meets ASTM specification 1170 P1161A

Uses: For oil services and practically all gasket requirements for railroads, power plants, chemical plants, and general industry. Temperatures to 750° F.

Anchor Compressed Asbestos Sheets

Available On Special Order Only

Styles: No. 484-A, Sheet; No. 584-A, Cut Gaskets

Sizes: Sheets, 50" x 50"; 60" x 60"; 120" x 120" and 150" x 150" in thicknesses of 1/64", 1/32", 1/16", 3/32"; and 1/8"

Description: This homogeneous long fiber asbestos combined with heat resisting compounds and compressed under high pressure is similar to Ankorite 425, except it is black in color. Meets Specifications MIL-A-17472; MIL-G-12803-A; HH-P-46B; ASTM 1170-P 1161-A

Uses: Against steam for power plants and all around industrial work. Also used extensively in chemical plants. Temperatures to 750° F.

Cream Colored

Styles: No. 419, Sheet; No. 519, Cut Gaskets

Sizes: Sheets, 50" x 50"; 60" x 60"; 120" x 120"; 50" x 150"; 60" x 120"; 150" x 150" in thicknesses of 1/64", 1/32", 1/16", 3/32" and 1/8"

Description: This cream colored homogeneous sheet specially compounded for high resistance to solvents

Uses: For oil services and oil refinery applications

Approximate Weights per 50" x 50" Sheet
 1/64"-2 1/2 pounds 1/16"-10 pounds
 1/32"-5 pounds 3/32"-15 pounds
 1/8"-20 pounds

HEET

ANKORITE COMPRESSIBLE SHEET

Styles: No. 437, Sheet; No. 537, Cut Gaskets
 Sizes: Standard rolls: 46" wide in thicknesses of 1/32", 1/16", 1/8", 3/32" and 1/4"

Description: High grade asbestos fiber compounded and compressed with rubber to produce a tough sheet, softer than standard density to provide flexibility and folding quality, so essential for conformation to rough, irregular or pitted flanges

Uses: Against gas, air and for other services where a softer sheet is advantageous. Temperatures to 400° F. Pressures not to exceed 100 pounds

Approximate Weights per Standard Rolls

1/8" thick x 46" wide x 30' long—100 lbs.
 1/16" thick x 46" wide x 60' long—100 lbs.
 1/32" thick x 46" wide x 60' long—50 lbs.

Vegetable Fiber Sheet

Style: No. 403, Sheet; No. 503, Cut Gaskets
 Roll Sizes: 25 and 50-yard continuous rolls 36" wide in thicknesses of 1/64", 1/32", 1/16"

Sheet Sizes: 36" x 36"; 36" x 48"; 36" x 120" in thicknesses of 3/32" and over

Description: Good quality vegetable fiber sheet which is chemically treated to resist penetration of liquids and to preserve the sheet while in use or in stock. Meets U.S. Navy and ASTM specifications

Uses: Against oil, gasoline, greases and water. Temperatures to 200° F.

Korker-Fiber and Cork Sheet

Styles: No. 407, Sheet; No. 507, Cut Gaskets
 Size: Continuous rolls 36" wide, thicknesses 1/64", 1/32", 1/16"

Sheet Sizes: 36" x 36"; 36" x 48"; 36" x 72"; 36" x 120" in thicknesses of 3/32" and 1/8"

Weight: 2-3/4 pounds per square yard, 1/16" thick
 Description: This strong, flexible, easily compressible sheet is made from a combination of vegetable fiber and granulated cork with an oil-resistant binder. Meets Specifications: MIL-G-12803A; ASTM D1170-58T

Uses: At low pressures and temperatures to 250°, gaskets made from this sheet are ideal in the automotive industry, Diesel and gasoline applications, crankcase seals—wherever the resiliency and compressibility of this cork formulation are desirable

Anchor Cork Sheet

Styles: No. 401, Sheet; No. 501, Cut Gaskets
 Sizes: Sheets, 36" x 36"; 28" x 50". Other sheet sizes available. Consult nearest Anchor branch office. Thicknesses 1/32" and up

Description: Compressed cork, strong and highly resilient

Uses: At low pressures and temperatures to 200° F., gaskets made from this sheet are for application in the automotive, Diesel and gasoline engine industries; for crank seals

BLUE ASBESTOS SHEET

Style: No. 4250, Sheet

Sizes: Sheets, 50" x 50"; 50" x 150" in thicknesses of 1/32", 1/16", 3/32" and 1/8"

Description: A top grade compressed gasketing sheet made from the finest quality South African blue asbestos fiber and compressed with a special rubber formula

Uses: Against mineral acids and hot caustic services; wherever the qualities of blue asbestos are desirable

Approximate Weights per 50" x 50" Sheet

1/64"-2 1/2 pounds 1/32"-5 pounds 1/16"-10 pounds
 3/32"-15 pounds 1/8"-20 pounds

Hydroil® Gasket Sheet

Styles: No. 402, Sheet; No. 502, Cut Gaskets

Roll Sizes: Continuous rolls 36", 42" and 50" wide in thicknesses of 1/64", 1/32", 1/16". Sheet sizes: 36", 42" and 50" wide by any length to 120" in thicknesses of 3/32" and over

Description: Hydroil is a vulcanized vegetable fiber sheet of unsurpassed quality, with maximum durability. No fibrous gasket material has gained more satisfied users. It is approved by the Underwriters Laboratories for most uses and meets Specifications MIL-P-20085; MIL-G-12803; ASTM D1170-54T (3212 and 3213)

Uses: Low pressure applications on all liquids except corrosive acids and caustics. Excellent for oil, gasoline, benzene, other volatiles and water. Temperatures to 250° F.

Water Meter Gaskets: For all sizes and models of meters of the following makes: American Arctic, Badger, Buffalo Meter, Crown, Empire, Federal, Hersey, Keystone, King, Lambert, Nash, Niagara, Trident, Watch Dog-Worthington

Bung Gaskets: Any size of standard bung and cap gaskets. Simply furnish ID, OD, and thickness when ordering these Hydroil gaskets

APPROXIMATE WEIGHTS—STYLE NOS. 402, 403

Thickness	36" x 36"	36" x 48"	36" x 72"	36" x 120"
1/64"	2.5	4.0	6.0	10.0
1/32"	5.0	8.0	12.0	20.0
1/16"	10.0	16.0	24.0	40.0

Kork-Ene—Cork, Ankoprene Binder

Styles: No. 408, Sheet; No. 508, Cut Gaskets

Sizes: Sheets 36" x 36" thicknesses, 1/32" and up

Description: A resilient material of granulated cork compressed into sheet form with Ankoprene binder

Uses: Use against oil, gasoline, Freon, other refrigerants, and hydro-carbon solvents except benzol series. Temperatures to 250° F.

WOVEN ASBESTOS GASKET SHEETS



Ankorite Woven Red and Black Sheet (Motorite)

Styles: No. 406, Sheet; No. 506, Cut Gaskets

Sizes: Sheets, 40" wide x any length in thicknesses of 1/32", 1/16", 3/32", 1/8"

Description: High quality asbestos yarn twisted with fine brass wire, is tightly woven into a strong cloth which is treated with a high heat-resisting compound. One side of the cloth is graphited, which allows joints to be broken without gasket adhesion

Uses: Against high pressure steam or air on flanges and cylinder heads, temperatures to 600° F. Use for automotive motor flanges, exhaust manifolds of gasoline and Diesel engines, cylinder heads of steam hammers, etc., and on narrow flanges where vibration is a problem

Ankorite Woven Asbestos Sheet, Ankoprene bonded

Style: No. 439, sheet or cut gaskets as specified

Sizes: Sheets 40" wide x any length in thicknesses of 1/32", 1/16", 3/32" and 1/8"

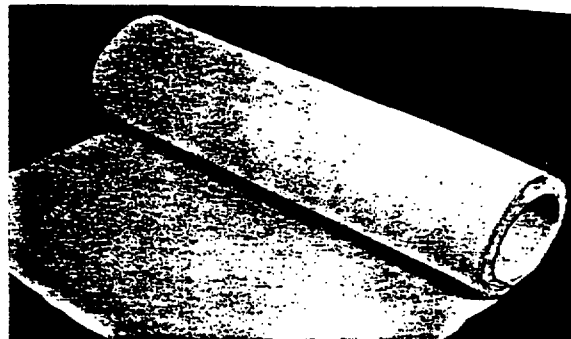
Description: High quality asbestos yarn twisted with fine brass wire, is tightly woven into a strong cloth which is impregnated and coated with Ankoprene compound. May also be furnished without wire reinforcement, 1/16" thick

Uses: Against oil or solvents which may be destructive to a natural rubber compound

Woven Seamless Asbestos Boiler Gaskets

- Styles: No. 633 Oval Heine,
3-9/16" x 4-9/16" x 3/8" x 5/32" thick
No. 634 Round Heine,
3-9/16" x 4-5/16" x 3/8" x 5/32" thick
No. 643 B & W Oval,
4-7/16" x 5-3/8" x 1/4" x 9/64" or 11/64" thick
No. 643 B & W Square,
4-23/32" x 4-29/32" x 1/4" x 9/64" or 11/64" thick
No. 645 Edgemoor Oval,
4-1/32" x 5-5/32" x 1/2" x 5/32" thick

Description: These die-formed gaskets are fabricated from an asbestos wire-reinforced woven tubular fabric, impregnated with a high heat-resisting compound



Ankorite Woven White Sheet

Styles: No. 405, Sheet; No. 505, Cut Gaskets

Sizes: Sheets, 40" wide x any length in thicknesses of 1/32", 1/16", 3/32", 1/8"

Description: High quality asbestos yarn twisted with fine brass wire, is tightly woven into a strong cloth which is rubberized with heat-resisting compound

Uses: At temperatures to 600° F. for automotive motor flange joints, for superheat steam gaskets; for manifold gaskets in internal combustion engines

APPROXIMATE WEIGHTS

- Style No. 405 1/16" x 36" x 40" 5 pounds
Style No. 406 1/16" x 36" x 40" 5 pounds
Style No. 439 1/16" x 36" x 40" 5.40 pounds

Anco Folded Woven Asbestos Gasket Tape

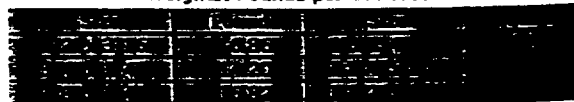
- Styles: No. 1575, wire inserted, rubberized
No. 1576, no wire, rubberized
No. 1577, wire inserted, Ankoprene bonded
No. 1578, no wire, Ankoprene bonded

Sizes: To your specification

Description: Similar to our folded Asbestos gaskets, but in tape form

Uses: For large flanges, condenser heads, heat exchanger heads and other applications

PACKING SPECIFICATIONS—Style: No. 1575 Weights: Pounds per 100 feet

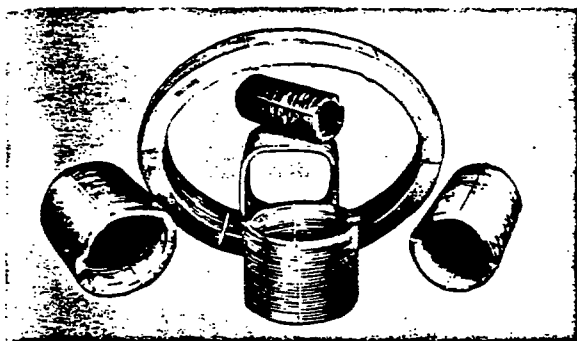


Ankorite High Pressure Folded Gaskets

Style: No. 639 Ankoprene

Description: Made from the same Ankoprene-impregnated wire reinforced asbestos cloth used for Style No. 439. Strength and durability in service are assured

Uses: Against oil, gasoline and solvents, especially where natural rubber would be subject to deterioration

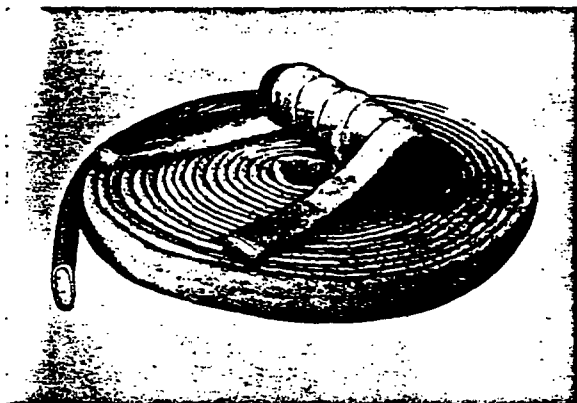


**Ankorite Folded Asbestos
Manhole and Handhole Gaskets**
 Styles: No. 600 M.H., No. 600 H.H.

Sizes: Any size or shape to your specification

Description: Fabricated from the same rubberized asbestos cloth as Style No. 405. The folded construction makes these gaskets highly resilient, easily shaped to conform to irregular surfaces

Uses: Temperatures to 600° F. for all standard dimensions of handholes and manholes

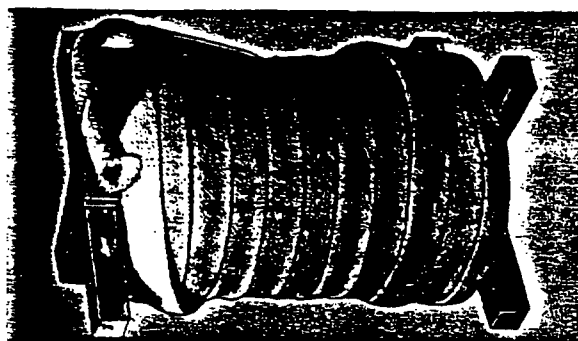


Ankorite Heat Hold Tape
 Style: No. 1570

Sizes: 50 feet per roll. 1-9/16" wide x 3/16" thick; 2" wide x 1/4" thick; 2-3/8" wide x 3/8" thick

Description: A felted cord of integral fiberized asbestos is encased in a tubular asbestos braid, with the core completely filling the tube in length and width. The tape may be wrapped closely, tightly and smoothly on pipes—no wrinkling. This construction provides complete insulation—no heat radiation

Uses: For all pipe lines conveying hot fluids where heat loss must be prevented. For pipe insulation in locomotives, steamships, and power plants where vibration is present. For insulation on pipe lines which must be dismantled frequently for cleaning, repair or other purposes. This tape is invaluable on small pipe in close quarters, where runs are short and there are many tees and elbows



Tubular Asbestos

Styles: No. 1560, Commercial non-metallic; No. 1561, Underwriters' non-metallic; No. 1562, AAA non-metallic; No. 1563, AA non-metallic; No. 1564, commercial, treated to your specification; No. 1565, commercial, wire-inserted

Sizes: 1/64" ID to 2-1/2" ID; 1/16" normal wall thickness

Description: Specially selected white asbestos fiber is tubular braided to form an insulating sheath

Uses: For encasing hot pipes and copper tubing; hot and cold water lines in rolling stock and elsewhere to prevent condensation from dripping, and for insulation

Style No. 1560—Commercial Grade 2/16" Wall Approximate Number of Feet Per Pound			
Inside Diameter	Approx. Ft. Per Lb.	Inside Diameter	Approx. Ft. Per Lb.
1/32"	150	3/8"	21
1/16"	110	1/2"	20
1/8"	70	5/8"	17
1/4"	50		

Koverite Manhole Gasket Tape

Style: No. 1599

Size: 1" wide x 1/4" thick—any length

Description: A braided wire-inserted asbestos tape, impregnated with a non-hardening bitumastic material for long-life resiliency. Installation is easy and quick and manhole cover may be removed and replaced repeatedly without destroying seal

Uses: For all manhole covers, to stop the nuisance of rattling, and to guard against breakage

ANCHOR FLANGE TADPOLE GASKET TAPE



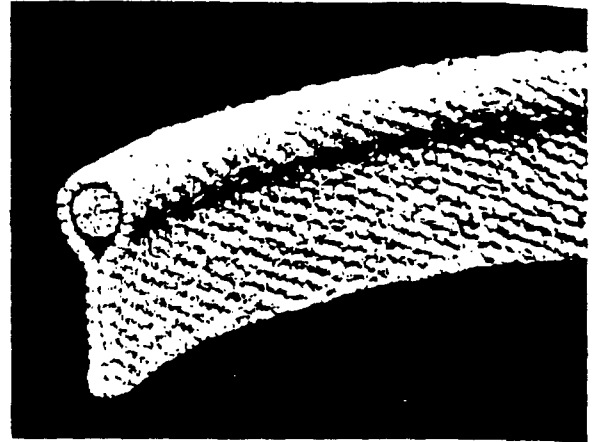
Style: No. 1597

Sizes: Standard lengths of 50 feet—see table for complete size data. Other sizes may be furnished on special order, if bulb (round sealing portion) is not less than 3/8", and flange section not less than 3/4"

Description: Either plain or wire-inserted asbestos cloth is folded over a soft asbestos wick or rope, and stitched either singly or doubly. Tape is thoroughly impregnated with a natural rubber compound, but Ankoprene impregnation may be substituted on special order. Tape also may be supplied without impregnation

Uses: As a door gasket where the closing faces are flat and a tight seal with minimum closing pressure is needed. Ideal for doors and lids on sterilizers, ovens, vaults, air conditioning equipment, tank covers, dry kilns. Where tape is to be used against mineral oil, petroleum solvents and other materials which might be harmful to natural rubber, be sure to specify Ankoprene treatment, available on special order

Note: When ordering, be sure to specify whether tape should have wire reinforcement or without; whether it should be plain or frictioned; and single or double stitched



Style No. 1597. Standard sizes and approximate weights

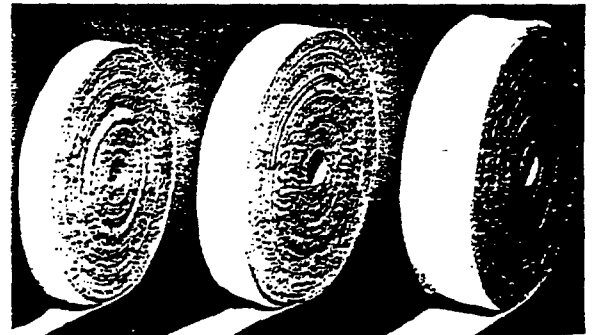
Overall Width	Bulb Size	Lbs. per 100 Ft.	Overall Width	Bulb Size	Lbs. per 100 Ft.
1 7/8"	3/8"	9.5	2 3/4"	3/8"	11.5
1 7/4"	3/8"	13.8	2 1/2"	3/8"	13.8
3/8"	3/8"	14.6	2 1/2"	3/8"	14.6
1 1/2"	3/8"	15.2	2 1/2"	3/8"	15.2

WOVEN GASKET TAPE or LISTING

Styles: Plain asbestos: No. 1580, Commercial non-metallic; No. 1581, Underwriters' non-metallic; No. 1582, AA non-metallic; No. 1583, AAA non-metallic; No. 1590, Commercial wire inserted; No. 1592, Underwriters' wire inserted; No. 1593, AA wire inserted; No. 1594, AAA wire inserted

Description: This is untreated asbestos tape tightly woven from selected yarns and furnished with a selvage edge

Uses: For gasketing and for hot pipe and other heat insulating purposes. Style Nos. 1581 and 1592 are approved by the Board of Fire Underwriters



Approximate Pounds per 100 Feet—Style No. 1580 Plain

Width Inches	3	3 1/2	4	4 1/2	5	5 1/2
1 1/2"	4.17	8.90	10.10	11.30	12.70	14.20
2"	7.60	18.10	20.80	23.60	26.40	29.10
2 1/2"	11.60	25.00	29.00	33.10	37.20	41.40
3"	16.00	36.00	42.00	48.00	54.00	60.00

Style No. 1590—Wire Inserted

Width Inches	3	3 1/2	4	4 1/2	5	5 1/2
1 1/2"	9.93	11.61	13.24	14.90	16.55	18.22
2"	22.60	26.10	29.50	33.00	36.40	39.80
2 1/2"	30.30	35.30	40.40	45.50	50.50	55.50
3"	43.60	50.00	56.30	62.60	68.90	75.20

VIRGIN ANKLON (TFE) SHEETS



Anklon is the Anchor name for TFE, a polymerization product of tetrafluorethylene. The name Anklon is applied not only to solid and shredded TFE, but to colloidal suspensions used for impregnating asbestos and other fibers, to felts, coatings and fillers

Anklon is inert to chemicals, except molten alkali metals and fluorines at elevated temperatures and pressures. It is invaluable against contamination of

food products and other materials where graphite and lubrication are undesirable. Anklon does not adhere to other materials; hence, parts in contact with Anklon gaskets, washers, rings and discs may be dismantled and the Anklon members reused

The Anklon line of sheets, gaskets, rings, washers and discs embraces every industrial requirement where the properties of TFE are important

Virgin Anklon (TFE) Sheets

Style: No. 1181

Sizes: 40" wide, any length to a maximum of 9 feet, in thicknesses of 1/16", 3/32" and 1/8"

Description: This sheet combines all the advantages of Anklon, including chemical resistance with the desired characteristics of asbestos cloth, to produce a flexible sheet of excellent compressibility

Uses: For manhole and handhole gaskets; glass-lined tanks and pipe lines

Style: No. 1180

Sizes: Standard sheet, 12" x 12"; 12" x 24"; 24" x 24"; 36" x 36"; 48" x 48"—other sizes on request—thicknesses 1/16" to 3"

Description: Standard Virgin Anklon (TFE) Special sheet: tensile strength averages 3000 psi; elongation, 200%; some sizes may be had in pinhole-free, non-porous construction and stress relieved for better dimensional stability

Uses: For the fabrication of gaskets, rings or irregular shapes

Special sheet sizes 45" x 45"; 48" x 48" in thicknesses of 1/16", 3/32", 1/8", 3/16" and 1/4"

Style No. 1180. Approximate Weights—Pounds per sq. foot

THICKNESS	12" x 12"	12" x 24"	24" x 24"	36" x 36"	48" x 48"
1/16"	0.15	0.30	0.30	0.30	0.30
3/32"	0.20	0.40	0.40	0.40	0.40
1/8"	0.25	0.50	0.50	0.50	0.50
3/16"	0.30	0.60	0.60	0.60	0.60
1/4"	0.35	0.70	0.70	0.70	0.70

Style: No. 1182

Sizes: 46" x 46" in thicknesses of 1/8", 5/32", 3/16", 1/4" and 5/16"

Description: A porous sheet of virgin Anklon (TFE) which may be readily compressed to provide a "cushion"

Uses: Any service on low pressure only

Style: No. 1183

Sizes: 48" x 48"; 36" x 36"; 24" x 24" in thicknesses from 1/32" to 1"

Description: Virgin Anklon (TFE) cementable etched surface (either one or both sides) which can be bonded to other materials, using an Ankorite adhesive (See Page 65)

Style No. 1183—Approximate Weight—Pounds per sheet

THICKNESS	SHEET SIZE 48" x 48"	SHEET SIZE 36" x 36"	SHEET SIZE 24" x 24"
1/32"	0.15	0.15	0.15
1/16"	0.20	0.20	0.20
3/32"	0.25	0.25	0.25
1/8"	0.30	0.30	0.30
3/16"	0.35	0.35	0.35
1/4"	0.40	0.40	0.40
5/16"	0.45	0.45	0.45
3/8"	0.50	0.50	0.50
1/2"	0.55	0.55	0.55
5/8"	0.60	0.60	0.60
3/4"	0.65	0.65	0.65
1"	0.70	0.70	0.70

Style: No. 1181 LOX

Sizes: White: 40" x 40", in thicknesses of .022", 1/16", 3/32" and 1/8"

Blue: 40" x 40", in thicknesses of 1/16" and 1/8"

Description: LOX is furnished in either white or blue asbestos woven cloth, impregnated with Anklon (TFE)

Uses: For oxygen service

Specify if white or blue should be furnished

Anko-Tetrabest Sheet

Styles: No. 1188; No. 1188X

Sizes: Sheets, 18" x 40"; 40" x 40" in thicknesses of .015", .030", .060", .090" and .125"

Description: These styles are made from a carded asbestos sheet, thoroughly impregnated with Anklon (TFE)

Uses: Style No. 1188 is for standard commercial use; Style No. 1188X is for use against liquid oxygen

Style No. 1188—Approximate Weights.

Thickness	Weight per sq. ft.	Weight per sq. ft.	Weight per sq. ft.
.015" (0.004)	0.55	.030" (0.007)	1.10
.030" (0.007)	1.10	.060" (0.014)	2.20
.060" (0.014)	2.20	.090" (0.021)	3.30
.090" (0.021)	3.30	.125" (0.028)	4.40

Blue Asbestos—Anklon (TFE) Impregnated

Style: No. 1189

Sizes: Sheet, 40" x 48" in thicknesses of 1/16" and 1/8"

Description: Anklon (TFE) impregnated woven blue asbestos produces a sheet combining all the advantages of Anklon (TFE) and the protective qualities of blue asbestos

Uses: Against acids and caustics in all types of service

Anklon Suspensoid Impregnated Felt

Style: No. 1184

Sizes: Sheets approximately 30" x 28" in thicknesses from approximately 63 mils to 375 mils

Description: Felted Anklon (TFE) is impregnated with Anklon suspensoid

Uses: For gaskets and seals against solvents, common fuels, hydraulic fluids, strong acids and lubricants. For use on moving parts at temperatures from -100° F. to +400° F. (Under certain conditions may be used at temperatures to 600° F.)

Anklon (TFE) Coated Glass Fiber

Style: No. 1190

Sizes: Specify your requirements for single ply construction, sheet or tape in many thicknesses. Multiple ply laminates are available in sheets. Two ply laminates may be ordered as roll goods

Description: Finely woven glass fiber cloth coated with Anklon (TFE). It reduces cold flow, has excellent physical strength and abrasion resistance, good dielectric strength, and chemical inertness

Uses: For gaskets and electrical tape. Used in aircraft, chemical, food processing, packaging and paper industries. May be used wherever a cloth or tape having its characteristics may be useful

Anklon (TFE) Calcium Fluoride Filled

Style: No. 1185

Sizes: Sheet, 48" x 48" in thicknesses 1/8" to 1/2"

Description: Anklon (TFE) 30% calcium fluoride filled

Anklon (TFE) Glass Filled

Style: No. 1186

Sizes: Sheets, 36" x 36" in thicknesses of 1/16" and 1/8". Weights are approximately the same as listed under Style No. 1180

Description: Anklon (TFE) glass filled sheet (25% glass) has minimum squeezability and low cold flow. Good machinability

Uses: Where its properties are important for heavy duty flange gaskets; for bearing pads, liners, guides and reciprocating devices

Anklon (TFE) Gaskets

Anklon (TFE) Gaskets can be furnished in any size or shape cut from the Anklon sheet packing listed on the preceding pages. Thicknesses may be 1/32", 1/16" and 1/8". Sizes conforming to any recognized standards are always available

HOW TO ORDER: (1) Give actual gasket dimensions; shape, ID, OD and thickness; bolt circle diameter (2) give bolt material, number and size of bolts (3) for special shapes, furnish dimensional drawing (4) always specify pressure, and the material to be sealed (5) for gaskets for glass-lined equipment specify the make—i.e., Corning, Prandler, Havg, Karbate, etc. See additional note for ordering Envelope Gaskets

Solid Anklon (TFE)

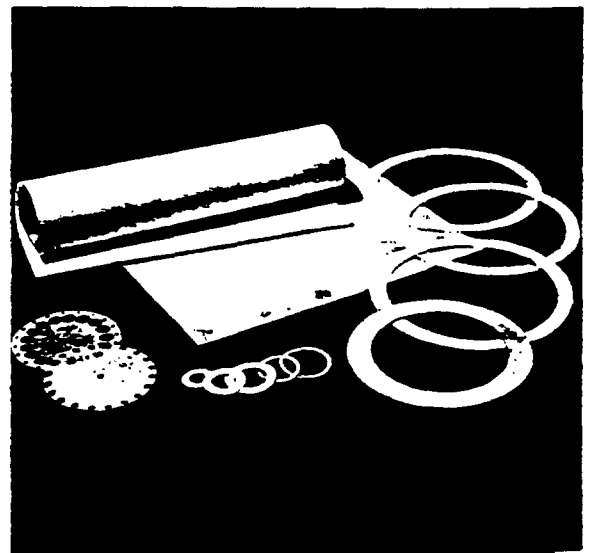
Style: No. 1115. Solid Anklon. This style is for standard ring type flanges to fit inside bolt circles. Sizes may be ordered in conformation with ASA-B 16.21—1951

Dairy Gaskets

Style: No. 1116. This style is used for C.I.P. Dairy Fittings

For Porosity

Style: No. 1124, Anklon Porous Gaskets—order any size or shape



ANKLON (TFE) GASKETS, WASHERS, DISCS, RINGS

6" and
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guides

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ordering

or stand-
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16.21—

P. Dairy

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Anklon (TFE) Envelope Gaskets

Style: No. 1106, Split type; folded type; machined type



Split Type: Essentially, this is a ring gasket, which is split from its OD, almost to its ID, thus forming an envelope to contain the specified filler. Anklon split envelopes are fabricated from a molded cylinder of solid Anklon (TFE). The split type is limited to gaskets up to 12 inches OD



Folded Type: Anklon Tape is used to form overlapping top and bottom rings between which is inserted the specified filler. Heat sealing the joints completes the gasket. This type is used for ID's of 10 inches and up



Machined Type: This differs from the split type in that the envelope is formed by milling the rings to provide the necessary space for the specified filler. May be used for ID's from 1" to 12"

The fillers used in envelope gaskets may be selective for the service required. Among the filler materials are asbestos cloth, compressed asbestos, rubber and other polymers—the envelope covering of Anklon is, of course, inert to chemicals

Uses: For piping and equipment where chemical attack, corrosion and contamination are possible; where bolt pressures must be light, such as may be requisite for glass lined equipment

Sizes: All Anklon Envelope Gaskets which fit inside bolt circles are available in standard pipe and flange sizes. Special sizes also may be furnished

How to Order: It is advised that the nearest Anchor branch office be consulted to assist in determining the type of envelope and the kind of filler best adapted to your equipment and the materials which must be sealed

Anklon (TFE) Washers and Discs

Style: No. 1192 Valve discs

Sizes: 1/4" to 4"

Description: Fabricated from Anklon (TFE) glass-filled sheet (25% glass) and have good cold flow resistance

Uses: For temperatures to 500° F.

Style: No. 1195 Bevelled faucet washers

Sizes: 00, 1/4", 3/8", 1/2", 5/8", 3/4", 1"

Description: Fabricated from Anklon (TFE) glass-filled sheet (25% glass)

Uses: For all hot and cold water faucets

Style: No. 1197: discs

Sizes: To your specification

Description: Made from solid Anklon (TFE) or filled Anklon, according to your specification

Anklon (TFE) Washers, Discs, Rings

In addition to the Anklon (TFE) washers, discs and rings listed here, Anchor can furnish any special items to meet extraordinary requirements. Various types of Anklon (TFE) may be used. Special rings include die-formed rings (with 40% voids). Contact the nearest Anchor branch—your inquiry will receive prompt and expert attention

Anklon Pump Packing Rings

Style: No. 1100. Plain or graphite impregnated

Sizes: All sizes to your specification

Description: Pure shredded Anklon (TFE) graphite impregnated is used for this precision-molded pump packing (no jacket). It may be had without graphite for non-contaminating purposes. This style should be installed with Anklon spacers

Uses: For general purpose chemical pumping; against corrosive materials including hazardous chemicals, nitric acid, etc.

Anklon Solid Lantern Rings

Style: No. 1150

Sizes: All sizes to your specification

Description: Machined from solid pure virgin Anklon (TFE)

Uses: For most centrifugal pumps where a lantern ring is imperative

Anklon Stainless Tube Replacement Rings

Style: No. 1140

Description: Machined from solid virgin Anklon (TFE)

Uses: For "Koncentrik" Type 316 Stainless Tube Fittings

Anklon O-Rings

Style: No. 1141

Sizes: Anklon rings conform dimensionally to AN-6227, AN-6230, AN-6290, MS-29512 and are available in all sizes

Description: Made from solid Anklon (TFE), meeting all military, industrial and aircraft specifications. (Special literature on Anchor O-Rings is available on request)

Anklon Spiral Back-up Rings

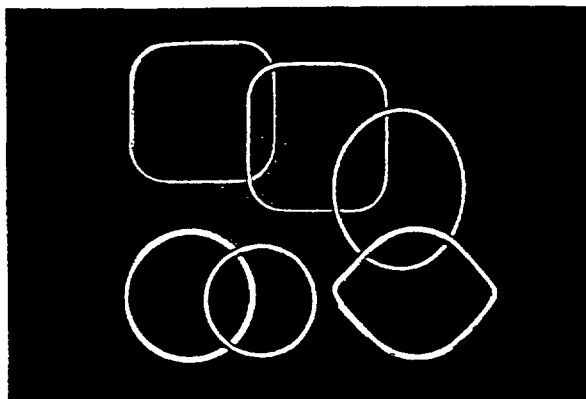
Style: No. 1142

Sizes: Anklon Back-up Rings conform dimensionally to AN-6227, MS-28782, and MS-28783. Split rings conform to MS-28744 sizes

Description: Made from solid Anklon (TFE), meeting all specifications



Railroad Packing for All Motive Power Equipment



Anchor supplies a complete line of replacement gaskets, seal rings and packings to meet every type of engine, whether for railroad, truck, marine, or stationary use. Also a complete line of replacement packings and specialty seals for steam locomotives. All Anchor products will meet and will more often surpass original packing equipment. Current Diesel Gasket parts list available on request. A few regularly specified items are listed here and reference to other pages in this catalog will give more detail

Ankorseal

Compressed asbestos gaskets, impervious to oil, water and steam at high pressures and temperatures

Ankortite

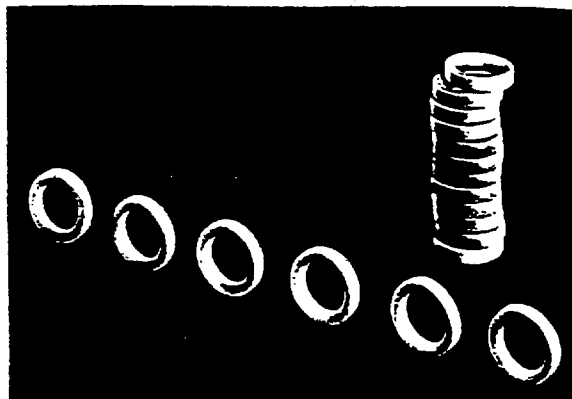
Vegetable fiber gaskets, impervious to oil and water at moderate pressures and temperatures

Ankork

Cork and Korkene gaskets, impervious to oil and water at moderate pressures and temperatures

Ankorite Metallic

All metal and combination metal and asbestos gaskets in a wide range for resistance to oil, water, steam and exhaust gases at very high temperatures and pres-



ures. Many metals and alloys are used; principally aluminum, copper, and stainless steel

Synthetic Rubbers

For high resiliency, oil and chemical resistance. Ankorite Ankoprene, Ankorite Buna-N, silicone rubber and other synthetics are used to engineer gaskets and seal rings which will function through a wide temperature range with no change in physical properties

Ankorite Seal Rings

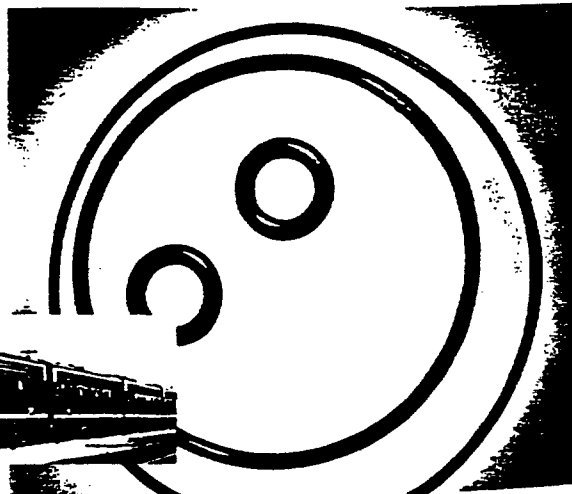
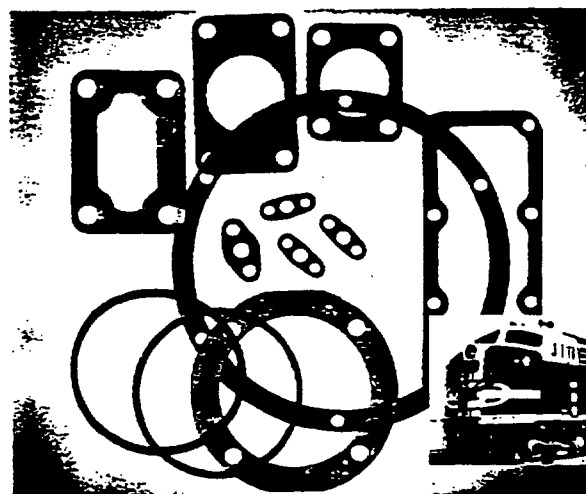
Ankorite Ankoprene seal rings are used at moderate temperatures and pressures against water, oil and many chemicals

Ankorite Buna-N seal rings have high tensile strength, and are used at higher temperatures and pressures against water, oil and many chemicals

Anchor Silicone rubber seal rings are used at extreme temperatures and have small dimensional change over a range to 500° F. Use against water, oil and many chemicals

Tank Car Gaskets from any Anchor sheet

Description: Tank car gaskets for standard shapes and sizes are cut to order from any of the wide range of gasket sheets described in this catalog



Ankotallic Spiral Wound Gaskets For Boiler Handholes and Tubecaps

For practically all makes of equipment, including:

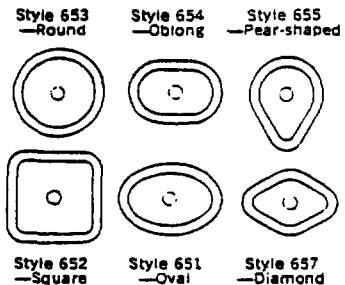
American Engineering • Babcock & Wilcox • Badenhäuser
Bos. • Bucyrus-Erie • Casey-Hedges • Cleaver-Brooks
Combustion Engineering • Connelly • Edge Moor • Erie City
Foster-Wheeler • Geary • Heine • Keeler • Murray • Oil Field
Pacific • Page • Riley Stoker • Springfield • Superheater
Union • Vogt • Ward • Wickes

Made like all Ankotallic Spiral Wound Gaskets, the
plies are modified to adapt the gasket to these pres-
sures and temperatures: 0-499 psi—to 500° F—plated
low carbon steel and Canadian asbestos. 0-999 psi—
to 850° F—Type 304 stainless steel and Canadian
asbestos. 1000 psi and up—to 850° F Type 304 stain-
less steel and Canadian asbestos. For temperatures
beyond 850° Type 316 ELC stainless steel and
Canadian asbestos; or Type 347 SCB stainless steel and
Canadian asbestos

When ordering, specify make and number of boiler or boiler plate
contour and/or style number; plate dimensions; operating pressure
and operating temperature

These gaskets are made to nominal thicknesses of
.125" and .175" to conform to handhole and tubecap
assemblies having narrow seating surfaces and high
bonding loads. Gaskets .250" thick are recommended
for assemblies with broad seating surfaces and low
loading loads

When ordering, specify name and code number of boiler or equip-
ment manufacturer; style no. of shape; inside dimension, flange
width and thickness of gasket; pressure rating; operating tempera-
ture; type of metal desired



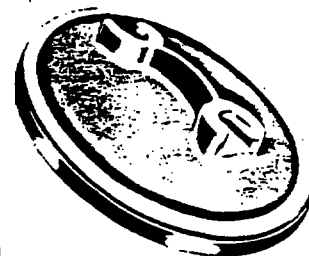
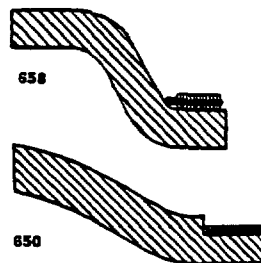
For Boiler Manholes

Style 650—Conventional Boiler Manhole Gaskets

For 0 to 499 psi, plated low carbon steel is used with
Canadian asbestos. For 0 to 999 psi, Type 304 stain-
less steel is used with Canadian asbestos. Because of
low bonding load required to seal Style 650 gaskets,
a maximum flange width of 15/16" will meet most
conditions. Two thicknesses: .175" for smooth seating
surfaces; .250" for rough or worn seating surfaces.
Style 658, has spiral wound centering ring inside the
gasket to facilitate placement and to compensate for
unequalities in plate contours and fillets in cold-
pressed plates

When ordering, specify style, shape, all dimensions, pressure and
temperature

Style 658—with centering ring



0-499 Lbs.

0-999 Lbs.

1000 Lbs. and Over

STYLE	Nominal Dimensions (D in inches)	Flange Width (W in inches)	Flange Thickness (T in inches)	STYLE	Nominal Dimensions (D in inches)	Flange Width (W in inches)	Flange Thickness (T in inches)	STYLE	Nominal Dimensions (D in inches)	Flange Width (W in inches)	Flange Thickness (T in inches)
650 Oval	10 x 15	1 1/2	15/16	650 Oval	12 x 18	1 1/2	15/16	650 Oval	14 x 20	1 1/2	15/16
650 Oval	12 x 18	1 1/2	15/16	650 Oval	14 x 20	1 1/2	15/16	650 Oval	16 x 22	1 1/2	15/16
650 Oval	14 x 20	1 1/2	15/16	650 Oval	16 x 22	1 1/2	15/16	650 Oval	18 x 24	1 1/2	15/16
658 Oval	10 x 15	1 1/2	15/16	658 Oval	12 x 18	1 1/2	15/16	658 Oval	14 x 20	1 1/2	15/16
650 Oval	12 x 18	1 1/2	15/16	650 Oval	14 x 20	1 1/2	15/16	650 Oval	16 x 22	1 1/2	15/16
650 Oval	14 x 20	1 1/2	15/16	650 Oval	16 x 22	1 1/2	15/16	650 Oval	18 x 24	1 1/2	15/16

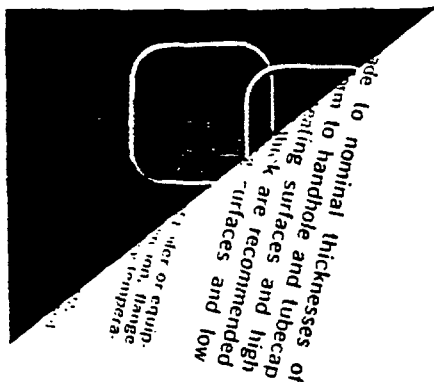
Thickness of .175" is recommended for seating surface in good condition. Thickness of .250" is recommended for rough or worn seating surfaces

Ankotallic Spiral Wound Gaskets in Special Designs

While catalogued styles meet essentially every require-
ment, if you have unusual service conditions, gaskets
may be specially designed and made. Ankotallic Spiral
Wound Gaskets may be had for any practical pressure/
combination—from vacuum to 6000# and higher; from

cryogenic temperature to 1900° F and higher. Thick-
nesses of .0625", .125", .175", .250" and .285"; in
any diameter beyond 24" nominal pipe sizes. Send us
a drawing showing your requirement, and specify the
metal and filler you wish

Railroad Packing



made to nominal thicknesses of .175" to .250" for use in handhole and tubecap flanges. Thick and high surfaces are recommended for low pressure and low velocity of equipment.

gaskets

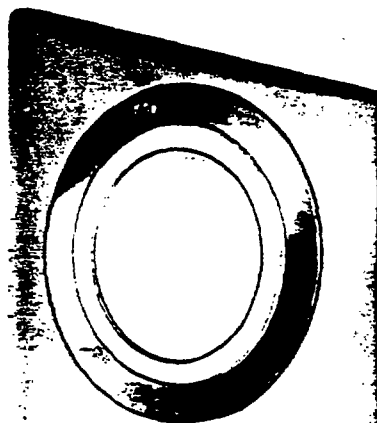
and Gaskets . . .

Tight, positive, lasting seal to stand the stress limits of bolts, plates and related assemblies. The standard gasket is made from a continuous strip of preformed Type 304 stainless steel wound spirally from inside to outside with a cushion of Canadian asbestos filler between each ply to produce compressibility, resistance to temperature changes and internal pressure variations. Any catalogued style or special Ankotallic Spiral Wound Gaskets may be supplied in other types of stainless steel and essentially any metal which may be cold rolled — Monel, Inconel, phosphor bronze, copper, and aluminum alloys. Fillers may be blue African asbestos, Teflon-impregnated materials, virgin Teflon, inorganic ceramic or fibre sheet

SPECIFICATIONS: conform to ASA Standard B 16.5 for steel pipe flanges and flanged fittings; to A.P.I. Standard 601, all sizes to 24"; all series to 2500 lbs.; to Military Specifications MIL-G-15342, MIL-G-16265, MIL-G-21032

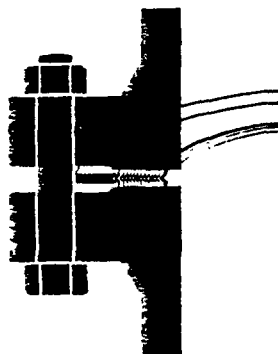
Smooth Face, Van Stone and Lapped Joints with plated centering

ring . . . sures



STYLE No. 659

STYLE No. 659-P



Styles 659 and 659-P are standard Ankotallic gaskets inserted in a "compression-gauge" type carbon steel ring, plated to resist corrosion. This outer ring serves as a centering device for quick, accurate location of gasket in flange, provides extra radial strength, helps prevent blow-out and acts as a reference point to determine compression during flange assembly. Nominal thickness .175"; compression up to .130" Standard gasket: Type 304 stainless steel and Canadian asbestos

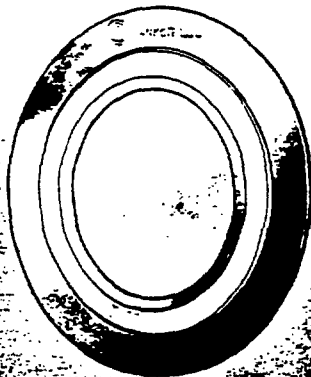
Pressures: psi, 150#, 300#, 400#, 600#, 900#, 1500#, 2500#

STYLE 659 is for conventional pipe flange, pressure vessel and process applications

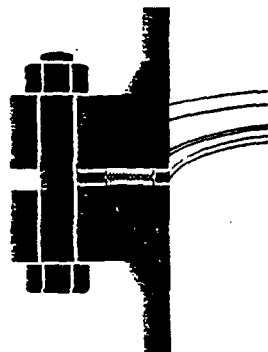
STYLE 659-P for raised face slip-on and welding neck flange joints in petroleum refining

When ordering specify flange type, nominal pipe size, pressure series. Standard gasket will be supplied unless other materials are specified

For A.S.A. Flanges and Fittings. "Compression-Gauge" Type with inner and outer rings



STYLE 659-R



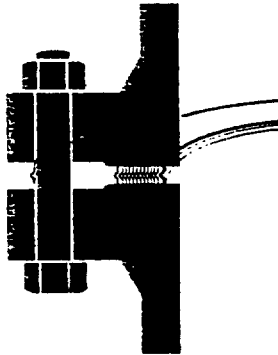
Style 659-R is a standard Ankotallic gasket inserted between an inner and an outer ring, both plated carbon steel to resist corrosive influences. The outer compression gauge ring serves as a centering device for quick, accurate location of gasket in flange, provides extra radial strength, helps prevent blow-out and acts as a reference point to determine compression during flange assembly. The inner ring supplements these features, but also fills the flange recess, preventing fluid from entering. It converts one of a pair of smooth face flanges into a groove flange, assuring all the safety of a wholly-contained gasket without the added cost of machining. The inner ring also prevents gasket movement under very high bolt loads and prevents turbulence at joints and build-up of solids which could reduce the orifice and thus hinder proper flow of liquids

Nominal thickness: .175"; compression up to .130". Standard gasket: Type 304 stainless steel and Canadian asbestos

Pressures: psi, 150#, 300#, 400#, 600#, 900#, 1500#, 2500#

When ordering specify flange type, nominal pipe size, pressure series. Standard gasket will be supplied unless other materials are specified

For Raised Face, Smooth Face, Van Stone and Lap Joints . . . integral centering guide
 . . . Pressures to 600 psi.



Standard Ankotallic Spiral Wound Gasket has integral wire centering guide to facilitate quick, easy installation. Placing the guide over diametrically opposite bolt holes, enables accurate centering of the gasket on the flange

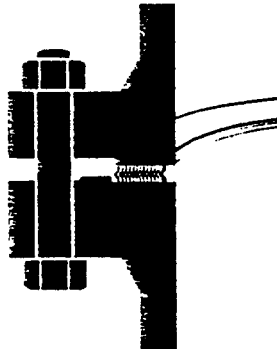
Nominal thickness: .175"; compression up to .130". Standard Gasket: Type 304 stainless steel and Canadian asbestos

Sizes and Pressures: For nominal pipe sizes up to 24" in 150#, 300# and 400# series; for nominal pipe sizes up to 8" in 600# series. For sizes and pressures beyond these ranges, specify Style 659, 659-P and 659RJ

When ordering specify flange type, nominal pipe size, pressure series. Standard gasket will be supplied unless other materials are specified

STYLE 660

For Large Male & Female Joints . . . Pressures to 2500 psi



Style 670 is a standard Ankotallic gasket accurately dimensioned to the size of standard counterbores. Adequate clearance in the design prevents overlapping into the orifice area

Nominal thickness: .125"—facilitates alignment of large male and female fittings. .175" thickness is available on special order. Compression values are calculated on the basis of .025" reduction in thickness for the standard thickness of .125"

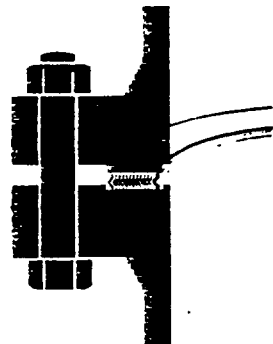
Style 670-R is a standard Ankotallic gasket, with an inner ring 3/32" thick, made of Type 304 stainless steel. The inner ring fills the flange recess and prevents turbulence at joints and build-up of solids which could reduce the orifice and thus hinder proper flow of liquids. It also serves to convert a male/female flange assembly into a tongue/groove joint, assuring all the safety of a wholly-contained gasket

Sizes and Pressures: psi, 150-600#, 900-1500#. Nominal pipe sizes up to 24". 2500#, nominal pipe sizes to 12"

When ordering specify flange type, nominal pipe size, pressure series. Standard gasket will be supplied unless other materials are specified

STYLE 670
 STYLE 670-R

For Large Tongue and Groove Joints



Style 671 is a standard Ankotallic gasket accurately dimensioned to the size of standard counterbores. Adequate clearance in the design allows for easy insertion in standard flange grooves

Nominal thickness: .125"—simplifies assembly and facilitates alignment in large tongue and groove fittings. .175" thickness is available on special order. Compression values are calculated on the basis of .025" reduction in thickness for the standard thickness of .125". (For small tongue and groove flanges, order Style 672)

Sizes and Pressures: psi, 150-1500 psi. Nominal pipe sizes up to 24". 2500#, nominal pipe sizes to 12"

When ordering specify flange type, nominal pipe size, pressure series. Standard gasket will be supplied unless other materials are specified

STYLE 671

Anchor Special Metal and Metal Armored Gaskets

The Anchor line of special metal and metal armored gaskets, in a wide range of constructions available in any metal, completely satisfies every requirement of industry for these types. For the fabricating of these gaskets, whether all metal or a combination of metal

and asbestos, any metal may be specified. Normally, copper, carbon steel, Armco iron, stainless steel, Monal metal and aluminum are used, but any metal alloy may be specified

How to order:

1. Specify Style Number.
2. Specify the metal to be used.
3. Give nominal pipe size.
4. ID and OD of flange.
5. Material being handled.
6. Temperature and pressure.
7. Furnish sketch for any special shapes

These gaskets may be had in any size for practically all flange requirements



Style: No. 614

Corrugated Metal Shell—Asbestos Filler

Description: Asbestos filler is encased in a corrugated metal shell, as specified

Uses: For low pressures, makes excellent seal with light bolt pressure



Style: No. 612

Corrugated Metal Section—Asbestos Insert

Description: Special twisted and asbestos cord is cemented into the deep corrugations of both faces of the metal which is desired. For standard gaskets, corrugations are usually 1/4" and 1/8" high, but special corrugations may be obtained to fit all special requirements. Gasket may be aluminized if wanted. This gasket has good resiliency to compensate for any uneven pipe alignment; and requires light bolt pressure

Uses: On standard and extra-heavy flanges and flange unions, iron or steel



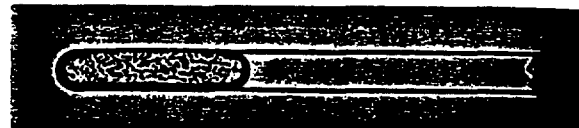
Style: No. 613

Corrugated Metal Section

Description: Plain corrugated metal of your specification; 1/4" pitch for standard gaskets. This construction adjusts readily to fill irregularities in flanges; while the corrugations act as barriers against line pressure

Uses: Against steam, water, gas, oil, acids and chemicals at any pressure or temperatures; on machined flanges

Single Jacketed—any type filler



Style: No. 615

Asbestos-filled Double-edge Metal Cover

Description: Usually furnished with an asbestos mill board filler which is encased on one side and both edges with the metal selected. If other than asbestos millboard filler is wanted, user must specify

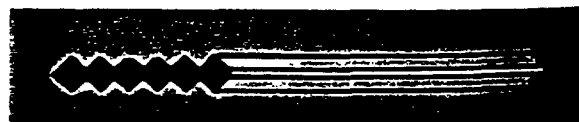
Uses: Against air, oil and steam up to 750° F.—any type of equipment



Style: No. 618

Profile Metal with Asbestos Filler

Description: Concentric serrations in metal selected with 1/8" normal pitch. Asbestos filler unless otherwise specified. This style may be furnished with specified pitch other than 1/8". Gaskets are 1/8" thick



Style: No. 619

Profile Solid Metal

Description: Solid metal as specified. Has wide metal area but small contact area. Gasket may be any specified thickness

Uses: Small contact area makes it particularly suitable for extreme pressures and temperatures

Double Jacketed—for High Pressures and Temperatures

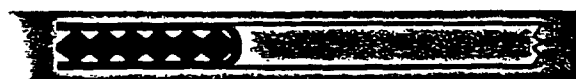


Style: No. 616

Asbestos Core, completely surrounded by metal jacket

Description: Complete metal case resists heat and pressure; asbestos filler seals as required. Unless otherwise specified, asbestos filler will be furnished

Uses: For high pressures and high temperatures, any application



Style: No. 620

Profile Solid Metal; open outside edge Metal Jacket

Description: Made from metal determined by medium to be sealed against

Uses: For high pressures and high temperatures, any application

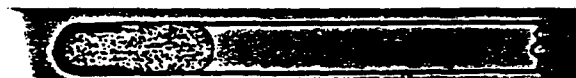


Style: No. 621

Asbestos fully enclosed in Double Metal Shell

Description: Made from metal determined by medium to be sealed against; unless otherwise specified, asbestos filler will be furnished

Uses: For low pressure service where light bolt pressure will make a tight seal

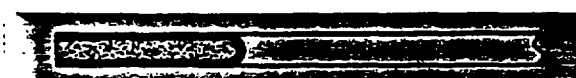


Style: No. 622

Woven Asbestos; inside open Metal Jacket

Description: This construction exposes the asbestos to the medium being sealed against, but encases the outside end with a metal jacket

Uses: For light pressures under conditions where woven asbestos is a suitable sealing material



Style: No. 623

Asbestos-filled; outside open Metal Jacket (French type)

Description: This asbestos gasket is encased in a metal jacket but the asbestos is exposed at the outer edge



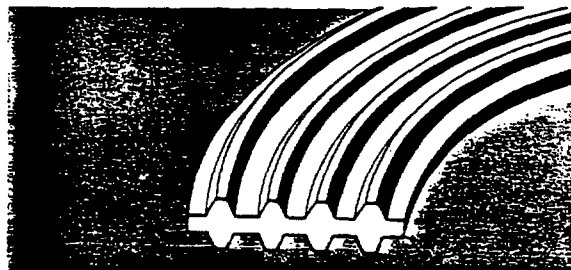
Style: No. 624

Perforated Sheet Metal Gasket

Description: Any specified metal is perforated to form this gasket which allows heavy compression

Uses: On most high temperature and pressure services

Plain and Solid Metal Gaskets



Style: No. 626

Description: Metal of your specification is serrated—concentric grooves of 1/32" to 1/4" pitch as specified. Overall thickness as ordered



Style: No. 673

Description: Metal of your specification is fabricated into this solid lens type gasket with spherical shape



Style: No. 674

Description: Metal of your specification forms this solid Delta shape gasket for high temperature service

Style: No. 611

Description: Plain flat solid metal uniform thickness gasket is made to any specification to resist corrosion of medium handled. Provides high strength and withstands high temperatures

Uses: For a variety of bolted applications, and where corrosion resistance is essential

Style: No. 627

Description: Ring type or rectangular section is fabricated from solid metal to any specification

Heat Exchanger and Cylinder Head Gaskets

Style: No. 675

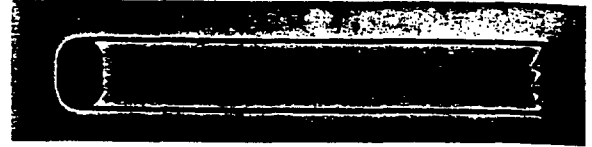
Description: Any shape, with or without ribs for any type of equipment. May be made from any type metal—may be solid, or made with asbestos core jacket. The Anchor branch nearest you will gladly assist in your specification for your particular service requirement

API and ASA Ring Joint Gaskets

API and ASA Ring Joint Gaskets

Style: No. 617

Description: Meets API and ASA specifications for both oval and octagonal styles. Made of Armco ingot iron and 4-6% chrome steel unless other metal is specified. Since their efficiency depends upon extra-close-tolerance fit, these gaskets are made to precise dimensions with extreme care



Style: No. 617—Ring No. and Dimensions of API and ASA Ring Joint Gaskets

1	2	3	4	5	6
Ring Number	Pitch Diameter of Ring P	Width of Ring A	HEIGHT OF RING		Width on Flat of Octagonal Ring C
			Oval B	Octagonal H	
A11	1-11/32	1/4	7/16	3/8	0.170
A12	1- 9/16	5/16	9/16	1/2	0.206
A13	1-11/16	5/16	9/16	1/2	0.206
A14	1- 3/4	5/16	9/16	1/2	0.206
A15	1- 7/8	5/16	9/16	1/2	0.206
A16	2	5/16	9/16	1/2	0.206
A17	2- 1/4	5/16	9/16	1/2	0.206
A18	2- 3/8	5/16	9/16	1/2	0.206
A19	2- 9/16	5/16	9/16	1/2	0.206
A20	2-11/16	5/16	9/16	1/2	0.206
A21	2-27/32	7/16	11/16	5/8	0.305
A22	3- 1/4	5/16	9/16	1/2	0.206
A23	3- 1/4	7/16	11/16	5/8	0.305
A24	3- 3/4	7/16	11/16	5/8	0.305
A25	4	5/16	9/16	1/2	0.206
A26	4	7/16	11/16	5/8	0.305
A27	4- 1/4	7/16	11/16	5/8	0.305
A28	4- 3/8	1/2	3/4	11/16	0.341
A29	4- 1/2	5/16	9/16	1/2	0.206
A30	4- 5/8	7/16	11/16	5/8	0.305
A31	4- 7/8	7/16	11/16	5/8	0.305
A32	5	1/2	3/4	11/16	0.341
A33	5- 3/16	5/16	9/16	1/2	0.206
A34	5- 3/16	7/16	11/16	5/8	0.305
A35	5- 3/8	7/16	11/16	5/8	0.305
A36	5- 7/8	5/16	9/16	1/2	0.206
A37	5- 7/8	7/16	11/16	5/8	0.305
A38	6- 3/16	5/8	7/8	13/16	0.413
A39	6- 3/8	7/16	11/16	5/8	0.305
A40	6- 3/4	5/16	9/16	1/2	0.206
A41	7- 1/8	7/16	11/16	5/8	0.305
A42	7- 1/2	3/4	1	15/16	0.485
A43	7- 5/8	5/16	9/16	1/2	0.206
A44	7- 5/8	7/16	11/16	5/8	0.305
A45	8- 5/16	7/16	11/16	5/8	0.305
A46	8- 5/16	1/2	3/4	11/16	0.341
A47	9	3/4	1	15/16	0.485
A48	9- 3/4	5/16	9/16	1/2	0.206
A49	10- 5/8	7/16	11/16	5/8	0.305
A50	10- 5/8	5/8	7/8	13/16	0.413
A51	11	7/8	1- 1/8	1- 1/16	0.583
A52	12	5/16	9/16	1/2	0.206
A53	12- 3/4	7/16	11/16	5/8	0.305
A54	12- 3/4	5/8	7/8	13/16	0.413
A55	13- 1/2	1-1/8	1- 7/16	1- 3/8	0.780

1	2	3	4	5	6
Ring Number	Pitch Diameter of Ring P	Width of Ring A	HEIGHT OF RING		Width on Flat of Octagonal Ring C
			Oval B	Octagonal H	
A56	15	5/16	9/16	1/2	0.206
A57	15	7/16	11/16	5/8	0.305
A58	15	7/8	1- 1/8	1- 1/16	0.583
A59	15- 5/8	5/16	9/16	1/2	0.206
A60	16	1-1/4	1- 9/16	1- 1/2	0.879
A61	16- 1/2	7/16	11/16	5/8	0.305
A62	16- 1/2	5/8	7/8	13/16	0.413
A63	16- 1/2	1	1- 5/16	1- 1/4	0.681
A64	17- 7/8	5/16	9/16	1/2	0.206
A65	18- 1/2	7/16	11/16	5/8	0.305
A66	18- 1/2	5/8	7/8	13/16	0.413
A67	18- 1/2	1- 1/8	1- 7/16	1- 3/8	0.780
A68	20- 3/8	5/16	9/16	1/2	0.206
A69	21	7/16	11/16	5/8	0.305
A70	21	3/4	1	15/16	0.485
A71	21	1-1/8	1- 7/16	1- 3/8	0.780
A72	22	5/16	9/16	1/2	0.206
A73	23	1/2	3/4	11/16	0.341
A74	23	3/4	1	15/16	0.485
A75	23	1- 1/4	1- 9/16	1- 1/2	0.879
A76	26- 1/2	5/16	9/16	1/2	0.206
A77	27- 1/4	5/8	7/8	13/16	0.413
A78	27- 1/4	1	1- 5/16	1- 1/4	0.681
A79	27- 1/4	1- 3/8	1- 3/4	1- 5/8	0.977
A80	24- 1/4	5/16	.....	1/2	0.206
A81	25	9/16	.....	3/4	0.377
A82	2- 1/4	7/16	.....	5/8	0.305
A84	2- 1/2	7/16	.....	5/8	0.305
A85	3- 1/8	1/2	.....	11/16	0.341
A86	3- 9/16	5/8	.....	13/16	0.413
A87	3-15/16	5/8	.....	13/16	0.413
A88	4- 7/8	3/4	.....	15/16	0.485
A89	4- 1/2	3/4	.....	15/16	0.485
A90	6- 1/8	7/8	.....	1- 1/16	0.583
A91	10- 1/4	1-1/4	.....	1- 1/2	0.879
A92	9	7/16	11/16	5/8	0.305
A93	29- 1/2	3/4	.....	15/16	0.485
A94	31- 1/2	3/4	.....	15/16	0.485
A95	33- 3/4	3/4	.....	15/16	0.485
A96	36	7/8	.....	1- 1/16	0.583
A97	38	7/8	.....	1- 1/16	0.583
A98	40- 1/4	7/8	.....	1- 1/16	0.583
A99	9- 1/4	7/16	.....	5/8	0.305

Note: Purchaser must specify either oval or octagonal shape when ordering for nominal pipe sizes which may have either of the two shapes

Anchor Sheet Packings—Rubber and Other Elastomers

There is virtually no type of product in these classifications which Anchor cannot furnish. The wide variety offered covers every possible gasket requirement, and other industrial needs for sheets of any density, size and thickness up to nine inches.

The attributes of the various elastomers employed by Anchor in the fabrication of sheets are printed for reference in order that customers may determine which of the many styles of sheets are best suited to their purposes.

General Properties of Natural and Synthetic Rubbers

The initials heading various columns represent the system of nomenclature suggested by The American Society for Testing Materials (ASTM—D1418-64) (ASTM—D2000-65)

	NR	SBR	NBR	CR	IIR	BK	SI	CSM	DF	DH	DG	FPM
			Buna-N (Hycar, Paracril, Butaprene and Chemi- gum)									
Property	Natural Rubber	Buna-S		Neo- prene	Butyl	Thiokol	Silicone	Hypalon	Acrylate	Poly- acrylic	Polyur- ethane	Viton*
Tensile: Pure Gum	3000	400	600	3500	3000	300	200-450	4000	—	100	5000	—
Reinforced	4500	3000	4000	3500	3000	1500	—	4400	1600	1800	5000	2000
Tear Resistance	Excellent	Poor-Fair	Fair	Good	Good	Fair	Poor-Fair	Excellent	Fair	Fair	Good	Good
Abasion Resistance	Excellent	Good	Good	Excellent	Fair	Poor	Poor	Excellent	Fair	Good	Excellent	Good
Aging: Sunlight	Poor	Poor	Poor	Excellent	Excellent	Good	Good	Excellent	Good	Excellent	Excellent	Good
Oxidation	Good	Fair	Fair	Good	Good	Good	Very Good	Very Good	Good	Excellent	Fair	Excellent
Heat (Max. Temp.)	300°F.	250°F.	300°F.	300°F.	300°F.	160°F.	450°F.	300°F.	275°F.	350°F.	200°F.	500°F.
Static (Sheff)	Good	Good	Good	Very Good	Good	Fair	Good	Good	Good	Good	Good	Good
Flex Cracking Resistance	Excellent	Good	Good	Excellent	Excellent	Fair	Fair	Excellent	Fair	Good	Fair	Good
Compression Set Resistance	Good	Good	Very Good	Excellent	Fair	Poor	Good	Poor	Fair	Good	Poor	Very Good
Solvent Resistance:												
Aliphatic Hydrocarbon	Very Poor	Very Poor	Good	Fair	Poor	Excellent	Poor	Fair	Excellent	Good	Fair	Excellent
Aromatic Hydrocarbon	Very Poor	Very Poor	Fair	Poor	Very Poor	Good	Very Poor	Poor	Fair	Poor	Poor	Excellent
Oxygenated Solvent	Good	Good	Poor	Fair	Good	Fair	Poor	Poor	Poor	Poor	Very Poor	Very Poor
Halogenated Solvent	Very Poor	Very Poor	Very Poor	Very Poor	Poor	Poor	Very Poor	Very Poor	Poor	Poor	Very Poor	Good
Oil Resistance:												
Low Aniline Mineral Oil	Very Poor	Very Poor	Excellent	Fair	Very Poor	Excellent	Poor	Fair	Excellent	Excellent	Fair	Excellent
High Aniline Mineral Oil	Very Poor	Very Poor	Excellent	Good	Very Poor	Excellent	Good	Good	Excellent	Excellent	Good	Excellent
Synthetic Lubricants	Very Poor	Very Poor	Fair	Very Poor	Poor	Poor	Fair	Poor	Good	Fair	Poor	Excellent
Organic Phosphates	Very Poor	Very Poor	Very Poor	Very Poor	Good	Poor	Poor	Poor	Excellent	Poor	Very Poor	Fair
Gasoline Resistance:												
Aromatic	Very Poor	Very Poor	Good	Poor	Very Poor	Good	Poor	Poor	Good	Fair	Poor	Excellent
Non-Aromatic	Very Poor	Very Poor	Excellent	Good	Very Poor	Excellent	Good	Fair	Excellent	Poor	Good	Excellent
Acid Resistance:												
Dilute (Under 10%)	Good	Good	Good	Fair	Good	Poor	Fair	Good	Fair	Poor	Poor	Excellent
Concentrated	Fair	Poor	Poor	Fair	Fair	Very Poor	Poor	Good	Fair	Poor	Very Poor	Good
Low Temperature Flexibility (Max.)	-65°F.	-70°F.	-65°F.	-65°F.	-65°F.	-65°F.	-120°F.	-40°F.	-20°F.	-20°F.	-65°F.	-20°F.
Permeability to Gases	Fair	Fair	Fair	Very Good	Very Good	Good	Fair	Very Good	Fair	Good	Good	Fair
Water Resistance	Good	Very Good	Very Good	Fair	Very Good	Fair	Fair	Fair	Good	Fair	Poor	Good
Alkali Resistance:												
Dilute (Under 10%)	Good	Good	Good	Good	Very Good	Poor	Fair	Good	Very Poor	Poor	Poor	Fair
Concentrated	Fair	Fair	Fair	Good	Very Good	Poor	Poor	Good	Very Poor	Poor	Very Poor	Poor
Resilience	Very Good	Fair	Fair	Very Good	Very Poor	Poor	Good	Good	Fair	Very Poor	Good	Fair
Elongation (Max.)	700%	500%	500%	500%	700%	400%	300%	300%	200%	200%	800%	200%

*Except Nitric and Sulfuric

*Trade Mark E. I. du Pont

Anchor Industrial Rubber Sheet Packings

Smooth Plate Finish

Standard Sizes for most styles: width, 36"; thicknesses, 1/32", 1/16", 1/8", 3/16", 1/4"
(available on special order in 60" unspliced widths; and thicknesses, 5/16" to 9")

Furnished in 100-pound or 250-pound rolls

Style Number	Description	Nominal Durometer Hardness ± 5	Tensile Strength PSI	Elongation %	Specific Gravity	Weight lbs. per sq. yd. 1/16" thick
20R10	Pure Gum Rubber—Soft tan floating stock	35	3500	800	.983	3
25B34	SBR—black—medium density	60	1300	500	1.596	4-3/4
30N54	Neoprene—black—soft density	40	1000	400	1.500	4-1/2
30N58	Neoprene—black—soft density	50	1300	425	1.573	4-5/8
30N52	Neoprene—black—medium density	60	1100	425	1.646	4-7/8
30N50	Neoprene—black—hard density	70	1000	350	1.705	5
30N31	Neoprene—black—medium hard density	80	1000	330	1.810	5-3/8
35N40	Neoprene—white—soft density	40	2250	830	1.480	4-3/4
35N41	Neoprene—white—soft density	50	2250	800	1.530	4-1/2
35N42	Neoprene—white—medium density	60	2250	760	1.610	4-3/4
35N43	Neoprene—white—hard density	70	2250	750	1.670	5
35H25	Buna N—black—medium density	60	1500	550	1.395	4-1/8
55V10	Viton A—medium density	60	2300	350	1.888	5-5/8
55V15	Viton A—hard density	70	2100	250	1.885	5-5/8
40BY4	Butyl—black—soft density	40	1850	800	1.111	3-1/4
40BY5	Butyl—black—soft density	50	1850	700	1.129	3-3/8
40BY6	Butyl—black—medium density	60	1750	550	1.185	3-1/2
40BY9	Butyl—black—hard density	70	1750	450	1.216	3-3/8
60L4	LE-A-KOL (Thiokol) black—soft density	40	650	450	1.443	4-1/4
60L5	LE-A-KOL (Thiokol) black—soft density	50	675	400	1.200	3-5/8
60L6	LE-A-KOL (Thiokol) black—medium density	60	850	400	1.500	4-1/2
60L9	LE-A-KOL (Thiokol) black—hard density	70	1000	300	1.510	4-1/2
45H60	HYPALON—off-white—medium density	60	1100	300	1.532	4-1/2
65E6	ETHYLENE-PROPYLENE	60	1500	550	1.167	3-1/2
50U55	Urethane	60	3600	650	1.194	3-1/2

Diaphragm Sheet Packing

Various cover stocks—cotton duck and nylon insertions

Smooth Plate Finish

A balanced weave of 16 oz. long staple cotton duck, thoroughly frictioned and bonded to the various cover stocks, is used in many sheets. For superior flexibility and longer life under sustained pressure and flexing, Anchor also provides nylon inserted sheets.

The nylon, with a higher bursting strength than cotton, is a closely woven material

Standard Sizes: width 40", any length; thicknesses: 1/32", 1/16", 1/8", 3/16", 1/4". Widths up to 50" are available on special order

Style No.	Description of Cover	Fabric Insertion	Weight lbs. per lineal yd. 1/16" thick	Cover Stock Durometer Hardness ± 5
20R22	Natural rubber - gray - medium density	cotton duck	6	60
20R23	Natural rubber - black	cotton duck	5-1/4	60
20R42	SBR - black - soft density	cotton duck	5-1/4	50
30N53	Neoprene - black - soft density	cotton duck	5-3/8	50
30N32	Neoprene - black - hard density	cotton duck	5-3/8	70
5700	Neoprene - black - hard density	nylon	5-3/8	70
35H26	Buna N - black - soft density	cotton duck	4-7/8	60
5701	Rubber - black - medium density	nylon	4-7/8	60
5720	Natural Rubber - Tan Floating Stock	cotton duck	3-3/4	30

Custom Manufactured Sheet and Slab

Description: Sheets and slabs may be made to your specification from any Anchor sheet material—natural rubber, Buna N, Buna S, Neoprene, Butyl, etc.

Sizes: Standard width 36"; special widths up to 60", not spliced; width over 60" are spliced by vulcanizing. Thicknesses 1/32" to 1/4" are furnished in continuous rolls; sheets 3/8" thick to 9" thick are furnished in either 36" square pieces or in maximum lengths of 10 feet

Thickness tolerances:

1/32" ± .008"	3/16" to 1/2" ± .032"
1/16" ± .010"	5/8" to 7/8" ± .047"
3/32" and 1/8" ± .015"	1" ± .063"

Approximate Weight in Pounds per Square Yard of sheets of different specific gravities

Specific Gravity	1/16"	1/8"	1/4"	1/2"
1.00	3.00	6.00	12.00	24.00
1.10	3.25	6.50	13.00	26.00
1.25	3.75	7.50	15.00	30.00
1.40	4.10	8.20	16.40	32.80
1.55	4.60	9.20	18.40	36.80
1.70	5.00	10.00	20.00	40.00
1.85	5.50	11.00	22.00	44.00
2.00	5.90	11.80	23.60	47.20

Chute Lining and Skirt Board

Style: No. 2584 (On special order may be had with cotton or nylon face, on either one or both sides)

Sizes: Lengths 30' to 50'; any width and thickness

Description: Black rubber sheet especially compounded; has high abrasion resistance, high tensile strength, and toughness. Durometer, 60 = 5, Tensile strength, 2850 psi, Elongation, 500%

Uses: For chute lining and skirt boards; and other sheet and slab applications where ruggedness is needed to withstand the wear and tear of sand, gravel, grain, ore and coal.

Anchor Cloth-faced Rubber Sheet

Style: No. 426

Sizes: 36" wide; thicknesses: 1/16" and 3/32"; heater cured; 1.8" and over, press cured. Any linear yardage

Description: A cloth reinforcement is vulcanized on both sides of this high quality rubber sheet.

Uses: For cold water; for weather strips

Anchor Cloth-faced one side

Style: No. 429

Description: Same as Style No. 426, except only one side is cloth reinforced.

Anchorite Industrial Coated Fabrics

Styles: No. 5050—Nylon coated with Buna N; No. 5050 Special—Nylon coated with special Buna N; No. 5055—Nylon coated with Ankoprene; No. 5060—cotton duck, coated with Buna N; No. 5065—cotton duck coated with Ankoprene

Sizes: Standard widths, 36", 39", 40" and 41"—thicknesses .006", .013", .022", and .062"

Description: Either cotton duck or nylon is coated with the chosen synthetic for the service required

Uses: Against hydro-carbons, fuels, oils, greases; also, as diaphragms for gases at extreme high pressures and/or cycling

Weight: Pounds per square yard

Style No.	Thickness	Weight
5050	.022	1.2
5050 Spec	.062	3.2
5055	.022	1.2
5060	.022	1.2
5065	.022	1.2

Anchor White Friction Duck Inserted

Styles: No. 420 sheet; No. 520 cut gaskets

Sizes: 36" wide; thicknesses 1/16" and up. Any linear yardage

Description: Alternate layers of tightly woven duck and high grade rubber produce a tough, long wearing gasket material

Uses: Against hot water and low pressure steam, for dairy and food handling apparatus

Anchor Cloth Inserted Sheet

Style: No. 421 sheet

Sizes: 36" wide; thicknesses 1/16" and up. Any linear yardage

Description: High grade cotton duck thoroughly frictioned with an excellent properly cured rubber compound

Uses: General gasket use, and against water and low pressure steam

C.I.C.B.S. Sheet

Style: No. 432 sheet

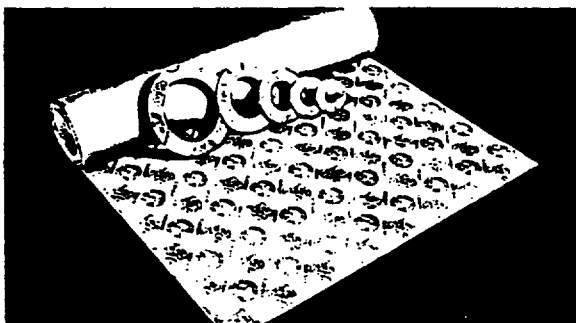
Sizes: 36" and 40" wide, thicknesses as below. Any linear yardage

Description: Both sides are cloth faced. Depending on thickness, rubber and cloth are plied as follows: 1/16" cloth faced only; 1/8" thick, 2 ply; 3/16" and 1/4", 3 ply; 5/16" thick, 4 ply

Cloth Inserted Sheets—Approximate Weights

Style No.	Thickness	Approx. Weight
420	1/16" thick	1.2
421	1/16" thick	1.2
426	1/16" thick	1.2
429	1/16" thick	1.2

Anchor Rubber Gasket Sheets and Cut Gaskets



Anchorite Green Label Red Sheet

Styles: No. 475 sheet; No. 575 cut gaskets

Sizes: 36" and 40" widths; thicknesses 1/32" to 1/4"

Description: This tough, resilient sheet is superlative in rubber sheet quality. Especially compounded for maximum strength and resistance to aging

Uses: Against steam and hot water at temperatures to 350° F.

Standard Quality Red Sheet

Style: No. 415 sheet; No. 515 cut gaskets

Sizes: 1/32" to 1/4" thick in widths of 36" any length

Description: A red rubber of a quality which, compounded with a mineral pigment, provides good tensile strength for a satisfactory gasket. Meets ASTM Specification D 1330

Uses: Against steam, air, hot or cold water at temperatures to 300° F., under all ordinary conditions

Approximate Weight: 11 pounds per 36" x 36" sheet, 1/8" thick.

Red Arrow Rubber Sheet

Styles: No. 435 sheet; No. 535 cut gaskets

Sizes: Widths, 36" and 40"; thicknesses 1/32", 1/16", 1/8", 3/16" and 1/4". Supplied in any lineal yardage lengths. 72" widths available on order.

Anchor Gaskets

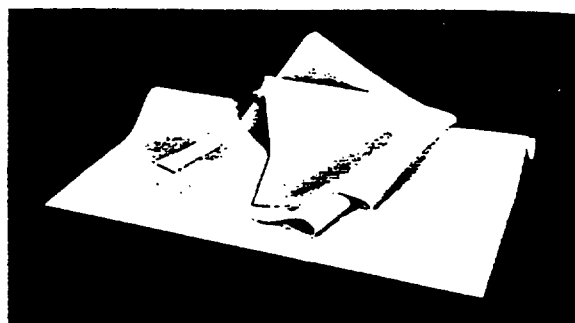
Every gasket requirement can be satisfied by fabrication from the wide range of Anchor Sheets and Slabs.

Boiler Gaskets—standard shapes and sizes cut from cloth inserted sheet, with any rubber or synthetic cover; from any Anchor sheet listed.

Companion Flanges—for all ring or full faced standard or extra heavy fittings. Made from Red Sheet, Cloth inserted sheet, Fiber sheet, or compressed asbestos.

Tank Car Gaskets—for outlet or dome cover; any size and shape as ordered.

Special Gaskets—Anchor will supply any gasket of any size, any shape, any material. Simply send complete specifications to the nearby Anchor sales branch.



Anchor Floating Stock Natural Rubber

Styles: No. 1404 sheet

Sizes: 36" wide; thicknesses 1/16" and up. Any lineal yardage

Approximate Weight: 5.7 pounds per 36" x 36" sheet, 1/8" thick.

Description: Highest grade natural rubber floating stock (pure gum) with an approximate Durometer hardness of 35-40, is soft and resilient. Meets Specifications MIL-R-3065, and ASTM Type R 430

Uses: Services where softness and resiliency is necessary. Excellent for laboratory uses and for sand blasting equipment

Anchor Oil-Resistant Rubber Sheet

Style: No. 410 sheet; No. 510 cut gaskets

Sizes: Sheets or rolls 36" wide; thicknesses 1/32" and up

Description: High grade Buna S is especially compounded to form a sheet with a Durometer hardness of about 85. High resistance to aging

Uses: Against oil, gasoline and other volatiles which are destructive to natural rubber.

Note: Also available in wire inserted sheet—thicknesses 1/16" and up. Order Style No. 410 WI.

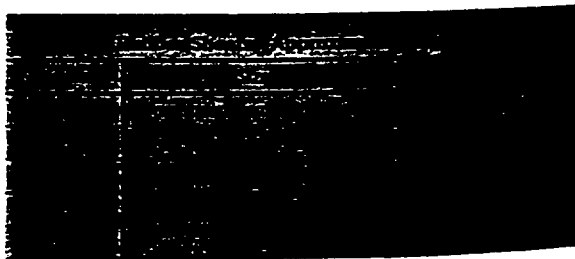
Wire Inserted Red Sheet

Styles: No. 416 sheet; No. 516 cut gaskets

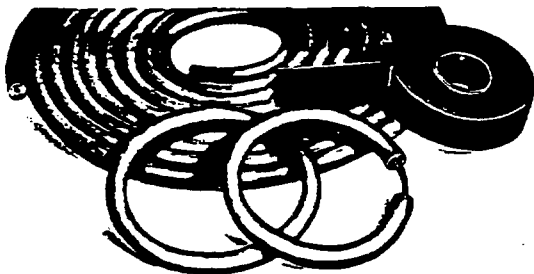
Sizes: 40" wide; thicknesses 1/16" and up. Any lineal yardage

Description: Good quality red rubber with center reinforcement of wire mesh which acts as a grid and prevents flowing of gasket under compression

Uses: For medium pressures at temperatures to 300° F.



Anchor Rubber Gaskets



Round Rubber Tubular Gaskets

Style: No. 604 Coil

Sizes: 3/8" to 1" in 1/8" increments

Description: This versatile tubular natural rubber gasket material is furnished with a quantity of lead inserts and friction tape to facilitate splicing of butt joints

Uses: Against hot and cold water, low pressure steam and air on manholes and handholes of boilers, on heater doors and tank tops.

Note: Also furnished in square and jelly roll form.

Red Tubular Gaskets

Style: No. 606 Coil

Sizes: 3/8" diameter and up in multiples of 1/8"

Description: High grade cotton frictioned with Anchor top quality red rubber is woven in tubular form to furnish a gasketing material in coils.

Uses: Against hot and cold water, low pressure steam and air, on manholes and handholes of boilers, on heater doors and tank tops.

Bung Gaskets from any Anchor material

Description: Bung gaskets, and gaskets for full removable head drums and pails are cut to order from any of the wide range of gasket sheets described in this catalog, or from boxboard, fiber and sponge rubber

Uses: For standard and vent fittings on steel barrels.

How to order: Proper steel drum gasket selection is important because of the wide variety of liquids and other materials contained and shipped in steel drums. Give all details designating medium to be sealed against and Anchor will select the most suitable gasketing material.

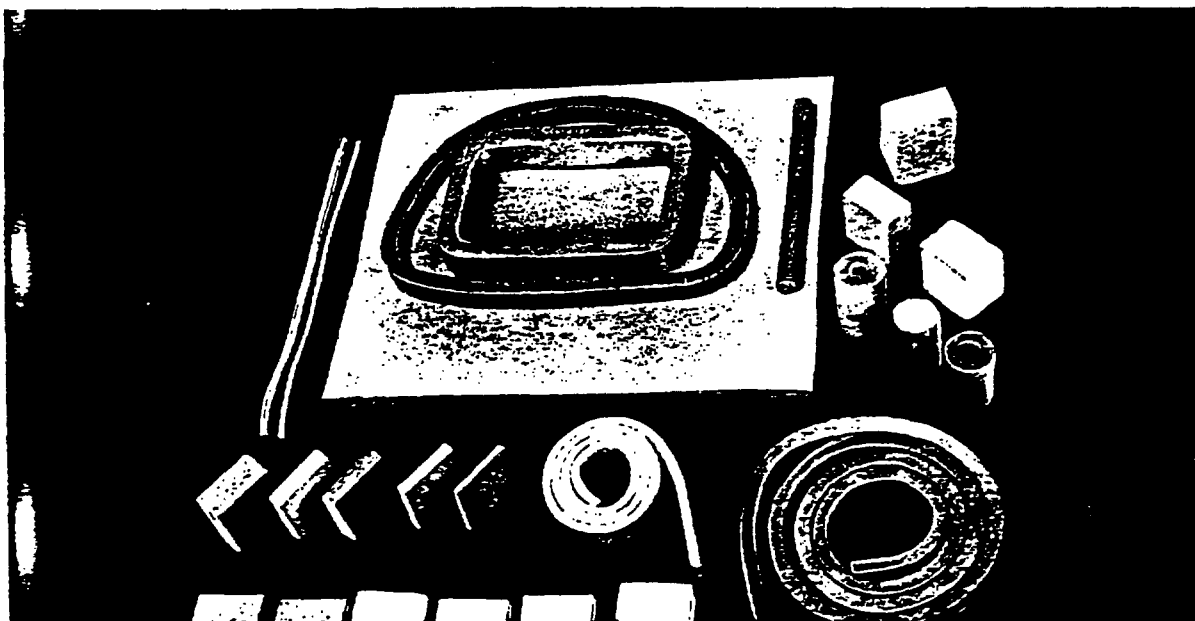
Sponge and Cellular Rubber for Soft Gasketing

Sponge and Cellular Rubber for Soft Gasketing

Sponge and cellular rubber have unlimited applications in every type of industry and Anchor furnishes any requirements in any form. For soft gasketing against glass, for instrumentation and for any seal where minimum compression must be used, this material serves with maximum efficiency. Any elastomer may be had—natural rubber, Buna S, Buna N, Anko-brane and Anchor-Silicone in both open and closed cell

structure, in a wide range of densities and durometer hardnesses. Colors available are black, gray, red and light brown

Forms available: Round, in diameters from 1/8" to 1". Slabs, from 1/8" to 2" thick, from which Anchor can cut any required flat shapes including tape, which may have an adhesive back. Also may be furnished in tubular form. Any special shapes may be molded to specification



Ankorite Impregnated Wool Felts

For Gasketing, Sealing, Cushioning, Damping, Padding

Wool felt of selected quality is the base for Ankorite impregnated felt gasketing materials, which have many uses besides the normal pipe line gasket function. There are three different styles of Ankorite felts, each of which has attributes for many specific applications. The three styles are furnished in four types: Type 1—Plain—without an adhesive backing; Type 2—Pressure-sensitive backing; Type 3—Pressure-sensitive backing with an interliner; Type 4—Reactivated type of adhesive backing

All three styles have these common characteristics: waterproof, anti-corrosive, fungus-inhibiting, saline-resistant, anti-wicking, non-freezing, fire-resistant, non-odorous. All Ankorite felts have high compressibility and regain (75% to 100%), never become brittle, and retain plasticity under heavy pressure. Seals or gaskets, subject to vibration and shock, never leak and hold surfaces under original pressure—even under bolt torsion. Ankorite felts with adhesive backs adhere firmly to any material and may be used between dissimilar materials

Style: No. 10E

Description: Thorough chromate impregnation and, in addition to properties mentioned above, the material is non-oxidizing, non-drying and non-toxic. Regularly furnished with Type 2 pressure-sensitive backing

Uses: Gaskets for bland liquids, refrigerant, air and gas pressure lines (not for oil or acid concentrates), for air-conditioning ducts, blower housings, intakes and outlets. Excellent for joints and facing surfaces on all automotive and railroad equipment; pre-fabricated metal structures; anti-squeak liners for structural use on all types of rolling stock; insulation on cold lines to prevent sweating; for damping between dissimilar metals to prevent static or galvanic action and as a machinery base to lessen vibration and noise

Style: No. 11N

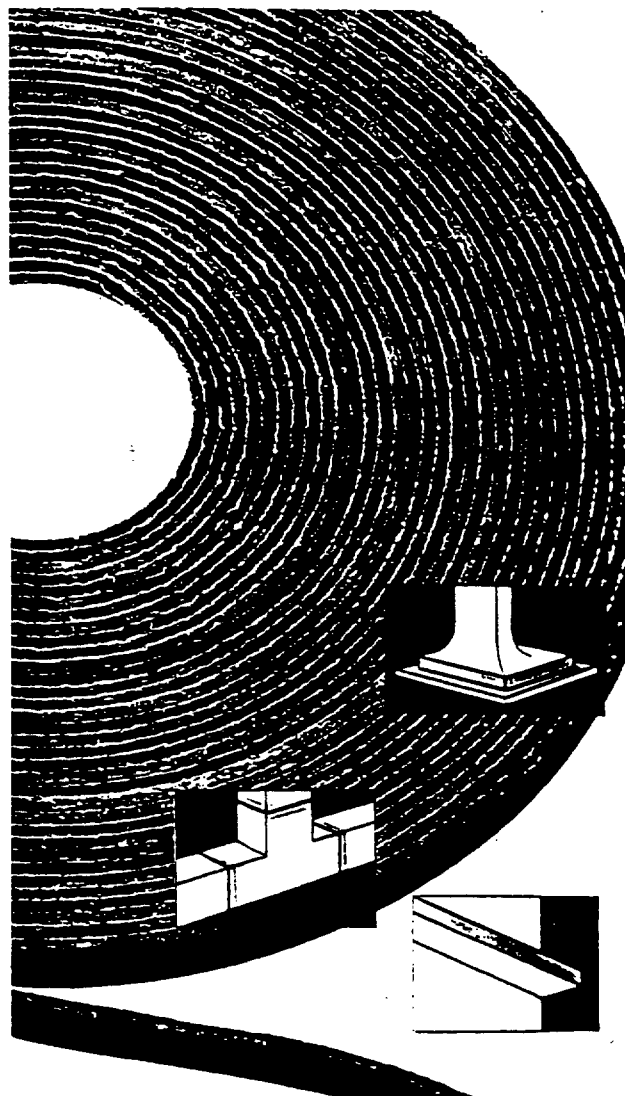
Description: Meets Specification MIL-G-20241-C. Additional properties are: flameproof—does not support combustion; non-oxidizing; non-drying and non-toxic. Regularly furnished with Type 2 pressure-sensitive backing

Uses: Gaskets against weather and salt spray for all naval uses—superstructures, gun carriage mounts, bulkheads, galleys, bridges. Seals for ducts, flanges, compression and sleeve joints in all ventilation systems, and especially where a fire hazard exists

Style: No. 12N

Description: Thorough chromate impregnation. Meets Specification MIL-F-17057-A. All of the properties mentioned in the introductory paragraph. Regularly furnished with Type 4 reactivated type of adhesive backing

Uses: Chock padding for military components, and all articles which require cradle packing which will resist moisture and fungus. As an abrasion preventive in shipping or stacking all types of hard goods, building units, porcelain and enamel ware. Seals for all metal building components; for joined or butted surfaces of metal, wood or composition board



Sizes All Styles: Widths from 1/2" to 36" maximum. Minimum width of 1/4" obtainable on special order

Style 10E thicknesses of 1/32", 1/16"—both rolls of 100 feet: 1.8", 50-foot roll; 1/4", 25-foot roll

Style 11N thicknesses of 1/16", 100-foot roll: 1.8", 50-foot roll; 1/4", 25-foot roll

Style 12N thicknesses of 1/16", 100-foot roll: 1.8", 50-foot roll; 1/4", 25-foot roll

Sizes and Packing Specifications					
All styles in widths of 1/2" to 36" maximum. 1/4" minimum width on special order					
Style No. 10E	Style No. 11N	Style No. 12N	Style No. 10E	Style No. 11N	Style No. 12N
Thickness	Thickness	Thickness	Feet per roll	Feet per roll	Feet per roll
1/32"	1/16"	1/16"	100	100	100
1/16"	1/8"	1/8"	100	50	50
1/8"	1/4"	1/4"	50	25	25
1/4"			25		

Note: All styles may be obtained on special order in Type 1 or Type 3

Anklon (TFE) Electrical and General Purpose Tapes

Anklon (TFE) Thread Seal

Style: No. 1175

Sizes: Thicknesses, 3.0 to 4.0 mils; width 1/2" in rolls containing 260" or 520". Other sizes on special order

Description: Anklon (TFE) ribbon is chemically inert, corrosion resistant, and non-toxic. It is self-lubricating, and retains its flexibility

Uses: For sealing threaded joints on every metal and plastic. Excellent for food services. One 520" roll will dope up to 200 one-inch pipe joints. One wrap-around of Anklon (TFE) Thread Seal is usually sufficient. Joints are easily disassembled



Virgin Anklon (TFE) Electrical Grade

Style: No. 1130

Sizes: Standard widths, 1/4" to 18", tolerance +1/16", -0". Other widths on special order. Also special width tolerances

Thicknesses: 0.002", 0.0025", 0.003", 0.005", 0.008" (tolerance ± 0.0005)

0.010" (tolerance ± 0.001)

0.015", 0.020", 0.025" (tolerance ± 0.0015)

0.030", 0.035", 0.040", 0.045", 0.050", 0.062" (tolerance ± 0.002)

(Special thicknesses on request)

Description: Virgin Anklon (TFE) has a dielectric strength, short time, .005"—average 1600/2200 V/mil; tensile strength at 73° F., 2800-4800 psi. Elongation 77° F.—average 200-300%. High resistance to ozone, chemicals and weather. Meets most U.S. Military Specifications

Uses: Electrical purposes for aircraft, electronics, general industrial and chemical installations

Anklon (TFE) Cementable

Style: No. 1132

Sizes: Standard widths, 1/4" to 18", thicknesses, .005" to .060"

Description: Virgin Anklon (TFE) chemically etched on one or both sides, as ordered, provides a "tooth" for cementing to metals, wood, glass, ceramics and plastics

Uses: Wherever the properties of Anklon (TFE) are required, and where the tape must be cemented to another surface. For many electrical purposes

Approximate Thickness	Approximate Width	Approximate Thickness	Approximate Width
.005"	1/4"	.010"	1/2"
.008"	3/8"	.015"	3/4"
.010"	1/2"	.020"	1"
.015"	3/4"	.025"	1 1/4"
.020"	1"	.030"	1 1/2"
.025"	1 1/4"	.035"	1 3/4"
.030"	1 1/2"	.040"	2"
.035"	1 3/4"	.045"	2 1/4"
.040"	2"	.050"	2 1/2"
.045"	2 1/4"	.060"	2 3/4"

Adhesive for Anklon (TFE) Cementable Tape

Style: No. 1133

Sizes: Pint, quart, half-gallon, and gallon containers

Description: General purpose adhesive of the two-part epoxy type

Anklon (TFE) Pressure-Sensitive

Style: No. 1134

Sizes: Thicknesses, Standard .006; heavy duty .013.

Standard widths, 1/4" to 2" in 10 yard rolls;

1/2" to 2" in 36-yard rolls

12" width furnished on a liner by the lineal yard

Other roll widths are slit to order

Description: Anklon (TFE) with a pressure-sensitive silicone polymer adhesive for easy application to any clean dry surface, free from grease, oil, or dirt. Good thermal curing. Temperature range, -100° F. to 400-500° F.

Uses: Electrical and mechanical purposes. For slot lining, wrapping for transformer coils. For a low friction, non-stick facing on heat sealing bars, chutes, guide rails, etc.

Style No. 1130. Approximate Weights

Standard Thickness	Standard Width	Standard Weight
.005"	1/4"	1.8"
.008"	3/8"	1.8"
.010"	1/2"	1.8"
.015"	3/4"	1.8"
.020"	1"	1.8"
.025"	1 1/4"	1.8"
.030"	1 1/2"	1.8"
.035"	1 3/4"	1.8"
.040"	2"	1.8"
.045"	2 1/4"	1.8"
.050"	2 1/2"	1.8"
.060"	2 3/4"	1.8"

Special thicknesses upon request

Anchor Electrical and General Purpose Tapes

Ankorite Vinyl Electrical Tape

Style: No. 1000

Sizes: 3/4" wide x 66' long x .007" thick. Boxed

Description: Vinyl plastic backing; rubber-base, pressure-sensitive adhesive; non-corrosive; acid-resistant; flameproof; average dielectric strength in excess of 1000 volts per mil thickness. Easily workable at normal temperatures, but after application low temperatures do not affect its efficiency. Underwriters Laboratories approved; meets Specification MIL-T-7798-A

Uses: Electrical insulation for wire splices, "harness-wrapping" of wire and cable groups. For wrapping tool handles, etc.; for corrosion prevention on pipe and other metal surfaces exposed to corrosive, gaseous or humid conditions

Cold Weather Vinyl Electrical Tape

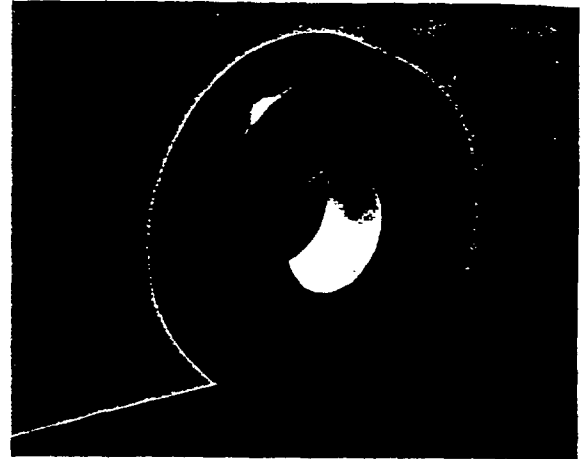
Style: No. 1000C

Description: Especially formulated vinyl plastic to remain flexible at temperatures down to -50° F., although it is also excellent at temperatures to 180° F. Has rubber base, non-corrosive pressure-sensitive adhesive, which will stick at 0° F., but is not impaired by extremely low temperatures after application. Dielectric strength in excess of 1000 volts per mil thickness, with no loss after ozone exposure. Insulation resistance, 2,000,000 megohms. Tensile strength, 24 lbs./in. width. Elongation, 150% at break. Flameproof, and highly resistant to acids and abrasion. Underwriters Laboratories approved. Meets Specification MIL-I-7798A

Uses: For all electrical purposes at temperatures where ordinary tapes become inflexible. For wire splices, "harness wrapping" of wire and cable groups, and as a corrosion preventive on pipe and other metal surfaces exposed to corrosive, gaseous or humid conditions

Ankorite Weatherproof Insulating Tape

Sizes: 3/4" wide, in non-adhering paper rolls of approximately 24 yards, average weight, 8 ounces. Special widths on request without extra charge



Description: Waterproof, non-friction high quality rubber compound tape with a dielectric strength of 1850 volts per layer; tensile strength 30 pounds on standard 3/4" width. Does not deteriorate with age or because of heat

Uses: For all outdoor and marine electrical applications. Light and power stations, railways, mines, quarries, conduits, and all industries. Does not replace friction tape for indoor use

Anklon (TFE) Thermoplastic

Style: No. 1187

Sizes: Thicknesses from 1/2 to 40 mils. 1/2 mil tape widths from 1/2" to 15"; thicknesses over 1/2 mil in widths from 1/2" to 35"

Description: This Anklon (TFE) fiber tape (FEP) is a true thermoplastic which is readily vacuum and heat formed. It is tough, strong, will not absorb moisture, and has excellent weather durability. Good dielectric characteristics over a wide range of frequencies and temperatures

Uses: For many electrical purposes and wherever a tape possessing such outstanding properties would be useful

Anklon (TFE) Molded and Extruded Tubes, Rods

Standard tubes and rods, pressed, molded or extruded from Anklon (TFE) are used for the fabrication of finished gaskets, rings, bushings and machined parts. Close tolerances listed are evidence of the care with which these items are produced

STYLE: NO. 1145 MOLDED TUBES—Standard sizes: 3/4" to 16" I.D.; 2-5/8" to 17-1/2" O.D.

Size	Length	Weight	Volume	Surface Area	Notes
3/4"	10'	1.0	0.0001	0.0001	
1"	10'	1.5	0.0002	0.0002	
1 1/2"	10'	2.5	0.0004	0.0004	
2"	10'	4.0	0.0008	0.0008	
2 1/2"	10'	6.0	0.0012	0.0012	
3"	10'	9.0	0.0018	0.0018	
4"	10'	16.0	0.0032	0.0032	
5"	10'	25.0	0.0050	0.0050	
6"	10'	36.0	0.0072	0.0072	
8"	10'	64.0	0.0128	0.0128	
10"	10'	100.0	0.0200	0.0200	
12"	10'	144.0	0.0288	0.0288	
14"	10'	196.0	0.0392	0.0392	
16"	10'	256.0	0.0512	0.0512	

style: No. 1145 (sizes: see page 66)

Description: Virgin Anklon (TFE) precision molded to very close tolerances. Chemically inert, non-toxic, useful at temperatures to 500° F. for any tube application where the well-known properties of TFE are desirable

Glass-Filled Molded Anklon (TFE) Tubes

Style: No. 1143. Same as Style No. 1145, except this style is glass-filled

Sizes: O. D.s, 2-5/8" to 4", minimum wall thickness 3/8"
O.D.s, 4" to 10", minimum wall thickness 1/2"
O.D.s, 10" and up, minimum wall thickness 3/4"

Weight: Cross-sectional in square inches is the approximate weight in pounds per lineal foot

Uses: For pumps and piston rings

Extruded Anklon (TFE) Tubes

Style: No. 1144

Sizes: O.D.s, 1/2" to 2-1/2" with 1/8" minimum wall thickness for O.D.s from 1/2" to 1"; for O.D.s above 1", minimum wall thickness is 1/4". I.D.s are from 1/4" to 2". Standard lengths: 48". Other lengths available on request

Tolerances: I.D. +0", -1/16"; O.D. +1/16", -0"
Wall thickness, +1/16", -0". Length, +1/2", -0"

Glass-filled extruded Anklon (TFE) tubes also furnished
Sizes: O.D.s to 1" with 1/4" minimum wall thickness
O.D.s over 1" with 3/8" minimum wall thickness

Extruded Anklon (TFE) Thin Wall Tubing

Style: No. 1148

Sizes: Nominal sizes 3/16" x .040" to 1" x .040".
Random lengths from 2 ft. minimum to 50 ft. maximum

Description: Like all Anklon (TFE) products this thin wall tubing is chemically inert, has excellent dielectric properties and low coefficient of friction. Tem-

perature range: -100° F. to +500° F. Has good flexibility for easy installation

Uses: For fuel lines, chemical tubings, and other purposes where the properties of Anklon (TFE) are conducive to efficiency

Molded Anklon (TFE) Rod

Style: No. 1146

Sizes: Diameters, 2-5/8" to 4" in 12" standard lengths
4-1/8" to 6" in 6" standard lengths
6-1/8" to 13-1/4" in 3" lengths

Tolerances: 2-5/8" to 5" diameter, +1/8", -0"
5-1/4" to 10" diameter, +3/16", -0"
Length tolerance, +1/2", -0"

Glass-filled molded rod is also available in sizes as listed above

Extruded Anklon (TFE) Rod

Style: No. 1147

Description: This rod is centerless ground thus insuring a perfectly round cross-section

Sizes: 3/16" to 2-1/2" diameter. Standard length is 48", but other lengths can be furnished on request

Tolerances: All lengths +.5", -0.0"

Diameters: 3/16" to 1/2", +.003", -0.0";
9/16" to 1", +.004", -0.0";
1-1/8" to 1-3/8", +.005", -0.0";
1-1/2" to 2", +.006", -0.0";
2-1/8" to 2-1/2", +.007", -0.0"

Extruded Anklon (TFE) Glass-Filled Rod

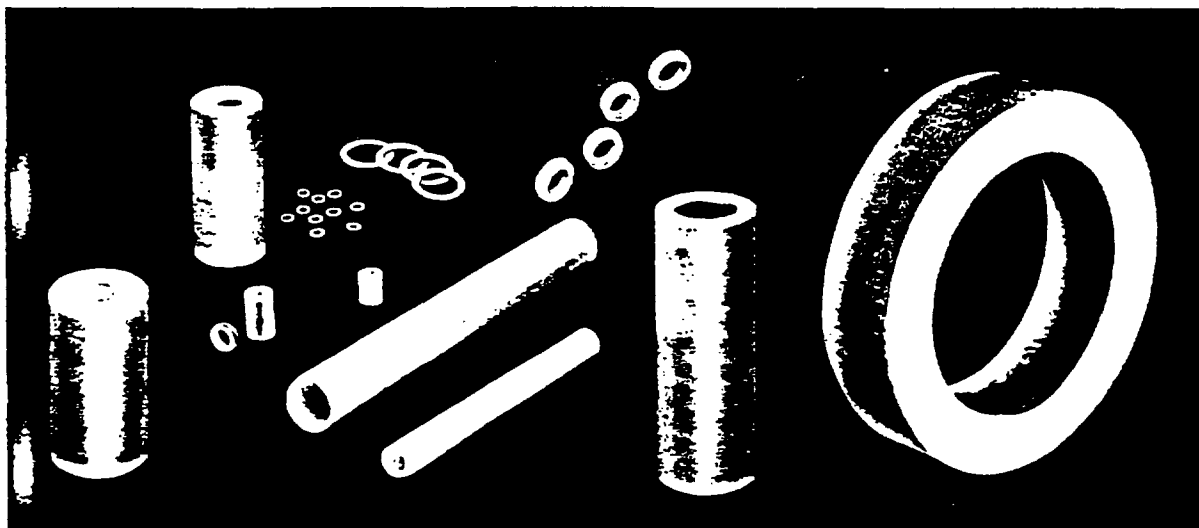
Style: No. 1153

Sizes: Diameters, 1/2" and up

Uses: For pumps and piston rings

Note: Stress relieved molded tubes and rods may be secured on special order. Normally, stress relieving will hold better tolerances after machining parts

Approximate Weights of Anklon (TFE) Tubes and Rods
in pounds per lineal foot are equal to cross-sectionals in square inches



Anchor "Surface" Condenser Tube Packings and Accessories

Metallic Rings with Fiber Expansion Rings

Sizes: For 5/8", 3/4", 7/8" and 1" O.D. standard tube sizes as follows:

I.D.	O.D.	Width	I.D.	O.D.	Width
5/8" x 3/4" x 5/16"	5/8" x 25/32" x 5/16"				
5/8" x 49/64" x 5/16"	5/8" x 51/64" x 5/16"				
5/8" x 25/32" x 1/4"	5/8" x 13/16" x 5/16"				
3/4" x 7/8" x 5/16"	3/4" x 29/32" x 1/4"				
3/4" x 57/64" x 5/16"	3/4" x 29/32" x 5/16"				
7/8" x 1" x 5/16"	7/8" x 1-1/32" x 1/4"				
7/8" x 1-1/64" x 5/16"	7/8" x 1-1/32" x 5/16"				
1" x 1-1/8" x 5/16"	1" x 1-5/32" x 1/4"				
1" x 1-9/64" x 5/16"	1" x 1-5/32" x 5/16"				

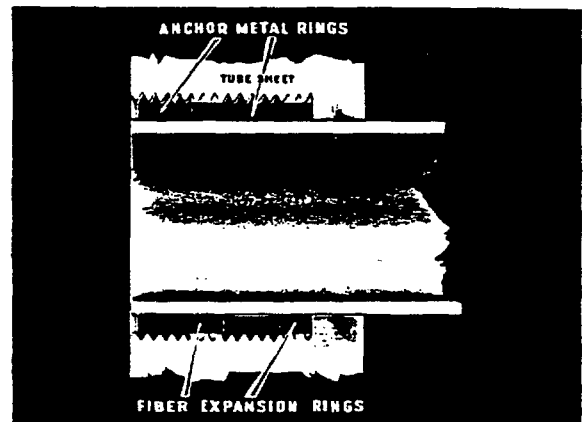
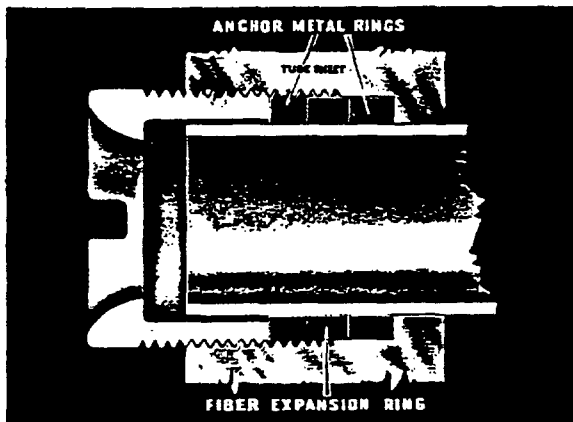
Packing Sets: (1) If brass ferrules are used, a packing set consists of two metal rings and one fiber expansion ring. (2) If brass ferrules are not used, a

packing set consists of two metal rings and two fiber expansion rings

Description: Babbitt foil ribbons of sufficient length are wound on a mandrel of the proper size, and then compressed between rolls into dies. This endless ring flows easily to the tube and out to ferrule threading without rupture—snugs into tube sheet threading. This bond of tube and tube sheet assists in preventing electrolytic destruction of the tubes. The packing will not deform tube ends, nor will it disintegrate, due to contact with circulating water. It is also unaffected by temperature

Note: Brass ferrules are unnecessary at tube ends when Anchor metallic rings are used. Most operators of condensers using these Anchor rings have eliminated brass ferrules, especially where the tubes are expanded into one tube sheet

How to order: Please specify I.D. and O.D., width of rings or depth of stuffing box

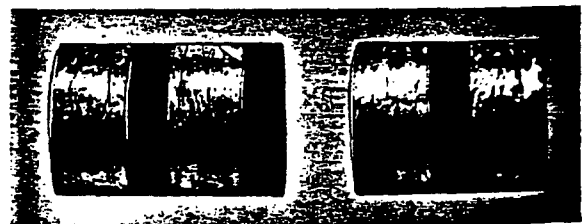


Anchor Fiber Condenser Tube Packings

Sizes: The following standard sizes are stocked in widths of 1/8", 3/16" and 1/4". Any other width is available on special order

I.D.	O.D.	Width	I.D.	O.D.	Width
5/8"	Stock	1/8"	3/4"	Stock	1/8"
5/8"	Stock	3/16"	3/4"	Stock	3/16"
5/8"	Stock	1/4"	3/4"	Stock	1/4"
7/8"	Stock	1/8"	1"	Stock	1/8"
7/8"	Stock	3/16"	1"	Stock	3/16"
7/8"	Stock	1/4"	1"	Stock	1/4"

Description: These tough gray vulcanized fiber bushings are made from rag stock. With no excessive swelling, they have long service life, will not "bind" tube ends

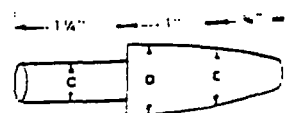


A = Outside diameter of tube plus .003 inch
B = Diameter of tube sheet drilling less 1/64th inch
C = Inside diameter of tube less .005 inch
D = Outside diameter of tube
E = Outside diameter of tube less 1/32nd inch



DETAIL OF INSERTION TOOL

DETAIL OF GUIDE PIN



Anchor "Surface" Condenser Tube Accessories and Data

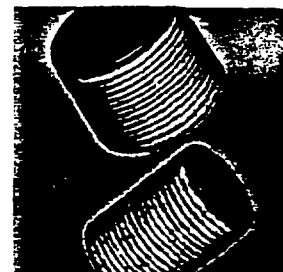
Condenser Tube Cleaning Plugs

Ankorite M & A Condenser Tube Cleaning Plugs

Sizes: 5/8" for 16 and 18 gauge tubes; 3/4" for 16, 17 and 18 gauge tubes; 7/8" for 16 and 18 gauge tubes; 1" for 16, 17 and 18 gauge tubes

Description: These heavy duty, long lasting plugs are made from natural rubber of special density, which will not injure tubes. May be shot through tubes with tube cleaning gun with air or water pressure. Water pressure is preferred

How to order: Specify size and gauge required.



Fabric Insert Condenser Tube Cleaning Plugs

Sizes: All diameters to fit standard tubes; 3/4" wide

Description: Accurately fabricated from laminated duck and rubber slab. When shot through tubes, the end-wise fibers in the duck plies have a swabbing effect

How to order: Specify I.D. of tubes for which plugs will be used.

Anchor Corset Lace

Sizes: 1/16" to 1/8"

Description: This lace with center core meets U.S. Navy Specification 33P9B and Federal Specification HH-P-71. If specified, this corset lace will be treated with paraffin or linseed oil; otherwise, it will be furnished dry

Anchor Rapid Condenser Tube Cleaning Gun

Description: Gun is designed to shoot plugs through tubes by either air or water pressure. It may be equipped with 5/8", 3/4" or 1" nozzles which may be ordered with the gun or separately. Unless otherwise specified, a 10-foot length of hose will be attached to the gun. When ordering specify I.D. of tube for which the gun is needed

Ferrules

If ferrules are used, be sure to test condenser as described. When it is ascertained that all packings are tight, ferrules may be screwed in. Ferrules must not fit tight over tube ends, but should have 1/32" clearance; otherwise the tube may move, due to some slight eccentricity. Clearance is important for this reason

How to Install Anchor Metallic Condenser Rings

- 1) Thoroughly remove old packing from tube sheet drillings
- 2) When tubes to be packed are in place, they must be securely held in proper flush position. This is usually done by bracing one end of the tubes with boards (unnecessary if tubes are expanded at one end, as expanding should be done before insert-ing packing)
- 3) Insert guide pin in tube and place metallic ring over it. Push or tap into threaded stuffing box, using thimble insertion tool. Place fiber rings in the same manner
- 4) After rings are pushed into position, give insertion tool a few light hammer taps to set or caulk the metallic rings into the threads, and to remove all voids from the packing

Caution: Use a series of light hammer taps, rather than a heavy blow. Light taps will remove voids and set the packing without deforming tube ends

Testing Condenser

After all tubes are packed, condenser should be tested for tightness. The steam space should be filled with water and a pressure of 15 psi applied. Any packings which show leaks should be recaulked as described in Item 4 above

Use Tools with Care

For best results, in efficient packing installation check tools against the detail drawing. Tight tools will stick and thin tools will not caulk the packing properly

Anchor offers loading and removing tools for installing all standard sizes of condenser packing

Measuring Condensers for Rings

I.D. of rings is the same as O.D. of the tubes

O.D. of rings is determined by diameter of counterbore at bottom of threads in tube sheet. Since this is the vital measurement, micrometer calipers should be used; and the measurement should be checked by gauging several bores at random about the tube sheet. Order rings to the largest size that will slip into place

Width of rings is determined by depth of drilling in the tube sheet. This is commonly 11/16" or 3/4". For these depths order metal rings 5/16" wide and fiber rings 3/16" wide. For other depths vary the widths of rings to accommodate the requirements

Number of rings. If ferrules are not used, two metal and two fiber rings are needed. With ferrules, two metal and one fiber ring are required

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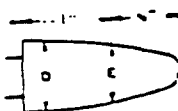
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Virgin Anklon (TFE) Expansion Joints and Flexible Couplings

For pipe lines conveying acids, caustics, most solvents, food products
Pressures, 25 psi and higher. Temperatures to 200° F.

Anklon (TFE) expansion joints and flexible couplings consist of machined virgin Anklon (TFE) bellows and standard ASTM cast iron flanges with limit bolts. Flanges, unless otherwise ordered, will be drilled in accordance with ASME standards for 125 lb. series. Sizes through 6" may be obtained with Corning pattern glass flanges instead of cast iron. Compressible Anklon (TFE) gaskets are built in and no further gasketing is required.

These joints and couplings correct for slight misalignment, absorb shock and noise; and compensate for thermal expansion and contraction within the limits of the bellows (see tables below).

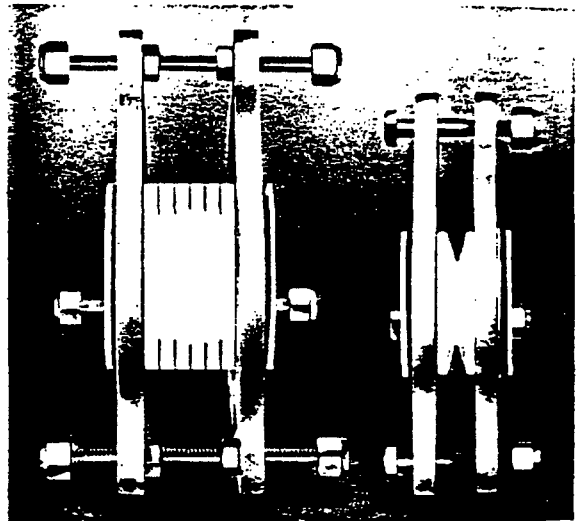
Style: No. 1113 Anklon (TFE) Flexible Couplings Engineering Data

Nominal Size	Face-Face Relaxed	Face-Face Extended	Face-Face Compressed
1"	2-1/8"	1-3/8"	2-13/16"
1-1/2"	2-1/8"	1-3/8"	2-13/16"
2"	2-7/8"	2-1/4"	2-1/2"
2-1/2"	2-7/8"	2-1/4"	2-1/2"
3"	2-7/8"	2-1/4"	2-1/2"
4"	2-1/8"	2-5/8"	1-5/8"
6"	2-1/8"	2-5/8"	1-5/8"
8"	2-1/8"	2-5/8"	1-5/8"
10"	2-1/2"	3-1/4"	2-1/8"
12"	2-1/2"	3-1/4"	2-1/8"

Style: No. 1112 Anklon (TFE) Expansion Joints

Engineering Data

Nominal Size	Face-Face Relaxed	Face-Face Extended	Face-Face Compressed	Increased Length Each Additional Section	Increased Movement Each Additional Section
1/2"	2.00"	2.825"	1.760"	.198"	+ .150" - .044"
1"	2.00"	2.825"	1.760"	.198"	+ .150" - .044"
1 1/2"	3.00"	4.378"	2.628"	.265"	+ .212" - .062"
2"	3.00"	4.378"	2.628"	.265"	+ .212" - .062"
2 1/2"	4.00"	5.904"	3.438"	.278"	+ .224" - .062"
3"	4.00"	5.442"	3.442"	.372"	+ .222" - .093"
4"	4.00"	5.442"	3.442"	.372"	+ .222" - .093"
4 1/2"	4.50"	5.942"	3.942"	.416"	+ .222" - .093"
6"	5.00"	6.442"	4.442"	.456"	+ .222" - .093"
8"	5.00"	6.442"	4.442"	.456"	+ .222" - .093"



Style: No. 1112HP

Anklon (TFE) High Pressure Expansion Joints

This style differs from Style No. 1112 in that the virgin Anklon (TFE) bellows are reinforced with silicone impregnated glass tape. Pressure from 50 psi to 100 psi, depending upon size and service temperatures.

Engineering Data

Nominal Size	Face-Face Relaxed	Face-Face Extended	Face-Face Compressed	Flange Drilling and Pattern	Number of Holes	Size of Bolts	Face-Face Compressed
1/2"	2-3/4"	2-7/8"	2-9/16"	ME-125 lb.	4	1/2"-13"	
1"	2-3/4"	2-7/8"	2-9/16"	ME-125 lb.	4	1/2"-13"	
1 1/2"	3-5/16"	3-9/16"	3-1/16"	ME-125 lb.	6	5/8"-11"	
2"	3-5/16"	3-9/16"	3-1/16"	ME-125 lb.	6	5/8"-11"	
2 1/2"	3-15/32"	3-23/32"	3-7/32"	ME-125 lb.	6	5/8"-11"	
3"	3-19/32"	3-27/32"	3-11/32"	ME-125 lb.	6	3/4"-10"	

Ankorite Expansion Joints

These are made in standard spool type with one, or up to four convolutions; or in sleeve type. May also be furnished with offset or non-parallel or tapered flanges. On special order rectangular or odd shapes with internal or external flanges are available. Meets specification MIL-E-15330-Type 1. Materials may be rubber or one of the many Anchor synthetics. Also Anklon (TFE) virgin, or duck and rubber lined

Advantages: Absorb sound, shock, vibration; correct for slight misalignment, and compensate for thermal expansion and contraction in pipe lines of any kind

Uses: Air conditioning systems, air ducts, blower lines, compressor lines, circulating water lines, process industry lines, marine installations of many kinds

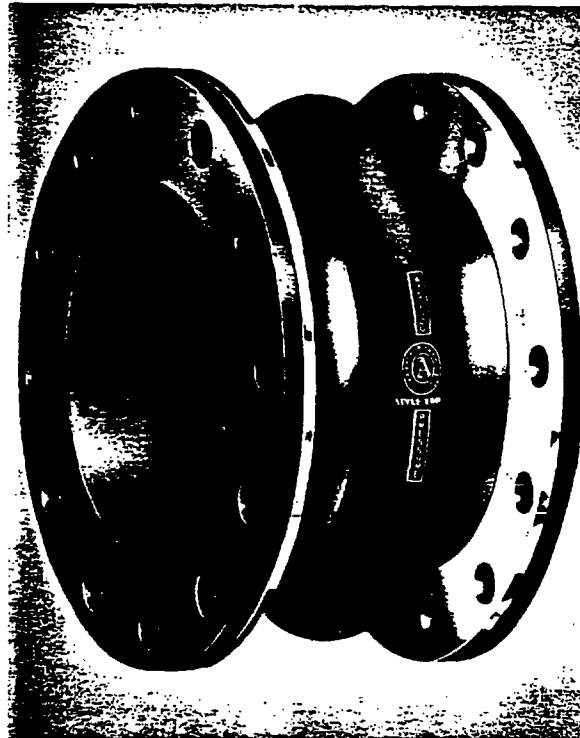
Inquiries: Ask for special bulletin giving engineering details—"Ankorite Rubber Expansion Joints". When inquiring, please give detailed data: pipe size, face to face dimension, flange drilling, substance handled; fluid, wet or dry; pressure or vacuum, maximum temperature, amount of movement, and details of any special conditions

Ankorite Flexible Connectors

Flange Type for vacuum to 150 lbs. psi

Screw Type for pressures to 250 lbs. psi

Description: Used on straight lines, horizontal or vertical, securely anchored, they effectively insulate from vibration, noise, electrolysis and water hammer



Ankorite Metal Packings—Machined Type

Ankorite floating type metal rod packing rings are furnished singly or in sets with packing cases of two types:

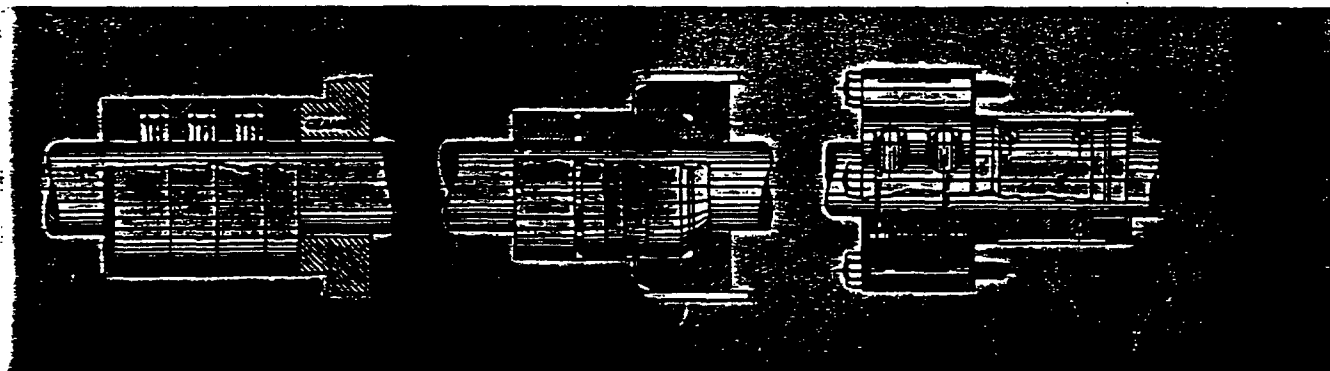
- (1) Solid cup type which fits into stuffing box and held by the flange which bolts to the stuffing box face
- (2) Split case type which is split horizontally allows installation without taking down equipment

Depending upon the service requirement, rings are tangentially cut, radially cut or of the bridge type. On segmented rings a spring bushing holds parts together. These rings and sets are used as seals on reciprocating

rods of steam engines, air compressors, ammonia compressors and others. They may be used for new installations and to replace old metallic packing. They can be furnished in cast iron, bronze, carbon, Anklon (TFE) or Ankolite Phenolic Laminate. Wire rings are also available

How to order: Give exact rod diameters, stuffing box details, pressure and type of service on which the packing will be used. The set can then be made up to incorporate the correct number of grooves and rings of the proper type.

Note: A special bulletin is available descriptive of these Anchor Machined Type Rings



Anchor Mechanical Seals

For Rotary Shafts on Pumps and Compressors

Mechanical seals are of various types for use on rotating shafts of pumps, compressors in equipment for the process industries including hydrocarbon, general petrochemical and hot water applications. Anchor mechanical seals are available as replacement units for every make of pump and compressor. Give the make, model

number of the equipment, and medium to be sealed; which data will enable us to supply exactly the required seal. If more information is needed on the Anchor line, special brochures are available

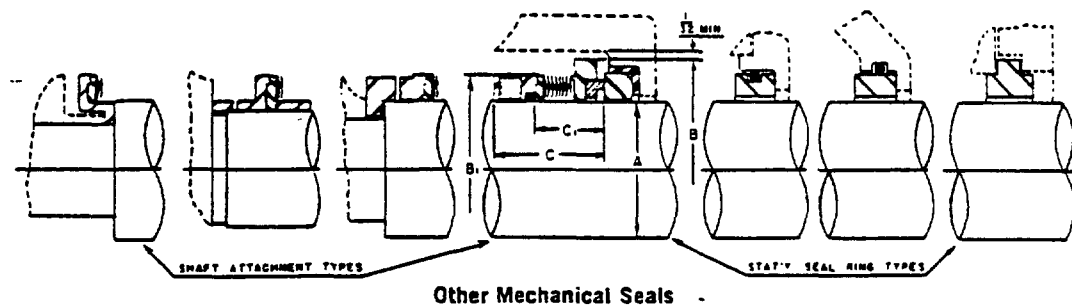
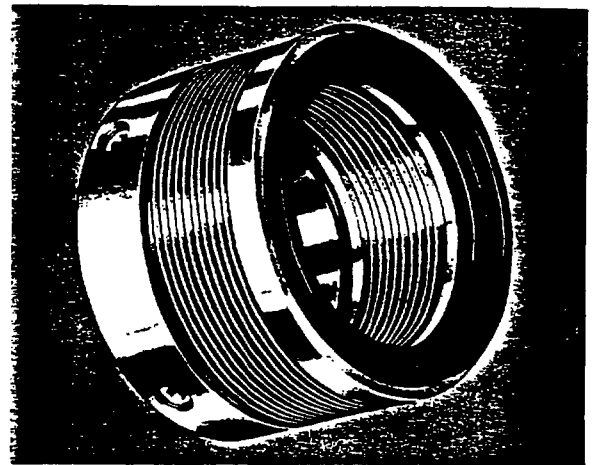
One of the most versatile mechanical seals is Anchor-Sealol which is furnished in several styles

Anchor-Sealol

Type 605 Rotating Metal Bellows Seal

Description: A welded metal bellows to which is attached a metal ring to hold the carbon seal ring. Depending upon how the seal is to be attached to the shaft, the proper end-fitting is welded to the last bellows convolution. No loose parts, no critical fits, no sliding elements. Nothing to leak, wiggle or slip out of position. Only one moving part, no dynamic elastomers, pressure balanced

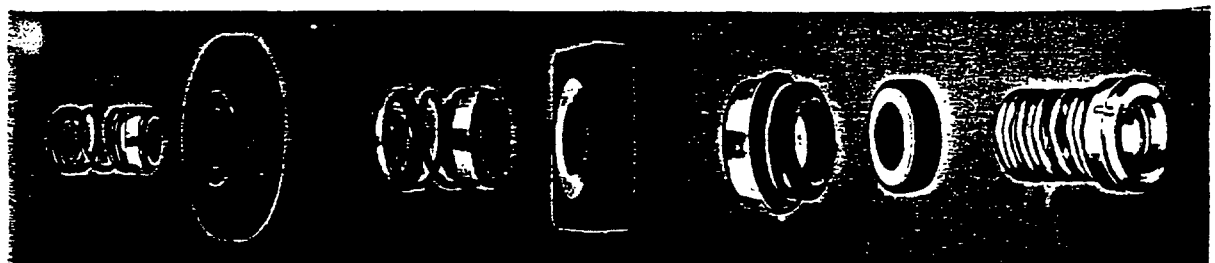
Uses: Low temperature liquified hydrocarbons, LOX, and other cryogenics are effectively sealed. At high temperatures, without external cooling, Type 605 dependably seals against heat transfer media, very hot water, hot gasoline and hot gases. With various methods of mounting, temperatures from -350°F. to $+800^{\circ}\text{F.}$, and pressures from vacuum to 300 psi are accommodated. For heavy or viscous materials which tend to solidify, Anchor-Sealol Types 602 and 603 are available



Other Mechanical Seals

There is a wide variety in design which allows the choice of the efficient and economical style for particular applications

Consult the nearest Anchor branch. Anchor packing experts will gladly assist users in recommending the type of mechanical seal and the proper mounting for any specific equipment or service



Anchorite Friction Materials

Woven Brake Linings

There is an Anchor long-wearing woven brake lining for use on every type of large and small equipment. For the particular service for which each style is designed, these brake linings have excellent holding power and handle the loads smoothly and safely. Whether for use

dry or in oil for heavy or lighter duty operations, these linings will not score drums and will serve efficiently in paper mills, steel mills, logging operations, oil fields and general industry. All of the fine styles offered are furnished in thicknesses of 3/16" to 1" and in widths from 1" to 24", depending on type

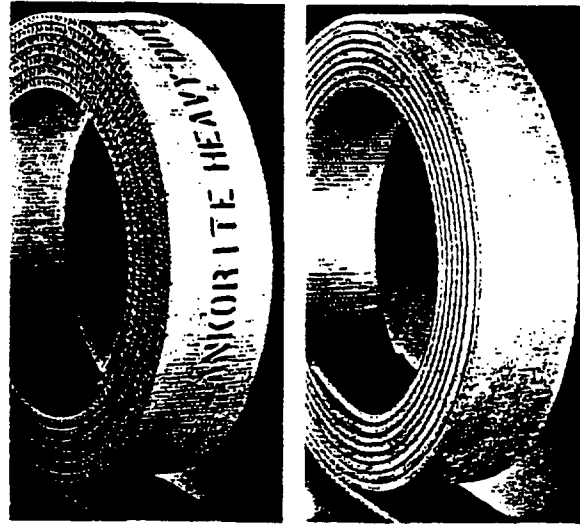
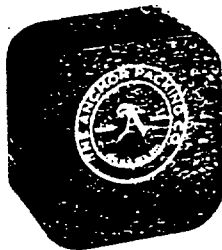
Anchorite Heavy Duty is made from heavy woven asbestos tape, wire-inserted and vacuum-impregnated for thorough saturation and uniform coefficient of friction. Uniform tolerance is insured by grinding both sides

Anchorite Wire Back is unexcelled for internal expanding brakes. It has an ideal coefficient of friction

Anchor-Duty is similar to Anchorite Heavy Duty, but is designed for less severe service

Anchorite Silent Grip is especially processed for efficient braking under oily conditions

Anchorite Type I is heavy woven asbestos folded and compressed. It is designed for heavy duty industrial requirements

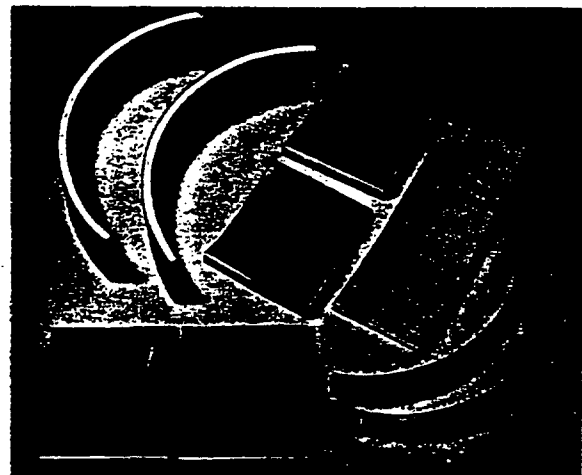
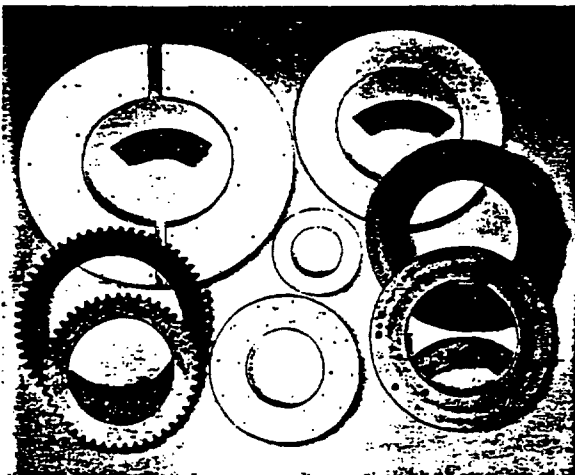


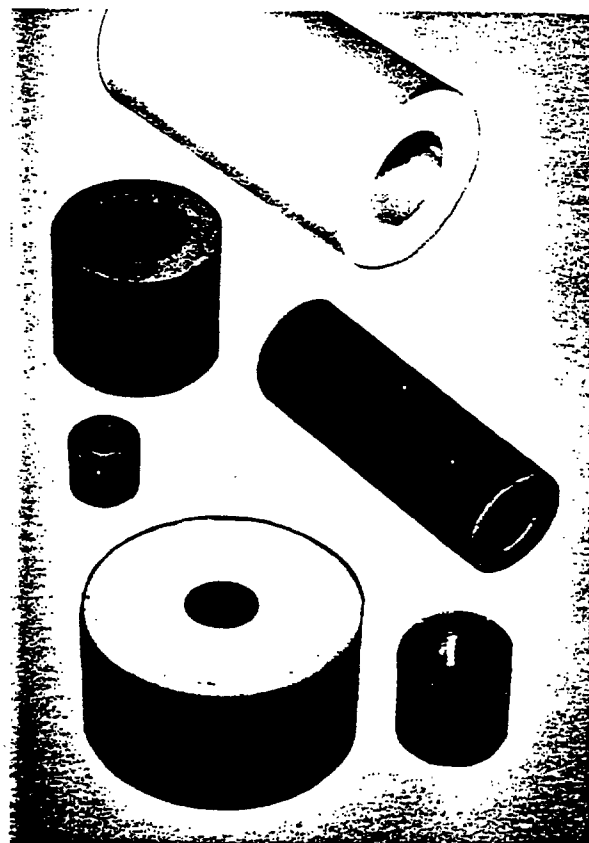
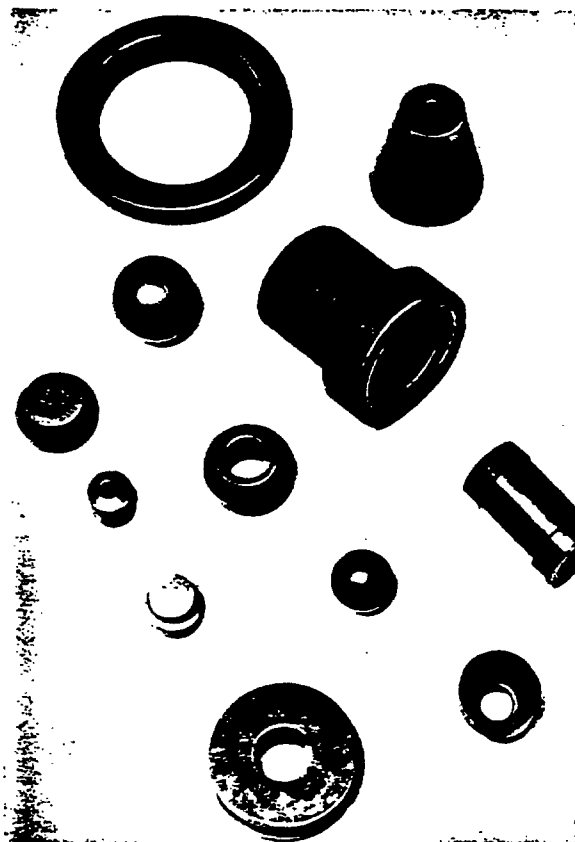
Anchorite Brake Blocks, Facings

Anchorite Clutch Facings are made in all sizes to 14' diameter, from various styles of molded and woven-molded asbestos materials. Any shape, including gear-toothed facings to 36" diameter, with integrally molded teeth; cone-type facings; disc-type facings from 12" to 48" diameter. All clutch facings are made to the correct specifications for all types of contractors', mining, oil field, and industrial equipment

Anchorite Brake Blocks are molded from the finest Canadian asbestos, in all styles to meet the service requirements of overhead cranes, power shovels, hoists, oil field draw works; also, the smallest-known requirements. Wire-backed block are available. Whatever the brake requirement, Anchor can supply exactly the proper style and construction

Anchorite Press Blocks are furnished in a wide variety of shapes and sizes for power and toggle presses.





Ankorite Molded Rubber Products

Custom molded parts to your specifications are available in sizes from minimal to a maximum of 72" diameter. Any of the natural or synthetic rubbers tabulated on Page 59 may be used in any grade and durometer. Parts may be molded with your own equipment, or the Anchor mold shop can produce with utmost precision the equipment needed to meet your engineering drawings. In addition to custom parts, standard items as listed below are always available

Extractor Rings. Molded from a special tough oil-resisting compound designed especially for laundry and dry cleaning equipment. Factory stocks of rings are available for the following equipment:

Adams 28-30; 1 3/4" and 1 1/2" thick. Adams-LO 28-30

American (new 24-30); 20-22; 24-26; 28-30

Asher 28

Atlas 28-30

B & E 26-30

Columbia 20-22; 24-26; 28-30

Hagen 24-26; 26-28; 28-30. Hagen-American 28-30

Lutes 20-22; 24-26; 28-30

Mateer 20-22; 24-26; 26-30

N & K 20-22; 24-26; 26-28

Troy 20-22; 24-26; 28-30

Tolhurst 30

Scotch-canvas covered 36. Scotch-Troy covered.

Scotch-Troy plain

Watkins 20-22; 24-26; 28-30

Wiley 20-22; 24-26; 28-30

Varclone 24-26; 28-30

Troy or Lutes bumper rings

In addition, other sizes of rings can be furnished from your sketch or sample

Strip, Cord, Lathe Cut Goods

Any natural or synthetic rubber compound tabulated on Page 59 may be specified for parts in these categories

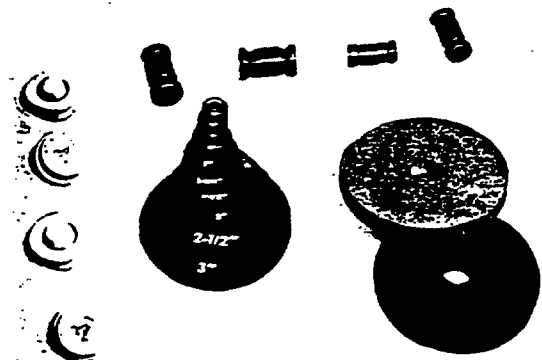
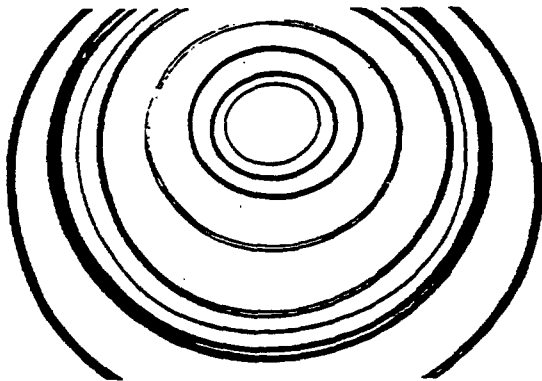
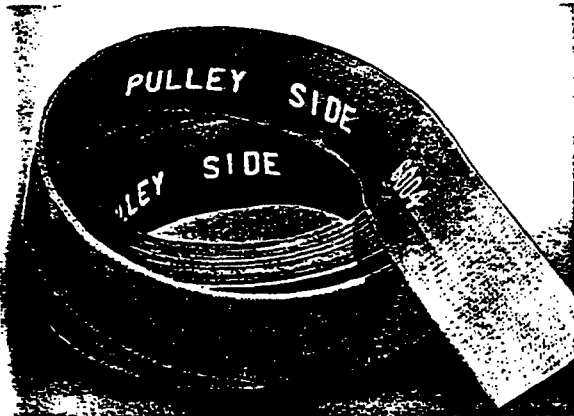
Strip Square or rectangular cross-section in all sizes from 1/8" to 2" in continuous lengths, depending upon size

Cord Round cross-section in diameters, 1/8" to 1". May be had in continuous lengths. Larger diameters are available in 36" lengths only

Lathe Cut Goods of any grade or material in 1/8" I.D. and up to maximum O.D. of 18". Cut washers in thicknesses from 1/32" up; cylinder stock, maximum length 36"

Anchor furnishes rubber and composition valves for all pressures and liquids--condenser, vacuum and air service.

Send for special brochure



Ankorite Bridge Bearing Pads are used in bridge construction between girders and piers or abutments in place of conventional sliding plates, rollers or rocker arms. These pads may be furnished in fully molded form or cut from slab, with or without metal inserts, from compounds conforming to all state highway specifications, in a full range of hardnesses

Elkrub Bushings for flexible coupling connections are made from natural rubber, Ankoprene, or Buna N compounds. A complete range of sizes and shapes which may be supplied plain or with steel, bronze, or brass liners, as ordered

Ankorite Bandsaw Bands provide greater tension and traction when used as tires on bandsaw pulleys, and prevent loss in the set of saw teeth. Bands are endless construction and are furnished for any diameter width of pulley, and may be cemented with shellac or rubber cement

Note: When ordering specify diameter and width of wheel. The bands are made enough smaller than wheel diameter to allow the band to be stretched around the wheel and held in place by the band tension.

Hydro Press Pads are produced from natural rubber or synthetic compounds. They have extremely high tensile and low compression set for maximum service in all types of forming operations. Any grade and hardness may be specified as required for any application. Pads may be had any thickness to 9"; maximum size 54" square

Hydrant Rubbers are produced from special compounds selected for long wear and low compression set. Rubber fittings for all standard fire hydrants include main valve rubbers, drain valve rubbers, rings and gaskets for all hydrants. Also, special hand-shaped parts can be furnished to your sample or drawing

Ankorite Conveyor Tape

Styles: No. 3199; No. 6004; No. 6004A; No. 6004B; No. 6004C

Sizes: 1/4" thick; 3/4" to 13 1/2" wide

Description: Woven asbestos tape heavily impregnated with flake graphite. On the pulley side only, two plies have wire insertion for added strength and to prevent undue stretch. Style No. 3199 is extremely flexible and recommended where this property is essential. Style Nos. 6004A; 6004B and 6004C are perforated to various patterns

Uses: Especially efficient in bottle-making plants

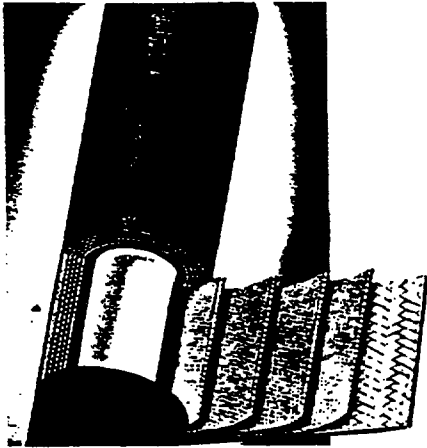
Liners for Bottle Making

Style: No. 6004 Woven Conveyor Tape

Sizes: Processed to many shapes, sizes and forms to your requirements

Description: Woven asbestos flake graphited impregnated formed into uprighter pieces, guides or pusher liners

Uses: Cup and paddle liners on bottle making machinery; bottle guides, strainers, pushers; for conveyor rolls in plate glass fabrication



Ankorite Steam Hose. A well balanced hose for steam service under general working conditions.

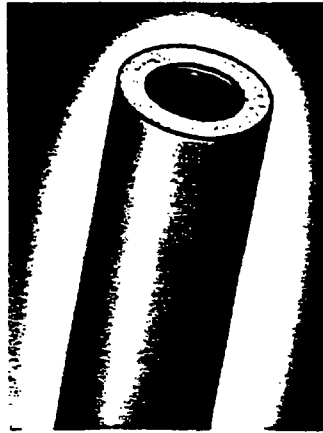
Ankorite Hose for Every Service, Every Pressure

Illustrated and described are the especially designed Ankorite hose constructions which meet every service requirement. Unsurpassed efficiency and long life when the proper functional construction is ordered. Adapter unions and couplings are available for all Ankorite Hose.

(For more details, send for Ankorite Hose Brochure.)



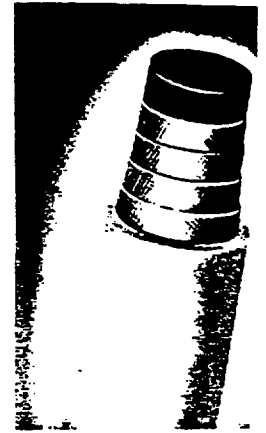
Ankorite General Purpose Hose. For dilute inorganic acid, or alkalis, air, oxygen and acetylene, oils, paint, water.



Ankorite Super Service Air Hose. For pneumatic tool and high pressure air services.



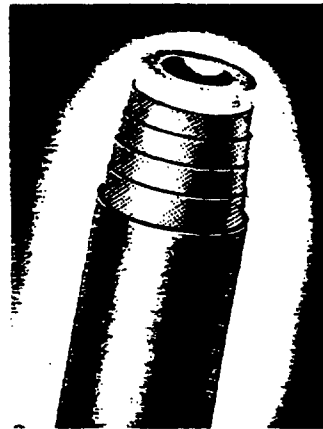
Ankorite Heavy Duty Air Hose. For continuous, heavy duty service under severe operating conditions.



Ankorite Creamery Hose. For sterilizing and washing service in dairies, meat houses and food plants.



Ankorite Welding Hose. Strong, serviceable hose of wrapped construction for welding service.



Ankorite Paper Mill Hose. Especially made for washing down paper machines, pump cylinders, screens, floors in paper and pulp mills.

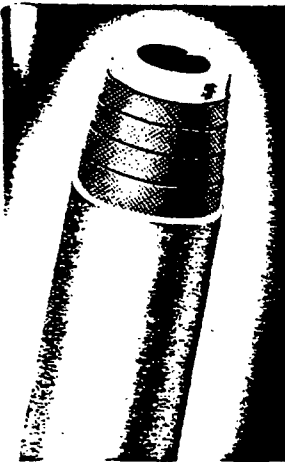


Ankorite Fire Hose. Underwriters: single and double jacket cotton rubber lined hose to meet specifications of the National Board of Fire Underwriters.

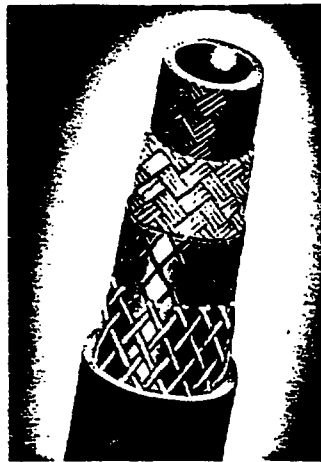


Ankorite Fire Hose. Mutual: single and double jacket cotton rubber lined hose to meet the specifications of the Associated Mutual Fire Insurance Co.

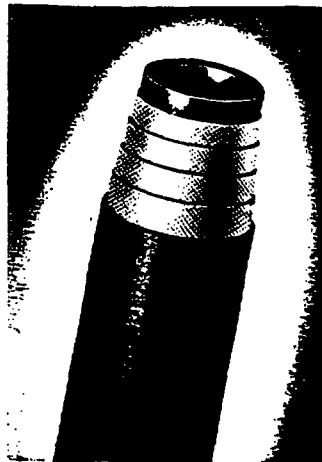
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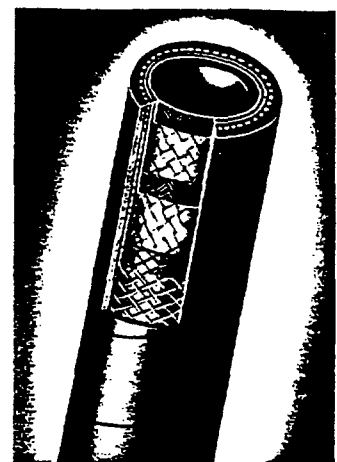
Ankorite Brewers Hose. For breweries and wineries having rubber tube which does not impart taste or odor.



Ankorite Paint and Lacquer Hose. For all types of air operated paint spray equipment.



Ankorite Safety Sand Blast Hose. Designed for blasting shot, sand and other abrasive materials.



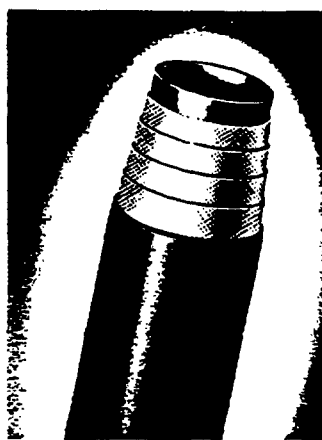
Ankorite Safety Steam Hose with wire braids for extra long life under high temperatures of live steam.



Ankorite Smooth Bore Water Hose. Recommended for heavy duty service in construction work; mining and industrial uses.



Ankorite General Purpose Water Hose. Designed for all-around use in industrial plants, refineries, paper mills, construction work, etc.



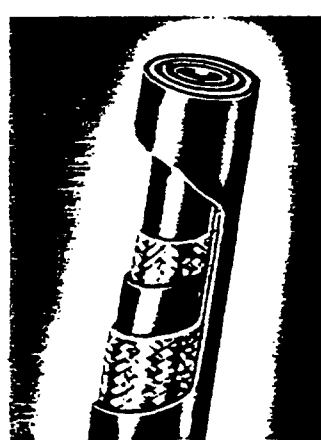
Ankorite Water Hose. Popular with contractors and industrial plants.



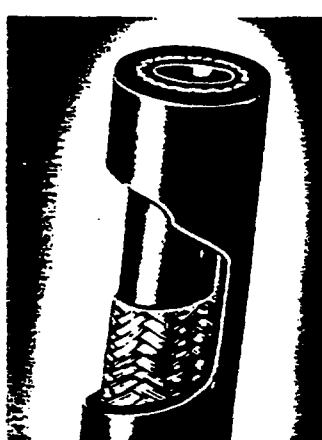
Ankorite Washout Hose. Popular hose for conducting hot water and steam for washout purposes.



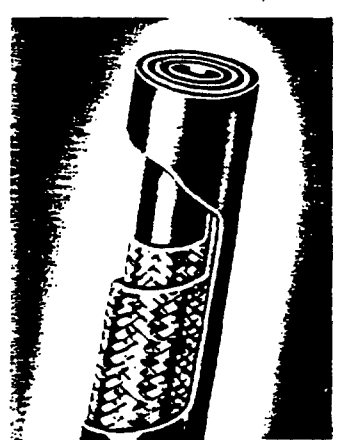
Ankorite Factory Hose. TFE lined and reinforced with stainless steel braid. Non-flammable. Factory tested by fuels, petroleum, and other oils. Tube chemically resistant.



Ankorite High Pressure Hose. Two wire braid. For use with hydraulic fluids, gases, grease, fuels, alcohol and oils.



Ankorite Medium High Pressure Hose. One wire braid. For use with hydraulic fluids, gases, fuels, grease, alcohol and oils.



Ankorite Medium Pressure Hose. Two rayon braids. Designed specifically for conveying hydraulic fluids.

Ankorite Glasses for all Types of Mounting

For Liquid Level Gauges, Sight Flow Indicators, Lubricating Devices

The Ankorite line of tubular gauge glasses meets every pressure and temperature requirement for obtaining visibility of exact liquid level in all types of processing and power plant equipment. Four Ankorite grades enable

a choice to meet every specific application. In addition to tubular glasses, Ankorite plain and reflex flat gauge glasses are available in three types. Gaskets and gauge glass washers are also furnished in all sizes

For complete engineering data, sizes, and installation instructions,
send for special catalog—Ankorite Glasses

Ankorite Heavy Wall for Maximum Pressures

Sizes: O.D.s 5/8", 3/4", 7/8", 1". Lengths, 8" to 48"

Working Pressures: At temperatures to 150°F., no corrosion from 340 psi to 600 psi, depending upon tube size. For steam boiler services up to 425°F., 300 psi to 600 psi, depending on tube size

Ankorite Standard for low pressures

Sizes: O.D.s 1/2", 5/8", 3/4". Lengths, 8" to 72"

Working Pressures: At temperatures to 150°F., no corrosion, 100 psi to 210 psi, depending on size. For steam boiler service up to 425°F., 100 psi

Ankorite High Pressure

Sizes: O.D.s 3/8", 1/2", 5/8", 3/4", 7/8", 1", 1 1/8", 1 1/4", 1 1/2". Lengths, 8" to 150"

Description: Heavy wall tube with extra heat resistance makes this tubular gauge adaptable to a wide variety of service conditions

Working Pressures: At temperatures to 150°, no corrosion, 100 psi to 500 psi, depending on size. For steam boiler service up to 425°, 100 psi to 370 psi (Sizes over 3/4" O.D. are not recommended for boiler service)



Ankorite Red Line for pressures to 400 psi

Sizes: O.D.s 1/2", 5/8", 3/4", 7/8", 1". Lengths, 8" to 72"

Description: Longitudinal red strip on white background provides maximum visibility of liquid level, even at considerable distance

Working Pressures: At temperatures to 150°F., no corrosion, 100 psi to 400 psi, depending on tube size. For steam boiler service up to 425°F., 90 psi to 300 psi, depending on tube size

Ankorite Lubricator and Oil Cup Glasses

For use in mechanical lubricating devices, Anchor offers three grades. If glasses are required for higher pressures than indicated for these styles, tempered glasses can be furnished on special order

Ankorite High Pressure Lubricator Glasses

Sizes: O.D.s 1/2", 5/8", 3/4", 7/8", 1", 1 1/8", 1 1/4", 1 1/2". Lengths: 1" to 8"

Working Pressures: At 425°F., 100 psi to 250 psi, depending on size

Ankorite Standard Lubricator Glasses

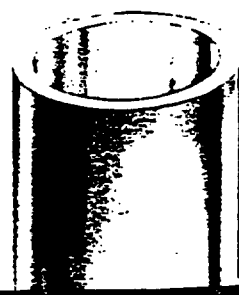
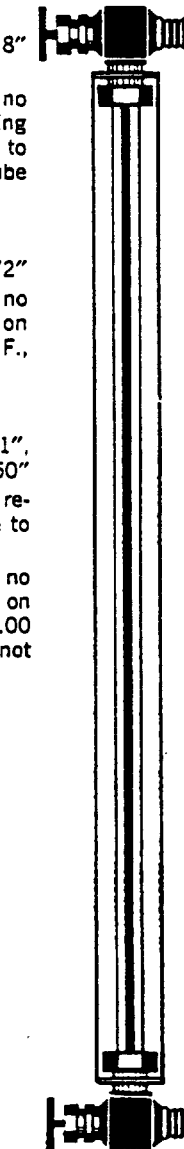
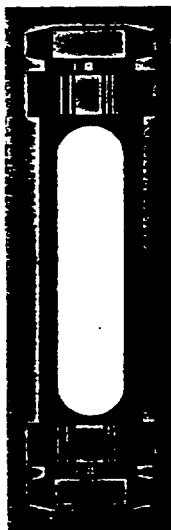
Sizes: O.D.s 1/2", 5/8", 3/4". Lengths: 1" to 8"

Working Pressures: At 425°F., maximum, 190 psi, all sizes

Ankorite Oil Cup Glasses

Sizes: All size numbers from 000 to 10

Working Pressures: To 190 psi, depending on size



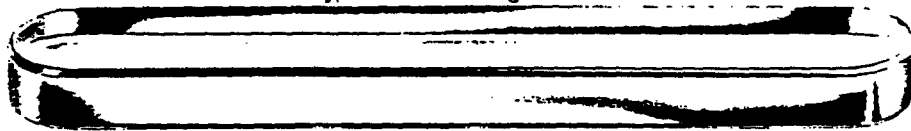
Ankorite Flat Gauge Glasses

This type of glass is used for rugged service with high pressure equipment. These gauge glasses meet Specification MIL-E-15330-Type 11. They withstand the severe thermal shock test of heating to 500°F. and

immediate plunging into cold water, 40°F.

Sizes: All glasses have the same size range—Width, 1.307-1.347; Thickness, 11/16"; Lengths, 4 1/2" to 13 3/8"

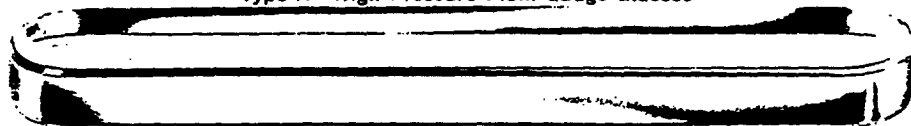
Type A—Plain Gauge Glasses



For moderate pressure steam boilers and liquid level indicators
Working Pressures: Non-steam service temperatures

–150° to +150°F., 2500 psi. Steam boiler service, mica-protected, 1000 psi. Steam boiler service, no mica, 400 psi

Type A—High Pressure Plain Gauge Glasses



Working Pressures: Non-steam service temperatures –150° to +150°F., 5000 psi. Steam boiler service,

mica-protected, 1500 psi. Steam boiler service, no mica, 400 psi

Type B—Reflex for maximum visibility

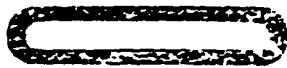


Vertical pressures extend the length of the viewing portion of the glass on one side. In use, the liquid contacts the prism side of the glass. When prisms are covered with liquids there is no light reflection, where liquid does not contact prisms, light is reflected brilliantly, thus showing the liquid level from a considerable distance

Working Pressures: Non-steam service temperatures –150° to +150°F., 2500 psi. Steam boiler service, no mica, 400 psi. (Mica is not used with reflex glasses)

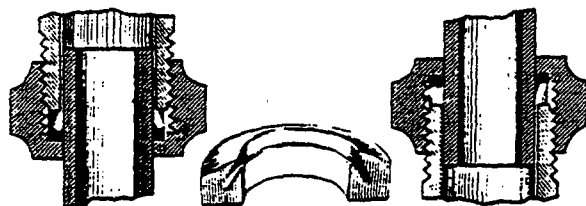
Gasket Sets for Types A and B Flat Gauge Glasses

Made from compressed asbestos, millboard or mica. When ordering specify size and Type A, plain; Type A, high pressure; or Type B, reflex



Anchor Marvel Gauge Glass Washers

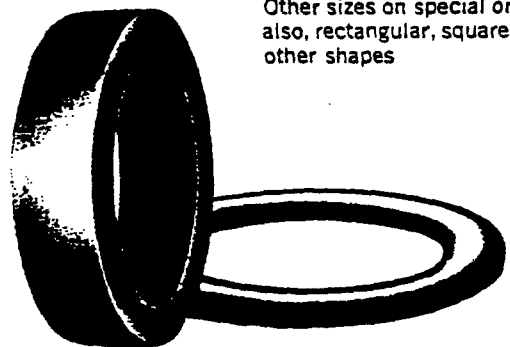
These washers are ideal for all tubular gauge glasses, since they relieve the glass from strain which might cause breakage. Only finger tightening is required in installation. The lip construction permits steam pressure to seal the washer. Marvel Rubber Washers are furnished for all sizes of glasses and for high temperatures are also available in asbestos



Anchor Rubber Gauge Glass Washers

For all glass gauge requirements, these accurately molded and cut washers are available from stock in the following standard sizes:

1/2" — I.D. 7/16"; wall 1/8"; height 5/16"
5/8" — I.D. 9/16"; wall 1/8"; height 5/16"
3/4" — I.D. 11/16"; wall 1/8"; height 5/16"



Other sizes on special order; also, rectangular, square and other shapes



Anchor Maintenance Products for Lubrication and Seals

Ankorite Hydraulic Sealant

Size: 2-oz. squeeze bottle with applicator nozzle

Description and uses: This sealant applied to pipe threads or straight threads as a liquid from spout of "squeeze" bottle, sets to form a tough, hard, insoluble resin for a locked-in dependable seal against all hydraulic fluids. Seals to burst strength of pipe. It is proof against pressure, shock, vibration and heat to 300°F. It is insoluble in acids, acetone, alcohol, benzine and chlorinated solvents. Ankorite Hydraulic Sealant obsoletes pipe dopes which remain soft and blow out under pressure. It hardens only in the joint and cannot leave solid particles in the line to foul valves in equipment. It prevents seizing because of corrosion between threads. Valves, gauges and fittings can be lock-sealed at any angle without over-tightening—sealing depends on hardening action of the sealant, not on wrenching. Joints can be disassembled at any time with regular tools

Anko Hightemp Compound—Anti-seize

Style: No. 5400

Sizes: 1/4-lb. and 1-lb. cans

Description: Although it effectively seals thread and flange joints against leakage, this compound has been formulated to overcome seizure of threaded members at extreme temperatures. Extremely fine metal particles in the compound will seal and protect when a light coat is applied to any clean ferrous or non-ferrous surface; even under the most adverse pressure and heat conditions—to 2000°F. Dissimilar metals may be joined without the danger of galvanic pitting. Abrasion cannot entirely remove the compound, nor will it be penetrated by carbon

from oil residues. There will be no thread tearing or galling, and friction is negligible. Parts protected by No. 5400 are easily removed whenever necessary. When brushed on metal gaskets, No. 5400 prevents wire drawing and subsequent burning. On composition gaskets it prevents drying out and shrinkage, allowing easy removal of gasket without scraping and cleaning metal surfaces

Uses: In addition to the efficiency of No. 5400 for thread and flange joints, it is effective for shrink and press fits, pulleys, couplings, sockets, shaftings and keys. Valuable for marine and railroad use; for Diesel heavy duty stationary engines, all types of internal combustion engines; contractors' equipment, automotive parts, steam and plumbing fittings. Use wherever sealing and true torque and easy disassembly are desired

Three Lubricating Compounds

Styles: No. 5494 for hot water, steam, etc.

No. 5495 for cold water

No. 5496 for volatile liquids

Size: 5 lb. cans

Ankorite Fluorocarbon Spray Lubricant

Style: No. 1174

Description: A dispersion of a white waxy fluorocarbon polymer in Freon TF solvent, which, when sprayed on a clean surface, deposits a light film which is clean and slippery and non-seizing. Heat-and-cold-resistant from -400°F. to approximately +400°F.

Uses: Practically any clean surface—wood, rubber, leather, plastic, metals, glass, fabrics. Effective lubrication between dissimilar surfaces. An excellent mold release

Anklon (TFE) Spray and Powder Lubricants

Style: No. 1170, Dispersion Spray; No. 1171, Powder

Sizes: No. 1170 in plastic squeeze bottles containing 1/2, 2, 4 and 6 fluid ounces; in pint, quart, half-gallon and gallon containers. No. 1171 in plastic squeeze bottles containing 1/2, 2, 4 and 6 ounces

Description: Style No. 1170 is made from Anklon (TFE), with water and alcohol as the carrying vehicle, with a rust inhibitor added. Stable at temperatures from below 0° to 130°F. Style No. 1171 is pure Anklon (TFE) in white powder form. It is sanitary, tasteless, odorless, unaffected by age and weathering. Temperature range, -400°F. to +500°F.

Uses: Both styles applied to any surfaces, similar or dissimilar, provide practically lifetime lubrication to eliminate "stick-slip" motion. Excellent for bearing surfaces and wherever friction must be reduced. Guards against galling.

Anklon (TFE) Grease

Style: No. 1176

Sizes: 10 oz. plastic tubes; 1-lb. and 5-lb. cans; 35-lb. pails; 120-lb. and 400-lb. drums

Description: Special petroleum base with Anklon (TFE) additive for outstanding lubrication properties. This is an extreme pressure grease providing for higher loads than most other greases. It remains stable under severe mechanical use and resists thinning out in service. It is chemically stable; resistant to water and corrosion. It remains soft and grease-like at elevated temperatures, long after other greases harden, become asphaltic, crack or peel. Even when the petroleum base is gone, the TFE continues to lubricate at temperatures to 575°F. for short periods

Uses: Unlimited applications for hydraulic, pump and valve stem packings. For every type of machine bearing, wet or dry; for gear cases; for rotary steam joints

Ankorite Graphite Paste

Description: Consisting principally of pure ground graphite, this non-corrosive paste contains no oil or grease. It will remain plastic under low pressure conditions. At 212°F., it will expand and carbonize, but joints sealed with it can be broken readily when necessary

Uses: For sealing screw thread, flange and gasket joints on lines for steam, vapor, petroleum products, creosote, tar, air and acid. For boiler, handhole and manhole plates; for cylinder heads on all types of equipment; for automotive threads and gasket joints, and as an anti-corrosive on battery terminals

Ankorite Waterproof Pipe Joint Compound

Description: A special compound for screw thread and gasket joints, which cements slowly. It never spoils and if it thickens in the container with age, linseed or any lubricating oil may be used as a thinner

Uses: For sealing all joints on water, gas, steam and air lines

Ankorite Graphite

Sizes: 1-lb., 2-lb., and 5-lb. snap-top cans with large openings

Description: High carbon content flake or powdered graphite, free from dust and abrasive matter. Flakes are uniform medium size

Uses: For all lubricating purposes

Ankorite No. 1206 Clear Sealer

Style: No. 1206

Description and Uses: This colorless, transparent, synthetic resin base compound of the consistency of thin syrup, uses methyl ethyl ketone for the solvent. Applied by brush, spray, dip or flow gun to any clean surface, it resists aliphatic and aromatic fuels, oils, water, many acids and alkalis, and most common solvents. Ideal for sealing minor leaks in any service; and as a coating for interiors of all types of fuel compartments. It also makes an excellent adhesive for any similar or dissimilar materials. Fast-drying

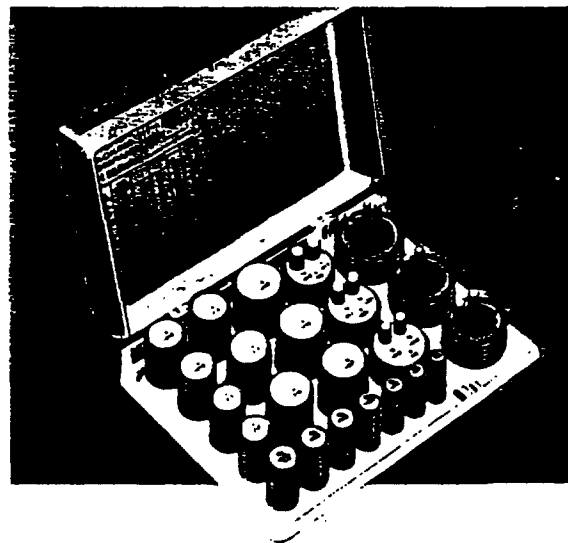
Ankorite Ankoprene Adhesive

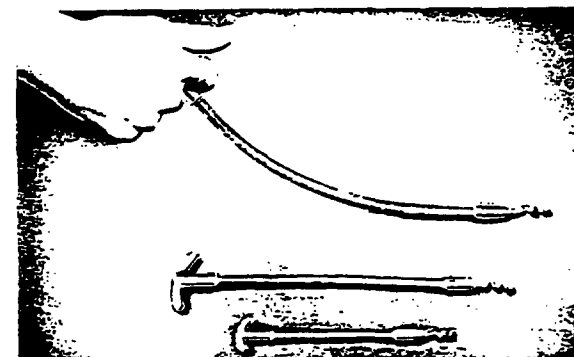
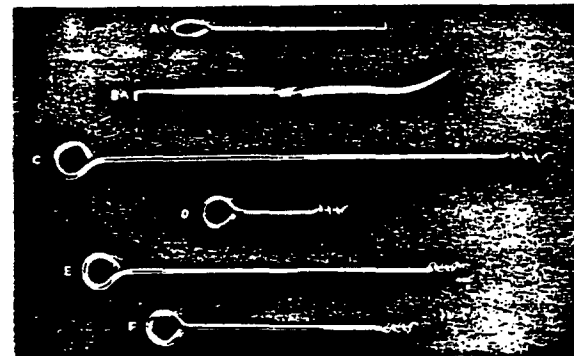
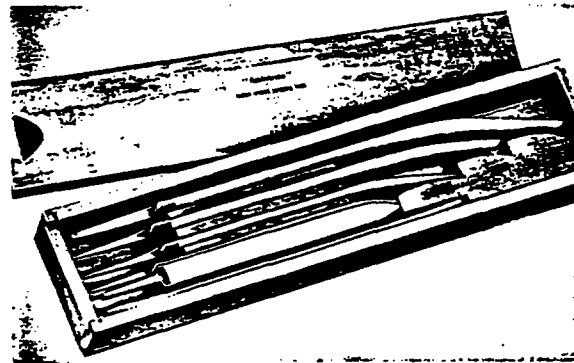
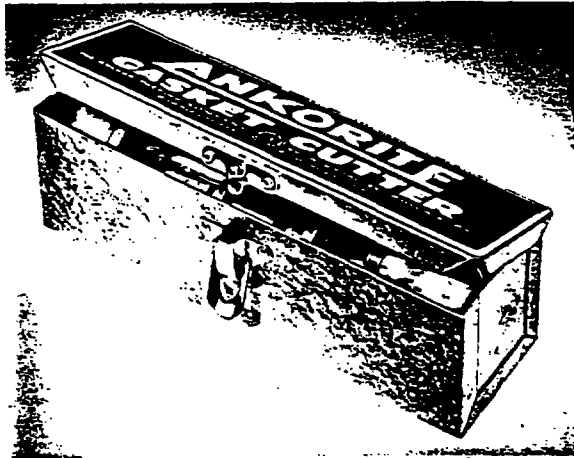
Style: No. 1202

Description and uses: Ankoprene No. 1202 is a very strong, flexible Ankoprene rubber-based adhesive which may be applied by brush or flow gun to the clean surface of any material—metals, glass, ceramics, wood, textiles. It has high shear strength and water resistance

New Anchor O-Ring Kit

380 rings on color coded posts in sturdy hinged case—a quantity of each of 30 most used rings. Made of a nitrile compound, they conform dimensionally to the Anchorite Part 50 Series and to AN 6227 sizes. A must for maintenance men. Use against air, gas, oil and chemicals. Temperatures from -40°F. to +300°F.





Ankorite Packing Tools for Easy Maintenance

The selection of the most efficient packing for every service requirement is easily accomplished from the Anchor extensive line. To facilitate packing maintenance Anchor offers tools which are essential to avoid damaging shafts, stuffing boxes and other equipment parts. All Ankorite tools are designed for efficiency. Their use should displace makeshift tools which may be time consuming and damaging. You may order Ankorite Tools with confidence

Ankorite Gasket Cutter

Description: Expertly made from excellent materials, this is a time and money-saving tool for every maintenance department. It quickly and precisely cuts gaskets as small as 1/2" in diameter to as large as 36". Easily adjustable and is efficient for all Anchor gasketing sheets; also felt, cardboard and plastics

Ankorite Scraping Tools

Description: Made from top quality tool steel, they are precision forged; scraping edges are hollow ground and careful tempering and polishing results in a tool set which cannot be surpassed for long life and adaptability for the removal of worn packing

Boxed Kit consists of six scrapers; Four half round: A, 14"; B, 12"; C, 10"; D, 8". E, one 3-square scraper. F, one 12" double end scraper

Ankorite Standard Hooks

Description: These forged steel hooks are carefully tempered and will be useful in safely removing packing from tight places

Sets: No. 1—A, B, C, D; No. 2—A, B, C, D, E, F

Ankorite Flexible Hooks

Description: High grade flexible steel shafts with corkscrew ends, are encased in a spiral wrapping of steel wire. These hooks will flex to a 90° angle, and work easily in removing packing from hard-to-reach places. The tool will not kink and after flexing, resume normal shape

Sizes: Large, 15"; Intermediate, 11"; Small, 6"

Ankorite Renewable Tip Hooks

Description: Like Ankorite Flexible Hooks, with the added advantage of screw-in corkscrew tips which may be renewed

Sizes: 10 3/4", intermediate: 7 1/2", small. Screw-in tips are available for both sizes

Gasket Sheet Recommendations For use against . . .

6. Steam—High Pressure

▲ Not Oil & Solvent Resistant

■ Oil & Solvent Resistant

5. Steam—Low Pressure

7. Acids—Mineral

4. Petroleum Oils

8. Acids—Organic

3. Gasoline & Distillates

9. Water—Low Pressure

2. Ammonia

10. Water—High Pressure

1. Air

11. Solvents

Type of Sheet	Style Numbers	1	2	3	4	5	6	7	8	9	10	11	Maximum Temperature
Plant Fiber	402—403	■		■	■					■			250°
Cork Composition	407	▲		▲	▲					▲			250°
"	408	■		■	■					■			250°
Natural Rubber & SBR Compounds	415—416—435—475—1404	▲	▲			▲		▲	▲	▲			250°
	410—410WI	■	■		■	■		■	■	■	■		250°
Cloth & Duck Insertion	420—421—426—432—429	▲	▲			▲				▲	▲		250°
Compressed Asbestos	Tauril—425—424—424G	▲	▲		▲	▲	▲		▲	▲	▲		750°
" "	419—484A	▲	▲		▲	▲	▲		▲	▲	▲		750°
" "	4250							■	■				750°
" "	Target—449—450	■	■	■	■	■	■	■	■	■	■	■	750°
Woven Asbestos	405—406	▲	▲			▲	▲			▲	▲		750°
Silicone (SI)		■	■		■			■					500°
Thickol (BK)	Lea-kol	■	■		■	■						■	275°
Aaklon (TFE)		■	■	■	■	■	■	■	■	■		■	500°
Hypalon (CSM)		■		■	■			■	■				300°
Bartyl (IIR)		▲	▲			▲		▲	▲	▲			300°
Viton (FPM)		■	■	■	■			■	■			■	500°
Buna-S (SBR)		▲	▲			▲				▲			300°
Buna-N (NBR)		■	■	■	■	■		■	■	■			300°
Neoprene (CR)		■	■	■	■	■		■	■	■			300°
Ethylene Propylene	Nordel	▲	▲					▲	▲	▲			350°

Recommendations for Various Packing Applications

The following tables are printed as a guide for selecting the correct packing for a wide range of applications. From Anchor style numbers indicated for the various services, users and specifiers can select the packing best suited to the particular requirement. Since there

are many variables such as pressures, temperatures, speeds, precision of alignment and dynamic balance of moving parts; corrosion, abrasive conditions, etc., it will be advisable to refer to the catalog listing for each of the recommended style numbers.

Centrifugal Pumps or Rotary Shafts

Packing Application	Fabric & Molded Style Nos.		Metallic Style Nos.		Plastic Style Nos.		Packing Application	Fabric & Molded Style Nos.		Metallic Style Nos.		Plastic Style Nos.	
Air	317 318 1300	319 909	811 850	853 851TT	808 820NJ	820 1104	Oil, Crude to 500 psi 350-750°F.	1302PSR 318 303		858 862 863		820 820NJ	
Acids, Mineral (Weak)	317 888 1300	1108 1309	811 851TT	851 853	820NJ 820	808 1104	Oil, Heavy Asphaltic 350°F.	1316AC 317W 303	199 303	851TT 851	850 811	820 820NJ 808	
Acids, Mineral (Strong)	1309 888 1109	1120 1121	811 851TT		820NJ 820	808 1104	Oil, Heavy Asphaltic 350-750°F.	1316AC 317W 303	199 303	317W 862 863		820 820NJ 808	
Acids, Organic	317 318	1300 1108	811 851TT	850 853	808 820NJ	820 1104	Oil, Vegetable	1300 1108 909	317 318	851TT 851 850	811	808WNJ 808W 1100	
Ammonia	1300 317	318 1108	850-858 851 815TT		808 820NJ	820 1104	Steam, Low Pressure, 350°F. Saturated	1300 317 318	1101	850 851 851TT	853	808A 808 820NJ	820
Brine	1108 317	318 1300	851TT 850	853 851	808 820NJ	820 1104	Steam, Saturated 350-550°F.	1300 317 316	318	851TT 850 851	811	808A 808 820NJ	820 858CWB
Caustics, Weak	1300 317	853 1108	851TT 850 811		808 820NJ	820 1104	Steam, Superheat 550-750°F.	1300 317 318		858CWB 862 863		808 820NJ 820	858CWB
Caustics, Hot Weak or Strong	888 1109	1309 1121			820NJ 1104		Steam 1650 psi 950°F.	804		862 863 804	Vyflex	808 820NJ 820	
Food Products	909 1101 808WNJ	808W 1301	851TT 853 811		808WNJ 808W		Water, Cold to 150 psi	317 318 350WPH	1320 351WPH 386	851 851TT 850	811	808 820NJ 820	
Gasoline Butane Propane	1302PSR 909	317K 318K	851 851TT	811 950	820 820NJ		Water, Cold to 500 psi	1300 1320P 317	318 386	851 850 851TT	853	808 820NJ 820	
Oil (Light Kerosene)	1302PSR 317 909	317K 318K	851TT 851	850 811	820 820NJ		Water, Cold 500-6000 psi	318 1320 1300		850 811		808 820NJ 820	
Oil, Crude to 100 psi	1302PSR 317 318	317K 318K	851 853	851TT 811	820 820NJ		Water, Hot 150-500 psi	317 318 1330	1300	850 851TT 811		808 820NJ 820	
Oil, Crude 500 psi— 100-350°F.	1302PSR 318	303 909	851 851TT	850 811	820 820NJ								

Reciprocating Rods, Rams and Plungers

Packing Application	Fabric & Molded Style Nos.		Metallic Style Nos.		Plastic Style Nos.		Packing Application	Fabric & Molded Style Nos.		Metallic Style Nos.		Plastic Style Nos.	
Air	201	278	850	858CWB	808	1100	Oil, Crude to 500 psi 350-750°F.	1302PSR		858CWB	1103A	820	
	318	1300	800	811	820			804		862		820NJ	
	212		851		820NJ			303		863			
Acids, Mineral (Weak)	1300	1161	851TT	850	820	1104	Oil, Heavy Asphaltic 350°F.	1316AC		804	1103A	804	
	318	1309	811		820NJ			804		862			
	1108		851		808			317W		863			
Acids, Mineral (Strong)	1109	1121	851TT	811	820NJ	1104	Oil, Heavy Asphaltic 350-750°F.	1316AC		804	863	804	
	1162		851		820			804		399			
	1309		850		808					862			
Acids, Organic	318	1108	851TT	853	820NJ	1104	Oil, Vegetable	1320	909	851	850	820	
	210	1300	811		820			380		851TT		820NJ	
	212		850		808			126		853		1104	
Ammonia	227	1108	851TT	850	820NJ	1104	Steam, Low Pressure, 350°F. Saturated	1300	201	850	853	808A	820
	278		811	853	820			210	Ankornest	851TT	811	808	
	200		850-858		808			212		851	800	820NJ	
Brine	380	162	850		820NJ	1104	Steam, Saturated 350-550°F.	1300	201	850	811	808A	820
	200	1300	853		820			210	205	851TT	800	808	808Q
	318		851TT		808			212	Ankornest	851		820NJ	
Caustics, Weak	318	1108			820NJ	1104	Steam, Superheat 550-750°F.	1300	804	Vyflex	862	808	808Q
	380	1300			820			205	316	804	863	820NJ	
	905				808			201	Ankornest	858CWB		820	
Caustics, Hot Weak or Strong	888	1121					Steam 1650 psi 950°F.	804		Vyflex	863	808	808Q
	1109							Ankornest		804		820NJ	809
	1309							806		862		820	
Food Products	380	909	851TT	853	808W		Water, Cold to 150 psi	225	278	853	850	808	
	337	1108	800		808WNJ			300	162	851TT		820NJ	
	126	1301	850		1100			380	340	851		820	
	210							387F	337				
Gasoline Butane Propane	1302PSR	909	851TT	853	820		Water, Cold to 500 psi	350WPH	340	850	851	808	TFE
	905	913	850		820NJ			378	337	851TT	853	820NJ	
	318K	1108	851					315		811		820	
Oil (Light Kerosene)	1302PSR	909	851TT	853	820		Water, Cold 500-6000 psi	163WPH	323	850	851	808	TFE
	905		850		820NJ			350WPH		811		820NJ	
	318		851					346DC		851TT		820	
Oil, Crude to 100 psi	1302PSR	318	850	1103A	820		Water, Hot 150-500 psi	300		850		808	TFE
	909		811		820NJ			378		800		820NJ	
	300		851					1300		811		820	
Oil, Crude 500 psi—100-350°F.	1302PSR		850	1103A	820								
	905		811		820NJ								
	303		811TT										

Valve Stems and Slow Moving Rotary Parts

Expansion Joints

Packing Application	Fabric Style Nos.		Metallic Style Nos.	Plastic Style Nos.		Fabric Style Nos.		Metallic Style Nos.	Plastic Style Nos.	
Air	314 319 317 318	212 210 1300	850 851TT Ankornest-W1	808 820 820NJ	1104	201 210 303	318	851TT 850 851	808 820 820NJ	
Acids, Mineral	888 1109 1161	1309	851TT 850	820 820NJ 1104		888 1309		851TT 850 851	820NJ 808 820	
Acids, Organic	316 318 1109	1161 1300	850 851TT	808 820 820NJ	1104	905 200 1309	1108	850 851 851TT	820 820NJ	
Ammonia	227 318 1108	1300	850 851TT 858CWB	808 820 820NJ	1104	227 200 225		851TT 853 850	820 820NJ	
Caustics, Cold	318 905 1108	1300	850 851TT	808 820 820NJ	1104	905 200 225	1300 318	850 851 853	820 820NJ 1104	
Caustics, Hot	888 318 1109	1300 303	804	808 820 820NJ		888 1109 1309			820 820NJ 1104	
Gasoline Butane Propane	905 318-9929 319	1302PSR 1108	851 851TT 850	811 858CWB 1104	820 820NJ	905 1101 1302PSR	318-9929	851TT 853	820 820NJ 1104	
Oil, Cold	350WPH 318 319	1302PSR	851TT 850 851	808 820 820NJ	1104	905 1101 1302PSR		851TT 853	820 820NJ 1104	
Oil, Hot	303 318 1302PSR		851TT 850 851	811 820NJ 1104	820 820NJ	905 1108 1302PSR		851TT 853 858CWB	820 820NJ 1104	
Steam, Saturated 50 psi to 350 psi	804 210 Ankornest 317 318	316 319 1300 1101	858CWB 851 851TT 850	808 820 820NJ		210 212 303	800 804 1300	851TT 853 858CWB	800 820 820NJ 1104	
Steam, Superheat 750°F.	806 316 804	205 303 Ankornest	858CWB Vyflex 862 863	806 808 820	820NJ	804 205 806	1316AC	858CWB Vyflex	806 820 820NJ	
Steam 1650 psi	806 809		Vyflex 804 858CWB	806 808 820	820NJ 808q	809 804 806		804 Vyflex	806 809 808	820 820NJ
Water, Cold	319 350WPH 387F	318 386 1320	851TT 851 853	806 808 820	820NJ	380 387F 325	1300	851TT 853 851	808 820 820NJ	
Water, Hot	1300 318 319	3130	851TT 851 853	806 808 820	820NJ	300 325 210	1330 1300	853 851TT	808 820 820NJ	

Inside Packed Pistons

Packing Application	Duck and Rubber Style No.	Molded Rings Style No.	Machined Rings Style No.	Packing Application	Duck and Rubber Style No.	Molded Rings Style No.	Machined Rings Style No.
Air	340 337 339	Whal-Bon	Ankolite	Oil—Hot	337 340-RH	Whal-Bon	Ankolite A & R
Gasoline Butane Propane	337 340	Whal-Bon	Ankolite L & R	Water to 150°F.	337 340 339	Whal-Bon	Ankolite L & R
Oil—Cold	337 340	Whal-Bon	Ankolite L & R	Water over 150°F.	337 340-RH		Ankolite L & R

Tables of Gasket Dimensions

Gaskets for all Small and Large Tongue and Groove Flanged Joints

For 800-Pound Hydraulic and 800-Pound W.O.G. Cast Iron, and 300, 400, 600, 900, and 1500-Pound Steel Large Tongue and Groove Flanged Joints

All sizes conform to American Standard for Non-metallic Gaskets, ASA B16.21-1951

Pipe Size (in.)	Small Tongue and Groove	Large Tongue and Groove	Pipe Size (in.)	Small Tongue and Groove	Large Tongue and Groove
1/2	1 x 1-3/8	1 x 1-3/8	5	6-5/16 x 6-13/16	6-5/16 x 7-5/16
3/4	1-5/16 x 1-11/16	1-5/16 x 1-11/16	6	7-1/2 x 8	7-1/2 x 8-1/2
1	1-1/2 x 1-7/8	1-1/2 x 2	8	9-3/8 x 10	9-3/8 x 10-5/8
1-1/4	1-7/8 x 2-1/4	1-7/8 x 2-1/2	10	11-1/4 x 12	11-1/4 x 12-3/4
1-1/2	2-1/8 x 2-1/2	2-1/8 x 2-7/8	12	13-1/2 x 14-1/4	13-1/2 x 15
2	2-7/8 x 3-1/4	2-7/8 x 3-5/8	14	14-3/4 x 15-1/4	14-3/4 x 16-1/4
2-1/2	3-3/8 x 3-3/4	3-3/8 x 4-1/8	16	16-3/4 x 17-5/8	16-3/4 x 18-1/2
3	4-1/4 x 4-5/8	4-1/4 x 5	18	19-1/4 x 20-1/8	19-1/4 x 21
3-1/2	4-3/4 x 5-1/8	4-3/4 x 5-1/2	20	21 x 22	21 x 23
4	5-3/16 x 5-11/16	5-3/16 x 6-3/16	24	25-1/4 x 26-1/4	25-1/4 x 27-1/4

Flat Ring Gaskets for Unions or Union Fittings

Size of Union or Union Fitting	I.D. x O.D. For 150-Pound Malleable Iron Screwed Unions and Union Fittings	I.D. x O.D. For 125-Pound Cast Iron Flange Unions	Size of Union or Union Fitting	I.D. x O.D. For 150-Pound Malleable Iron Screwed Unions and Union Fittings	I.D. x O.D. For 125-Pound Cast Iron Flange Unions
1/4"	1/2 x 29/32		2"	2-5/16 x 3-3/32	2-3/8 x 3-1/2
3/8"	5/8 x 1-3/32		2-1/2"	2-3/4 x 3-9/16	2-7/8 x 3-7/8
1/2"	3/4 x 1-1/4	13/16 x 1-3/8	3"	3-3/8 x 4-1/4	3-1/2 x 4-5/8
3/4"	31/32 x 1-17/32	1-1/16 x 1-7/8	3-1/2"		4 x 5-1/4
1"	1-7/32 x 1-13/16	1-5/16 x 2-1/8	4"		4-1/2 x 5-3/4
1-1/4"	1-9/16 x 2-5/32	1-11/16 x 2-5/8	5"		5-9/16 x 7
1-1/2"	1-13/16 x 2-7/16	1-15/16 x 2-7/8	6"		6-5/8 x 8-1/4
			8"		8-5/8 x 10-1/2

Gaskets for Brass and Bronze Flanged Joints

Size of Joint	150-Pound MSS Standard Full Face Gaskets I.D. x O.D. Inches	300-Pound MSS Standard Full Face Gaskets I.D. x O.D. Inches	Size of Joint	150-Pound MSS Standard Full Face Gaskets I.D. x O.D. Inches
1"	1-5/16 x 4-1/4	1-5/16 x 4-7/8	3-1/2"	4 x 8-1/2
1-1/4"	1-21/32 x 4-5/8	1-21/32 x 5-1/4	4"	4-1/2 x 9
1-1/2"	1-29/32 x 5	1-29/32 x 6-1/8	5"	5-9/16 x 10
2"	2-3/8 x 6	2-3/8 x 6-1/2	6"	6-5/8 x 11
2-1/2"	2-7/8 x 7	2-7/8 x 7-1/2	8"	8-5/8 x 13-1/2
3"	3-1/2 x 7-1/2	3-1/2 x 8-1/4	10"	10-3/4 x 16

Gaskets for 800-lb. Hydraulic Cast Iron Flanged Joints

All sizes conform to American Standard for Non-metallic Gaskets, ASA B16.21-1951

Flat Ring Gaskets

Large Male and Female Gaskets

Size of Joint	Inches I.D.	Inches O.D.	Size of Joint	Inches I.D.	Inches O.D.
2"	2-3/8	4-3/8	2"	2-3/8	3-5/8
2-1/2"	2-7/8	5-1/8	2-1/2"	2-7/8	4-1/8
3"	3-1/2	5-7/8	3"	3-1/2	5
3-1/2"	4	6-3/8	3-1/2"	4	5-1/2
4"	4-1/2	7-5/8	4"	4-1/2	6-3/16
5"	5-9/16	9-1/2	5"	5-9/16	7-5/16
6"	6-5/8	10-1/2	6"	6-5/8	8-1/2
8"	8-5/8	12-5/8	8"	8-5/8	10-5/8
10"	10-3/4	15-3/4	10"	10-3/4	12-3/4
12"	12-3/4	18	12"	12-3/4	15

Gaskets for 25-lb. Cast Iron Flanged Joints

Flat Ring Gaskets

Full Face Gaskets

Size of Joint	Inches I.D.	Inches O.D.	Size of Joint	Inches I.D.	Inches O.D.
10"	10-3/4	13-5/8	10"	10-3/4	16
12"	12-3/4	16-3/8	12"	12-3/4	19
14"	14	18	14"	14	21
16"	16	20-1/2	16"	16	23-1/2
18"	18	22	18"	18	25
20"	20	24-1/4	20"	20	27-1/2
24"	24	28-3/4	24"	24	32
30"	30	35-1/8	30"	30	38-3/4
36"	36	41-7/8	36"	36	46
42"	42	48-1/2	42"	42	53
48"	48	55	48"	48	59-1/2

Gaskets for 125-lb. Cast Iron Flanged Joints

Flat Ring Gaskets

Full Face Gaskets

Size of Joint	Inches I.D.	Inches O.D.	Size of Joint	Inches I.D.	Inches O.D.
1"	1-5/16	2-5/8	1"	1-5/16	4-1/4
1-1/4"	1-21/32	3	1-1/4"	1-21/32	4-5/8
1-1/2"	1-29/32	3-3/8	1-1/2"	1-29/32	5
2"	2-3/8	4-1/8	2"	2-3/8	6
2-1/2"	2-7/8	4-7/8	2-1/2"	2-7/8	7
3"	3-1/2	5-3/8	3"	3-1/2	7-1/2
3-1/2"	4	6-3/8	3-1/2"	4	8-1/2
4"	4-1/2	6-7/8	4"	4-1/2	9
5"	5-9/16	7-3/4	5"	5-9/16	10
6"	6-5/8	8-3/4	6"	6-5/8	11
8"	8-5/8	11	8"	8-5/8	13-1/2
10"	10-3/4	13-3/8	10"	10-3/4	16
12"	12-3/4	16-1/8	12"	12-3/4	19
14"	14	17-3/4	14"	14	21
16"	16	20-1/4	16"	16	23-1/2
18"	18	21-5/8	18"	18	25
20"	20	23-7/8	20"	20	27-1/2
24"	24	28-1/4	24"	24	32
30"	30	34-3/4	30"	30	38-3/4
36"	36	41-1/4	36"	36	46
42"	42	48	42"	42	53
48"	48	54-1/2	48"	48	59-1/2

Gaskets for 250-lb. Cast Iron Flanged Joints—Raised Face

Flat Ring Gaskets

Size of Joint	Inches I.D.	Inches O.D.	Size of Joint	Inches I.D.	Inches O.D.
1-1/2"	1-29/32	3-3/4	8"	8-5/8	12-1/8
2"	2-3/8	4-3/8	10"	10-3/4	14-1/4
2-1/2"	2-7/8	5-1/8	12"	12-3/4	16-5/8
3"	3-1/2	5-7/8	14"	14	19-1/8
3-1/2"	4	6-1/2	16"	16	21-1/4
4"	4-1/2	7-1/8	18"	18	23-1/2
5"	5-9/16	8-1/2	20"	20	25-3/4
6"	6-5/8	9-7/8	24"	24	30-1/2

Gaskets for Steel Flanged Joints—Raised Face

Flat Ring Gaskets

Size of Joint	150-Pound I.D. x O.D. Inches	300-Pound I.D. x O.D. Inches	400-Pound I.D. x O.D. Inches	600-Pound I.D. x O.D. Inches	900-Pound I.D. x O.D. Inches	1500-Pound I.D. x O.D. Inches
1/2"	27/32 x 1-7/8	27/32 x 2-1/8		27/32 x 2-1/8		27/32 x 2-1/2
3/4"	1-1/16 x 2-1/4	1-1/16 x 2-5/8		1-1/16 x 2-5/8		1-1/16 x 2-3/4
1"	1-5/16 x 2-5/8	1-5/16 x 2-7/8		1-5/16 x 2-7/8		1-5/16 x 3-1/8
1-1/4"	1-21/32 x 3	1-21/32 x 3-1/4		1-21/32 x 3-1/4		1-21/32 x 3-1/2
1-1/2"	1-29/32 x 3-3/8	1-29/32 x 3-3/4		1-29/32 x 3-3/4		1-29/32 x 3-7/8
2"	2-3/8 x 4-1/8	2-3/8 x 4-3/8		2-3/8 x 4-3/8		2-3/8 x 5-5/8
2-1/2"	2-7/8 x 4-7/8	2-7/8 x 5-1/8		2-7/8 x 5-1/8		2-7/8 x 6-1/2
3"	3-1/2 x 5-3/8	3-1/2 x 5-7/8		3-1/2 x 5-7/8	3-1/2 x 6-5/8	3-1/2 x 6-7/8
3-1/2"	4 x 6-3/8	4 x 6-1/2		4 x 6-3/8		
4"	4-1/2 x 6-7/8	4-1/2 x 7-1/8	4 x 7	4-1/2 x 7-5/8	4-1/2 x 8-1/8	4-1/2 x 8-1/4
5"	5-9/16 x 7-3/4	5-9/16 x 8-1/2	5-9/16 x 8-3/8	5-9/16 x 9-1/2	5-9/16 x 9-3/4	5-9/16 x 10
6"	6-5/8 x 8-3/4	6-5/8 x 9-7/8	6-5/8 x 9-3/4	6-5/8 x 10-1/2	6-5/8 x 11-3/8	6-5/8 x 11-1/8
8"	8-5/8 x 11	8-5/8 x 12-1/8	8-5/8 x 12	8-5/8 x 12-5/8	8-5/8 x 14-1/8	8-5/8 x 13-7/8
10"	10-3/4 x 13-3/8	10-3/4 x 14-1/4	10-3/4 x 14-1/8	10-3/4 x 15-3/4	10-3/4 x 17-1/8	10-3/4 x 17-1/8
12"	12-3/4 x 16-1/8	12-3/4 x 16-5/8	12-3/4 x 16-1/2	12-3/4 x 18	12-3/4 x 19-5/8	12-3/4 x 20-1/2
14"	14 x 17-3/4	14 x 19-1/8	14 x 19	14 x 19-3/8	14 x 20-1/2	14 x 22-3/4
16"	16 x 20-1/4	16 x 21-1/4	16 x 21-1/8	16 x 22-1/4	16 x 22-5/8	
18"	18 x 21-5/8	18 x 23-1/2	18 x 23-3/8	18 x 24-1/8	18 x 25-1/8	
20"	20 x 23-7/8	20 x 25-3/4	20 x 25-1/2	20 x 26-7/8	20 x 27-1/2	
24"	24 x 28-1/4	24 x 30-1/2	24 x 30-1/4	24 x 31-1/8	24 x 33	

Large Male and Female Flat Ring Gaskets

Size of Joint	300-Pound I.D. x O.D. Inches	400-Pound I.D. x O.D. Inches	600-Pound I.D. x O.D. Inches	900-Pound I.D. x O.D. Inches	1500-Pound I.D. x O.D. Inches
1-2"	27/32 x 1-3/8		27/32 x 1-3/8		27/32 x 1-3/8
3/4"	1-1/16 x 1-11/16		1-1/16 x 1-11/16		1-1/16 x 1-11/16
1"	1-5/16 x 2		1-5/16 x 2		1-5/16 x 2
1-1/4"	1-21/32 x 2-1/2		1-21/32 x 2-1/2		1-21/32 x 2-1/2
1-1/2"	1-29/32 x 2-7/8		1-29/32 x 2-7/8		1-29/32 x 2-7/8
2"	2-3/8 x 3-5/8		2-3/8 x 3-5/8		2-3/8 x 3-5/8
2-1/2"	2-7/8 x 4-1/8		2-7/8 x 4-1/8		2-7/8 x 4-1/8
3"	3-1/2 x 5		3-1/2 x 5	3-1/2 x 5	3-1/2 x 5
3-1/2"	4 x 5-1/2		4 x 5-1/2		
4"	4-1/2 x 6-3/16	4-1/2 x 6-3/16	4-1/2 x 6-3/16	4-1/2 x 6-3/16	4-1/2 x 6-3/16
5"	5-9/16 x 7-5/16	5-9/16 x 7-5/16	5-9/16 x 7-5/16	5-9/16 x 7-5/16	5-9/16 x 7-5/16
6"	6-5/8 x 8-1/2	6-5/8 x 8-1/2	6-5/8 x 8-1/2	6-5/8 x 8-1/2	6-5/8 x 8-1/2
8"	8-5/8 x 10-5/8	8-5/8 x 10-5/8	8-5/8 x 10-5/8	8-5/8 x 10-5/8	8-5/8 x 10-5/8
10"	10-3/4 x 12-3/4	10-3/4 x 12-3/4	10-3/4 x 12-3/4	10-3/4 x 12-3/4	10-3/4 x 12-3/4
12"	12-3/4 x 15	12-3/4 x 15	12-3/4 x 15	12-3/4 x 15	12-3/4 x 15
14"	14 x 16-1/4	14 x 16-1/4	14 x 16-1/4	14 x 16-1/4	14 x 16-1/4
16"	16 x 18-1/2	16 x 18-1/2	16 x 18-1/2	16 x 18-1/2	
18"	18 x 21	18 x 21	18 x 21	18 x 21	
20"	20 x 23	20 x 23	20 x 23	20 x 23	
24"	24 x 27-1/4	24 x 27-1/4	24 x 27-1/4	24 x 27-1/4	

Circumferences and Areas of Circles

Diam.	Circ.	Area	Diam.	Circ.	Area	Diam.	Circ.	Area	Diam.	Circ.	Area	Diam.	Circ.	Area
1/32	.0981	.00076	8	25.13	50.265	17	53.40	226.98	26	81.68	530.93	35	109.9	962.11
1/16	.1963	.00306	1 1/8	25.52	51.848	1 1/8	53.79	230.33	1 1/8	82.07	536.04	1 1/8	110.3	968.99
1/8	.3926	.01227	1 1/4	25.91	53.456	1 1/4	54.19	233.70	1 1/4	82.46	541.18	1 1/4	110.7	975.90
3/16	.5890	.02761	3/8	26.31	55.088	3/8	54.58	237.10	3/8	82.85	546.35	3/8	111.1	982.84
1/4	.7854	.04908	1/2	26.70	56.745	1/2	54.97	240.52	1/2	83.25	551.54	1/2	111.5	989.80
5/16	.9817	.07669	5/8	27.09	58.426	5/8	55.37	243.97	5/8	83.64	556.76	5/8	111.9	996.78
3/8	1.178	.1104	3/4	27.47	60.132	3/4	55.76	247.45	3/4	84.03	562.00	3/4	112.3	1003.7
7/16	1.374	.1503	7/8	27.88	61.862	7/8	56.16	250.94	7/8	84.43	567.26	7/8	112.7	1010.8
1/2	1.570	.1963	9	28.27	63.617	18	56.54	254.46	27	84.82	572.55	36	113.0	1017.8
9/16	1.767	.2485	1 1/8	28.66	65.396	1 1/8	56.94	258.01	1 1/8	85.21	577.87	1 1/8	113.4	1024.9
5/8	1.963	.3097	1 1/4	29.05	67.200	1 1/4	57.33	261.58	1 1/4	85.60	583.20	1 1/4	113.8	1032.0
11/16	2.159	.3712	3/8	29.45	69.029	3/8	57.72	265.18	3/8	86.00	588.57	3/8	114.2	1039.1
3/4	2.356	.4417	1/2	29.84	70.882	1/2	58.11	268.80	1/2	86.39	593.95	1/2	114.6	1046.3
13/16	2.552	.5184	5/8	30.23	72.759	5/8	58.51	272.44	5/8	86.78	599.37	5/8	115.0	1053.5
7/8	2.748	.6013	3/4	30.63	74.662	3/4	58.90	276.11	3/4	87.17	604.80	3/4	115.4	1060.7
15/16	2.945	.6902	7/8	31.02	76.588	7/8	59.29	279.81	7/8	87.57	610.26	7/8	115.8	1067.9
1	3.141	.7854	10	31.41	78.539	19	59.69	283.52	28	87.96	615.75	37	116.2	1075.2
1/8	3.334	.9940	1 1/8	31.80	80.515	1 1/8	60.08	287.27	1 1/8	88.35	621.26	1 1/8	116.6	1082.4
1/4	3.927	1.227	1 1/4	32.20	82.516	1 1/4	60.47	291.03	1 1/4	88.75	626.79	1 1/4	117.0	1089.7
3/8	4.319	1.484	3/8	32.59	84.540	3/8	60.86	294.83	3/8	89.14	632.35	3/8	117.4	1097.1
1/2	4.712	1.767	1/2	32.98	86.590	1/2	61.26	298.64	1/2	89.53	637.94	1/2	117.8	1104.4
5/8	5.105	2.073	5/8	33.37	88.664	5/8	61.65	302.48	5/8	89.92	643.54	5/8	118.2	1111.8
3/4	5.497	2.405	3/4	33.77	90.762	3/4	62.04	306.35	3/4	90.32	649.18	3/4	118.6	1119.2
7/8	5.890	2.761	7/8	34.16	92.885	7/8	62.43	310.24	7/8	90.71	654.83	7/8	118.9	1126.6
2	6.283	3.141	11	34.55	95.033	20	62.83	314.16	29	91.10	660.52	38	119.3	1134.1
1/8	6.675	3.546	1 1/8	34.95	97.205	1 1/8	63.22	318.09	1 1/8	91.49	666.22	1 1/8	119.7	1141.5
1/4	7.068	3.976	1 1/4	35.34	99.402	1 1/4	63.61	322.06	1 1/4	91.89	671.95	1 1/4	120.1	1149.0
3/8	7.461	4.430	3/8	35.73	101.62	3/8	64.01	326.05	3/8	92.28	677.71	3/8	120.5	1156.6
1/2	7.854	4.908	1/2	36.12	103.86	1/2	64.40	330.06	1/2	92.67	683.49	1/2	120.9	1164.1
5/8	8.246	5.411	5/8	36.52	106.13	5/8	64.79	334.10	5/8	93.06	689.29	5/8	121.3	1171.7
3/4	8.639	5.939	3/4	36.91	108.43	3/4	65.18	338.16	3/4	93.46	695.12	3/4	121.7	1179.3
7/8	9.032	6.491	7/8	37.30	110.75	7/8	65.58	342.25	7/8	93.85	700.98	7/8	122.1	1186.9
3	9.424	7.068	12	37.69	113.00	21	65.97	346.36	30	94.24	706.86	39	122.5	1194.5
1/8	9.817	7.669	1 1/8	38.09	115.46	1 1/8	66.36	350.49	1 1/8	94.64	712.76	1 1/8	122.9	1202.2
1/4	10.21	8.295	1 1/4	38.48	117.85	1 1/4	66.75	354.65	1 1/4	95.03	718.69	1 1/4	123.3	1209.9
3/8	10.60	8.946	3/8	38.87	120.27	3/8	67.15	358.84	3/8	95.42	724.64	3/8	123.7	1217.6
1/2	10.99	9.621	1/2	39.27	122.71	1/2	67.54	363.05	1/2	95.81	730.61	1/2	124.0	1225.4
5/8	11.38	10.320	5/8	39.66	125.18	5/8	67.93	367.28	5/8	96.21	736.61	5/8	124.4	1233.1
3/4	11.78	11.044	3/4	40.05	127.67	3/4	68.32	371.54	3/4	96.60	742.64	3/4	124.8	1240.9
7/8	12.17	11.793	7/8	40.44	130.19	7/8	68.72	375.82	7/8	96.99	748.69	7/8	125.2	1248.7
4	12.56	12.566	13	40.84	132.73	22	69.11	380.13	31	97.38	754.76	40	125.6	1256.6
1/8	12.95	13.364	1 1/8	41.23	135.29	1 1/8	69.50	384.46	1 1/8	97.78	760.86	1 1/8	126.0	1264.5
1/4	13.35	14.186	1 1/4	41.62	137.88	1 1/4	69.90	388.82	1 1/4	98.17	766.99	1 1/4	126.4	1272.3
3/8	13.74	15.033	3/8	42.01	140.50	3/8	70.29	393.20	3/8	98.56	773.14	3/8	126.8	1280.3
1/2	14.13	15.904	1/2	42.41	143.13	1/2	70.68	397.60	1/2	98.96	779.31	1/2	127.2	1288.2
5/8	14.52	16.800	5/8	42.80	145.80	5/8	71.07	402.03	5/8	99.35	785.51	5/8	127.6	1296.2
3/4	14.92	17.720	3/4	43.19	148.48	3/4	71.47	406.49	3/4	99.74	791.73	3/4	128.0	1304.2
7/8	15.31	18.665	7/8	43.58	151.20	7/8	71.86	410.97	7/8	100.1	797.97	7/8	128.4	1312.2
5	15.70	19.635	14	43.98	153.93	23	72.25	415.47	32	100.5	804.24	41	128.8	1320.2
1/8	16.10	20.629	1 1/8	44.37	156.69	1 1/8	72.64	420.00	1 1/8	100.9	810.45	1 1/8	129.1	1328.3
1/4	16.49	21.647	1 1/4	44.76	159.48	1 1/4	73.04	424.55	1 1/4	101.3	816.86	1 1/4	129.5	1336.4
3/8	16.88	22.690	3/8	45.16	162.29	3/8	73.43	429.13	3/8	101.7	823.21	3/8	129.9	1344.5
1/2	17.27	23.758	1/2	45.55	165.13	1/2	73.82	433.73	1/2	102.1	829.57	1/2	130.3	1352.6
5/8	17.67	24.850	5/8	45.94	167.98	5/8	74.21	438.30	5/8	102.4	835.97	5/8	130.7	1360.8
3/4	18.06	25.967	3/4	46.33	170.87	3/4	74.61	443.01	3/4	102.8	842.39	3/4	131.1	1369.0
7/8	18.45	27.108	7/8	46.73	173.78	7/8	75.00	447.69	7/8	103.2	848.83	7/8	131.5	1377.2
6	18.84	28.274	15	47.12	176.71	24	75.39	452.39	33	103.6	855.30	42	131.9	1385.4
1/8	19.24	29.464	1 1/8	47.51	179.67	1 1/8	75.79	457.11	1 1/8	104.0	861.79	1 1/8	132.3	1393.7
1/4	19.63	30.679	1 1/4	47.90	182.72	1 1/4	76.18	461.86	1 1/4	104.4	868.30	1 1/4	132.7	1401.9
3/8	20.02	31.919	3/8	48.30	185.66	3/8	76.57	466.63	3/8	104.8	874.88	3/8	133.1	1410.2
1/2	20.42	33.183	1/2	48.69	188.69	1/2	76.96	471.43	1/2	105.2	881.41	1/2	133.5	1418.6
5/8	20.81	34.471	5/8	49.08	191.74	5/8	77.36	476.25	5/8	105.6	888.00	5/8	133.9	1426.9
3/4	21.20	35.784	3/4	49.48	194.82	3/4	77.75	481.10	3/4	106.0	894.61	3/4	134.3	1435.3
7/8	21.57	37.122	7/8	49.87	197.73	7/8	78.14	485.97	7/8	106.4	901.25	7/8	134.6	1443.7
7	21.90	38.484	16	50.26	201.06	25	78.54	490.87	34	106.8	907.92	43	135.0	1452.2
1/8	22.38	39.871	1 1/8	50.65	204.21	1 1/8	78.93	495.79	1 1/8	107.2	914.61	1 1/8	135.4	1460.6
1/4	22.77	41.282	1 1/4	51.05	207.39	1 1/4	79.32	500.74	1 1/4	107.5	921.32	1 1/4	135.8	1469.1
3/8	23.16	42.718	3/8	51.44	210.59	3/8	79.71	505.71	3/8	107.9	928.06	3/8	136.2	1477.6
1/2	23.56	44.178	1/2	51.83	213.82	1/2	80.10	510.70	1/2	108.3	934.82	1/2	136.6	1486.1
5/8	23.95	45.663	5/8	52.22	217.07	5/8	80.50	515.72	5/8	108.7	941.60	5/8	137.0	1494.7
3/4	24.34	47.173	3/4	52.62	220.35	3/4	80.89	520.70	3/4	109.1	948.41	3/4	137.4	1503.3
7/8	24.74	48.707	7/8	53.01	223.65	7/8	81.28	525.83	7/8	109.5	955.25	7/8	137.8	1511.9

Circumferences and Areas of Circles (Continued)

Diam.	Circ.	Area	Diam.	Circ.	Area	Diam.	Circ.	Area	Diam.	Circ.	Area	Diam.	Circ.	Area
44	138.2	1520.5	53	166.5	2206.1	62	194.7	3019.0	71	223.0	3959.2	84	263.8	5541.7
1/8	138.6	1529.1	1/8	166.8	2216.6	1/8	195.1	3031.2	1/8	223.4	3973.1	1/4	264.6	5574.8
1/4	139.0	1537.8	1/4	167.2	2227.0	1/4	195.5	3043.4	1/4	223.8	3987.1	1/2	265.4	5607.9
3/8	139.4	1546.5	3/8	167.6	2237.5	3/8	195.9	3055.7	3/8	224.2	4001.1	3/4	266.2	5641.1
1/2	139.8	1555.2	1/2	168.0	2248.0	1/2	196.3	3067.9	1/2	224.6	4015.1			
5/8	140.1	1564.0	5/8	168.4	2258.5	5/8	196.7	3080.2	5/8	225.0	4029.2	85	267.0	5674.5
3/4	140.5	1572.8	3/4	168.8	2269.0	3/4	197.1	3092.5	3/4	225.4	4043.2	1/4	267.8	5707.9
7/8	140.9	1581.6	7/8	169.2	2279.6	7/8	197.5	3104.8	7/8	225.8	4067.3	1/2	268.6	5741.4
												3/4	269.3	5775.0
45	141.3	1590.4	54	169.6	2290.2	63	197.9	3117.2	72	226.1	4071.5	86	270.1	5808.8
1/8	141.7	1599.2	1/8	170.0	2300.8	1/8	198.3	3129.6	1/8	226.5	4085.6	1/4	270.9	5842.6
1/4	142.1	1608.1	1/4	170.4	2311.4	1/4	198.7	3142.0	1/4	226.9	4099.8	1/2	271.7	5876.5
3/8	142.5	1617.0	3/8	170.8	2322.1	3/8	199.0	3144.4	3/8	227.3	4114.0	3/4	272.5	5910.5
1/2	142.9	1625.9	1/2	171.2	2332.8	1/2	199.4	3166.9	1/2	227.7	4128.2			
5/8	143.3	1634.9	5/8	171.6	2343.5	5/8	199.8	3179.4	5/8	228.1	4142.5	87	273.3	5944.6
3/4	143.7	1643.8	3/4	172.0	2354.2	3/4	200.2	3191.9	3/4	228.5	4156.7	1/4	274.1	5978.9
7/8	144.1	1652.8	7/8	172.3	2365.0	7/8	200.6	3204.4	7/8	228.9	4171.0	1/2	274.8	6013.2
												3/4	275.6	6047.6
46	144.5	1661.9	55	172.7	2375.8	64	201.0	3216.9	73	229.3	4185.3	88	276.4	6082.1
1/8	144.9	1670.9	1/8	173.1	2386.6	1/8	201.4	3229.5	1/8	229.7	4199.7	1/4	277.2	6116.7
1/4	145.2	1680.0	1/4	173.5	2397.4	1/4	201.8	3242.1	1/4	230.1	4214.1	1/2	278.0	6151.4
3/8	145.6	1689.1	3/8	173.9	2408.3	3/8	202.2	3254.8	3/8	230.5	4228.5	3/4	278.8	6186.2
1/2	146.0	1698.2	1/2	174.3	2419.2	1/2	202.6	3267.4	1/2	230.9	4242.9			
5/8	146.4	1707.3	5/8	174.7	2430.1	5/8	203.0	3280.1	5/8	231.3	4257.3	89	279.6	6221.1
3/4	146.8	1716.5	3/4	175.1	2441.0	3/4	203.4	3292.8	3/4	231.6	4271.8	1/4	280.3	6256.1
7/8	147.2	1725.7	7/8	175.5	2452.0	7/8	203.8	3305.5	7/8	232.0	4286.3	1/2	281.1	6291.2
												3/4	281.9	6326.4
47	147.6	1734.9	56	175.9	2463.0	65	204.2	3318.3	74	232.4	4300.8	90	282.7	6361.7
1/8	148.0	1744.1	1/8	176.3	2474.0	1/8	204.5	3331.0	1/8	232.8	4315.3	1/4	283.5	6397.1
1/4	148.4	1753.4	1/4	176.7	2485.0	1/4	204.9	3343.8	1/4	233.2	4329.9	1/2	284.3	6432.6
3/8	148.8	1762.7	3/8	177.1	2496.1	3/8	205.3	3356.7	3/8	233.6	4344.5	3/4	285.1	6468.2
1/2	149.2	1772.0	1/2	177.5	2507.1	1/2	205.7	3369.5	1/2	234.0	4359.1			
5/8	149.6	1781.3	5/8	177.9	2518.2	5/8	206.1	3382.4	5/8	234.4	4373.8	91	285.8	6503.8
3/4	150.0	1790.7	3/4	178.2	2529.4	3/4	206.5	3395.3	3/4	234.8	4388.4	1/4	286.6	6539.6
7/8	150.4	1800.1	7/8	178.6	2540.5	7/8	206.9	3408.2	7/8	235.2	4403.1	1/2	287.4	6575.5
												3/4	288.2	6611.5
48	150.7	1809.5	57	179.0	2551.7	66	207.3	3421.2	75	235.6	4417.8	92	289.0	6647.6
1/8	151.1	1818.9	1/8	179.4	2562.9	1/8	207.7	3434.1	1/8	236.0	4432.3	1/4	289.8	6683.8
1/4	151.5	1828.4	1/4	179.8	2574.1	1/4	208.1	3447.1	1/4	236.4	4447.3	1/2	290.5	6720.0
3/8	151.9	1837.9	3/8	180.2	2585.4	3/8	208.5	3460.1	3/8	236.8	4462.3	3/4	291.3	6756.4
1/2	152.3	1847.4	1/2	180.6	2596.7	1/2	208.9	3473.2						
5/8	152.7	1856.9	5/8	181.0	2608.0	5/8	209.3	3486.3	76	237.7	4536.4	93	292.1	6792.0
3/4	153.1	1866.5	3/4	181.4	2619.3	3/4	209.7	3499.3	1/4	238.1	4551.3	1/4	292.9	6829.4
7/8	153.5	1876.1	7/8	181.8	2630.7	7/8	210.0	3512.5	1/2	240.3	4566.3	1/2	293.7	6866.1
									3/4	241.1	4626.4	3/4	294.5	6902.9
49	153.9	1885.7	58	182.2	2642.0	67	210.4	3525.6	77	241.9	4666.6	94	295.3	6939.7
1/8	154.3	1895.3	1/8	182.6	2653.4	1/8	210.9	3538.8	1/8	242.6	4686.9	1/4	296.0	6976.7
1/4	154.7	1905.0	1/4	182.9	2664.9	1/4	211.2	3552.0	1/4	243.4	4717.3	1/2	296.8	7013.8
3/8	155.1	1914.7	3/8	183.3	2676.3	3/8	211.6	3565.2	1/2	244.2	4747.7	3/4	297.6	7050.9
1/2	155.5	1924.4	1/2	183.7	2687.8	1/2	212.0	3578.4						
5/8	155.9	1934.1	5/8	184.1	2699.3	5/8	212.4	3591.7	78	245.0	4778.3	95	298.4	7088.2
3/4	156.2	1943.9	3/4	184.5	2710.8	3/4	212.8	3605.0	1/4	245.8	4809.0	1/4	299.2	7125.5
7/8	156.6	1953.6	7/8	184.9	2722.4	7/8	213.2	3618.3	1/2	246.6	4839.8	1/2	300.0	7163.0
									3/4	247.4	4870.7	3/4	300.8	7200.5
50	157.0	1963.5	59	185.3	2733.9	68	213.6	3631.6	79	248.1	4901.6	96	301.5	7238.2
1/8	157.4	1973.3	1/8	185.7	2745.5	1/8	214.0	3645.0	1/8	248.9	4932.7	1/4	302.3	7275.9
1/4	157.8	1983.1	1/4	186.1	2757.1	1/4	214.4	3658.4	1/4	249.7	4963.9	1/2	303.1	7313.8
3/8	158.2	1993.0	3/8	186.5	2768.8	3/8	214.8	3671.8	1/2	250.5	4995.1	3/4	303.9	7351.7
1/2	158.6	2002.9	1/2	186.9	2780.5	1/2	215.1	3685.2						
5/8	159.0	2012.9	5/8	187.3	2792.2	5/8	215.5	3698.7	80	251.3	5026.5	97	304.7	7389.8
3/4	159.4	2022.9	3/4	187.7	2803.9	3/4	215.9	3712.2	1/4	252.1	5058.0	1/4	305.5	7427.9
7/8	159.8	2032.8	7/8	188.1	2815.6	7/8	216.3	3725.7	1/2	252.8	5089.5	1/2	306.3	7466.2
									3/4	253.6	5121.2	3/4	307.0	7504.4
51	160.2	2042.8	60	188.4	2827.4	69	216.7	3739.2	81	254.4	5153.0	98	307.8	7542.9
1/8	160.6	2052.8	1/8	188.8	2839.2	1/8	217.1	3752.8	1/8	255.2	5184.8	1/4	308.6	7581.5
1/4	161.0	2062.9	1/4	189.2	2851.0	1/4	217.5	3766.4	1/4	256.0	5216.8	1/2	309.4	7620.1
3/8	161.3	2072.9	3/8	189.6	2862.8	3/8	217.9	3780.0	1/2	256.8	5248.8	3/4	310.2	7658.8
1/2	161.7	2083.0	1/2	190.0	2874.7	1/2	218.3	3793.6						
5/8	162.1	2093.2	5/8	190.4	2886.6	5/8	218.7	3807.3	82	257.6	5281.0	99	311.0	7697.7
3/4	162.5	2103.3	3/4	190.8	2898.5	3/4	219.1	3821.0	1/4	258.3	5313.2	1/4	311.8	7736.6
7/8	162.9	2113.5	7/8	191.2	2910.5	7/8	219.5	3834.7	1/2	259.1	5345.6	1/2	312.5	7775.6
									3/4	259.9	5378.0	3/4	313.3	7814.7
52	163.3	2123.7	61	191.6	2922.4	70	219.9	3848.4	83	260.7	5410.6	100	314.1	7853.0
1/8	163.7	2133.9	1/8	192.0	2934.4	1/8	220.3	3862.2	1/8	261.5	5443.2	1/4	314.9	7893.3
1/4	164.1	2144.1	1/4	192.4	2946.4	1/4	220.6	3875.9	1/4	262.3	5476.0	1/2	315.7	7932.7
3/8	164.5	2154.4	3/8	192.8	2958.5	3/8	221.0	3889.8	1/2	263.1	5508.8	3/4	316.4	7972.2
1/2	164.9	2164.7	1/2	193.2	2970.5	1/2	221.4	3903.6						
5/8	165.3	2175.0	5/8	193.6	2982.6	5/8	221.8	3917.4						
3/4	165.7	2185.4	3/4	193.9	2994.6	3/4	222.2	3931.3						
7/8	166.1	2195.7	7/8	194.3	3006.9	7/8	222.6	3945.2						

Fahrenheit and Centigrade Conversion Table

Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.
0	32	205	401	405	761	605	1121	805	1481	1005	1841	1205	2201	1405	2561
5	41	210	410	410	770	610	1130	810	1490	1010	1850	1210	2210	1410	2570
10	50	215	419	415	779	615	1139	815	1499	1015	1859	1215	2219	1415	2579
15	59	220	428	420	788	620	1148	820	1508	1020	1868	1220	2228	1420	2588
20	68	225	437	425	797	625	1157	825	1517	1025	1877	1225	2237	1425	2597
25	77	230	446	430	806	630	1166	830	1526	1030	1886	1230	2246	1430	2606
30	86	235	455	435	815	635	1175	835	1535	1035	1895	1235	2255	1435	2615
35	95	240	464	440	824	640	1184	840	1544	1040	1904	1240	2264	1440	2624
40	104	245	473	445	833	645	1193	845	1553	1045	1913	1245	2273	1445	2633
45	113	250	482	450	842	650	1202	850	1562	1050	1922	1250	2282	1450	2642
50	122	255	491	455	851	655	1211	855	1571	1055	1931	1255	2291	1455	2651
55	131	260	500	460	860	660	1220	860	1580	1060	1940	1260	2300	1460	2660
60	140	265	509	465	869	665	1229	865	1589	1065	1949	1265	2309	1465	2669
65	149	270	518	470	878	670	1238	870	1598	1070	1958	1270	2318	1470	2678
70	158	275	527	475	887	675	1247	875	1607	1075	1967	1275	2327	1475	2687
75	167	280	536	480	896	680	1256	880	1616	1080	1976	1280	2336	1480	2696
80	176	285	545	485	905	685	1265	885	1625	1085	1985	1285	2345	1485	2705
85	185	290	554	490	914	690	1274	890	1634	1090	1994	1290	2354	1490	2714
90	194	295	563	495	923	695	1283	895	1643	1095	2003	1295	2363	1495	2723
95	203	300	572	500	932	700	1292	900	1652	1100	2012	1300	2372	1500	2732
100	212	305	581	505	941	705	1301	905	1661	1105	2021	1305	2381	1505	2741
105	221	310	590	510	950	710	1310	910	1670	1110	2030	1310	2390	1510	2750
110	230	315	599	515	959	715	1319	915	1679	1115	2039	1315	2399	1515	2759
115	239	320	608	520	968	720	1328	920	1688	1120	2048	1320	2408	1520	2768
120	248	325	617	525	977	725	1337	925	1697	1125	2057	1325	2417	1525	2777
125	257	330	626	530	986	730	1346	930	1706	1130	2066	1330	2426	1530	2786
130	266	335	635	535	995	735	1355	935	1715	1135	2075	1335	2435	1535	2795
135	275	340	644	540	1004	740	1364	940	1724	1140	2084	1340	2444	1540	2804
140	284	345	653	545	1013	745	1373	945	1733	1145	2093	1345	2453	1545	2813
145	293	350	662	550	1022	750	1382	950	1742	1150	2102	1350	2462	1550	2822
150	302	355	671	555	1031	755	1391	955	1751	1155	2111	1355	2471	1555	2831
155	311	360	680	560	1040	760	1400	960	1760	1160	2120	1360	2480	1560	2840
160	320	365	689	565	1049	765	1409	965	1769	1165	2129	1365	2489	1565	2849
165	329	370	698	570	1058	770	1418	970	1778	1170	2138	1370	2498	1570	2858
170	338	375	707	575	1067	775	1427	975	1787	1175	2147	1375	2507	1575	2867
175	347	380	716	580	1076	780	1436	980	1796	1180	2156	1380	2516	1580	2876
180	356	385	725	585	1085	785	1445	985	1805	1185	2165	1385	2525	1585	2885
185	365	390	734	590	1094	790	1454	990	1814	1190	2174	1390	2534	1590	2894
190	374	395	743	595	1103	795	1463	995	1823	1195	2183	1395	2543	1595	2903
195	383	400	752	600	1112	800	1472	1000	1832	1200	2192	1400	2552	1600	2912
200	392														

Table of Water Heads and Equivalent Pressures

To estimate any pressure multiply the head (in feet) by .433. The result is pounds per square inch.

Head in Feet	Pressure lbs. per sq. in.	Head in Feet	Pressure lbs. per sq. in.	Head in Feet	Pressure lbs. per sq. in.	Head in Feet	Pressure lbs. per sq. in.
5	2.17	80	34.64	275	119.08	700	303.10
10	4.33	90	38.97	300	129.90	750	324.75
15	6.50	100	43.30	350	151.55	800	346.40
20	8.66	125	54.13	400	173.20	850	368.05
30	12.99	150	64.95	450	194.85	900	389.70
40	17.32	175	75.78	500	216.50	950	411.35
50	21.65	200	86.60	550	238.15	1000	433.00
60	25.98	225	97.43	600	259.80	1100	476.30
70	30.31	250	108.25	650	281.45	1200	519.60

Steam Table

Gauge Press. Lbs.	Temp. Deg. F.	Gauge Press. Lbs.	Temp. Deg. F.	Gauge Press. Lbs.	Temp. Deg. F.	Gauge Press. Lbs.	Temp. Deg. F.	Gauge Press. Lbs.	Temp. Deg. F.	Gauge Press. Lbs.	Temp. Deg. F.
5	228	39	285	72	317	110	344	176	378	241	403
6	230	40	287	73	318	112	345	178	378	243	403
7	233	41	288	74	319	114	346	180	379	245	404
8	235	42	289	75	320	116	348	182	380	247	405
9	237	43	290	76	321	118	349	184	381	249	405
10	240	44	291	77	321	120	350	186	382	251	406
11	242	45	292	78	322	122	351	188	383	253	407
12	244	46	293	79	323	124	352	190	384	255	407
13	246	47	294	80	324	126	353	192	384	257	408
14	248	48	295	81	324	128	354	194	385	259	409
15	250	49	297	82	325	130	355	196	386	261	409
16	252	50	298	83	326	132	356	198	387	263	410
17	254	51	299	84	327	134	357	200	388	265	411
18	255	52	300	85	327	136	359	202	388	267	411
19	257	53	301	86	328	138	360	204	389	269	412
20	259	54	302	87	329	140	361	206	390	271	413
21	261	55	302	88	330	142	362	208	391	273	413
22	262	56	303	89	330	144	363	210	391	275	414
23	264	57	304	90	331	146	364	212	392	277	415
24	265	58	305	91	332	148	365	214	393	279	415
25	267	59	306	92	332	150	366	216	394	281	416
26	268	60	307	93	333	152	367	218	394	283	416
27	270	61	308	94	334	154	368	220	395	285	417
28	271	62	309	95	334	156	368	222	396	295	420
29	273	63	310	96	335	158	369	224	397	305	423
30	274	64	311	97	336	160	370	226	397	355	437
31	275	65	312	98	336	162	371	228	398	375	442
32	277	66	312	99	337	164	372	230	399	385	444
33	278	67	313	100	338	166	373	232	400	405	449
34	279	68	314	102	339	168	374	234	400	455	460
35	281	69	315	104	340	170	375	235	401	510	472
36	282	70	316	106	341	172	376	237	401	560	481
37	283	71	317	108	343	174	377	239	402	585	486
38	284										

Metric Conversion Table

Milimeters $\times .03937$ = inches.	Cubic Centimetres $\div 3.69$ = fluid drams (U.S.P.).	Grammes per cubic cent. $\div 27.7$ = lbs. per cubic inches.
Milimetres $\div 25.4$ = inches.	Cubic Centimetres $\div 29.57$ = fluid ounce (U.S.P.).	Joule $\times .7373$ = foot pounds.
Centimetres $\times .3937$ = inches.	Cubic Metres $\times 35.315$ = cubic feet.	Kilo-grammes $\times 2.2046$ = pounds.
Centimetres $\div 2.54$ = inches.	Cubic Metres $\times 1.308$ = cubic yards.	
Metres $\times 39.37$ = inches (Act of Congress).	Cubic Metres $\times 264.2$ = gallons (231 cubic inches).	Kilo-grammes $\times 35.3$ = oz. avoirdupois.
Metres $\times 3.281$ = feet.	Litres $\times 61.022$ = cu. in. (Act of Congress).	Kilo-grammes $\div 907.2$ = tons (2,000 lbs.).
Metres $\times 1.094$ = yards.	Litres $\times 33.84$ = fluid ounces (U.S.P.).	Kilo-grammes per sq. cent. $\times 14.223$ = lbs. per square inch.
Kilometres $\times .621$ = miles.	Litres $\times .2642$ = gallons (231 cu. in.).	
Kilometres $\div 1.6093$ = miles.	Litres $\div 3.78$ = gallons (231 cu. in.).	Kilo-gram-metres $\times 7.233$ = foot lbs.
Kilometres $\times 3280.8693$ = feet.	Litres $\div 28.316$ = cubic feet.	Kilo-gr. per Metre $\times .672$ = lbs. per foot.
Square Millimetres $\times .00155$ = sq. inches.	Hectolitres $\times 3.531$ = cubic feet.	Kilo-gr. Cubic Metre $\times .062$ = lbs. per cubic feet.
Square Millimetres $\div 645.1$ = sq. inches.	Hectolitres $\times 2.94$ = bushels (2150.42 cu. in.).	Tonneau $\times 1.1023$ = tons (2,000 lbs.).
Square Centimetres $\times .155$ = sq. inches.	Hectolitres $\times .131$ = cubic yards.	Kilo-Watts $\times 1.34$ = Horse Power.
Square Centimetres $\div 6.451$ = sq. inches.	Hectolitres $\div 26.42$ = gallons (231 cu. in.).	Watts $\div 746$ = Horse Power.
Square Metres $\times 10.764$ = sq. ft.	Grammes $\times 15.432$ = grains (Act of Congress).	Watts $\times .7373$ = foot pounds per second.
Square Kilometres $\times 247.1$ = acres.	Grammes $\div 981$ = dynes.	Calorie $\times 3.968$ = B. t. u.
Hectare $\times 2.471$ = acres.	Grammes (water) $\div 29.57$ = fluid ounces.	Cheval vapeur $\div .9863$ = Horse Power.
Cubic Centimetres $\div 16.383$ = cubic inches.	Grammes $\div 2835$ = ounces avoirdupois.	(Centigrade $\times 1.8$) $\div 32$ = degrees Fahr.
		Gravity Paris = 980.94 centimetres per sec.

Table of Decimal Equivalents

1/100 in. = .003937 in.											
mm.	Inches	mm.	Inches	mm.	Inches	mm.	Inches	mm.	Inches	mm.	Inches
1/50 = .00079		25/50 = .01969		1 = .03937		26 = 1.02362		51 = 2.00787		76 = 2.99212	
2/50 = .00157		26/50 = .02047		2 = .07874		27 = 1.06299		52 = 2.04724		77 = 3.03149	
3/50 = .00236		27/50 = .02126		3 = .11811		28 = 1.10236		53 = 2.08661		78 = 3.07086	
4/50 = .00315		28/50 = .02205		4 = .15748		29 = 1.14173		54 = 2.12598		79 = 3.11023	
		29/50 = .02283		5 = .19685		30 = 1.18110		55 = 2.16535		80 = 3.14960	
5/50 = .00394		30/50 = .02362		6 = .23622		31 = 1.22047		56 = 2.20472		81 = 3.18897	
6/50 = .00472		31/50 = .02441		7 = .27559		32 = 1.25984		57 = 2.24409		82 = 3.22834	
7/50 = .00551		32/50 = .02520		8 = .31496		33 = 1.29921		58 = 2.28346		83 = 3.26771	
8/50 = .00630		33/50 = .02598		9 = .35433		34 = 1.33858		59 = 2.32283		84 = 3.30708	
9/50 = .00709		34/50 = .02677		10 = .39370		35 = 1.37795		60 = 2.36220		85 = 3.34645	
10/50 = .00787		35/50 = .02756		11 = .43307		36 = 1.41732		61 = 2.40157		86 = 3.38582	
11/50 = .00866		36/50 = .02835		12 = .47244		37 = 1.45669		62 = 2.44094		87 = 3.42519	
12/50 = .00945		37/50 = .02913		13 = .51181		38 = 1.49606		63 = 2.48031		88 = 3.46456	
13/50 = .01024		38/50 = .02992		14 = .55118		39 = 1.53543		64 = 2.51968		89 = 3.50393	
14/50 = .01102		39/50 = .03071		15 = .59055		40 = 1.57480		65 = 2.55905		90 = 3.54330	
15/50 = .01181		40/50 = .03150		16 = .62992		41 = 1.61417		66 = 2.59842		91 = 3.58267	
16/50 = .01260		41/50 = .03228		17 = .66929		42 = 1.65354		67 = 2.63779		92 = 3.62204	
17/50 = .01339		42/50 = .03307		18 = .70866		43 = 1.69291		68 = 2.67716		93 = 3.66141	
18/50 = .01417		43/50 = .03386		19 = .74803		44 = 1.73228		69 = 2.71653		94 = 3.70078	
19/50 = .01496		44/50 = .03465		20 = .78740		45 = 1.77165		70 = 2.75590		95 = 3.74015	
20/50 = .01575		45/50 = .03543		21 = .82677		46 = 1.81102		71 = 2.79527		96 = 3.77952	
21/50 = .01654		46/50 = .03622		22 = .86614		47 = 1.85039		72 = 2.83464		97 = 3.81889	
22/50 = .01732		47/50 = .03701		23 = .90551		48 = 1.88976		73 = 2.87401		98 = 3.85826	
23/50 = .01811		48/50 = .03780		24 = .94488		49 = 1.92913		74 = 2.91338		99 = 3.89763	
24/50 = .01890		49/50 = .03858		25 = .98425		50 = 1.96850		75 = 2.95275		100 = 3.93700	
10 mm. = 1 Centimeter = 0.3937 inches 10 cm. = 1 Decimeter = 3.937 inches						10 dm. = 1 Meter = 39.37 inches 25.4 mm. = 1 English inch					

Decimal Equivalents . . . 8ths, 16ths, 32nds and 64ths of an Inch

8ths	1/8 = .125 1/4 = .250	3/8 = .375 1/2 = .500	5/8 = .625	3/4 = .750	7/8 = .875
16ths	1/16 = .0625 3/16 = .1875	5/16 = .3125 7/16 = .4375	9/16 = .5625 11/16 = .6875	13/16 = .8125	15/16 = .9375
32ds 1/32 = .03125	3/32 = .09375 5/32 = .15625 7/32 = .21875	9/32 = .28125 11/32 = .34375 13/32 = .40625	15/32 = .46875 17/32 = .53125 19/32 = .59375	21/32 = .65625 23/32 = .71875 25/32 = .78125	27/32 = .84375 29/32 = .90625 31/32 = .96875
64ths 1/64 = .015625 3/64 = .046875	5/64 = .078125 7/64 = .109375 9/64 = .140625 11/64 = .171875 13/64 = .203125 15/64 = .234375	17/64 = .265625 19/64 = .296875 21/64 = .328125 23/64 = .359375 25/64 = .390625 27/64 = .421875	29/64 = .453125 31/64 = .484375 33/64 = .515625 35/64 = .546875 37/64 = .578125 39/64 = .609375	41/64 = .640625 43/64 = .671875 45/64 = .703125 47/64 = .734375 49/64 = .765625 51/64 = .796875	53/64 = .828125 55/64 = .859375 57/64 = .890625 59/64 = .921875 61/64 = .953125 63/64 = .984375

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25B34	60	163-WPH	29	346	33	524-G	44	811-NJ	38	1122	25, 26	1502	24
30N31	60	178	34, 36	346-DC	33	525	44	820	42	1123	25, 26	1503	24
30N32	60	180	28	346-HD	33	535	62	820-NJ	42	1124	50	1504	24
30N50	60	181	28	346-RB	33	537	45	850	35, 38	1129-TL	26	1550	23
30N52	60	183	28	346-RTS	33	549	44	851	37	1130	65	1560	47
30N53	60	185	34	347	32	550	44	851TT	37	1132	65	1561	47
30N54	60	186	28	350-WPH	28, 29	575	62	853	38	1133	65	1562	47
30N58	60	187-F	29	351-WPH	28, 29	584-A	44	858	35, 42	1134	65	1563	47
35M25	60	189	29	353-WPH	28	600-HH	47	858-CWB	41	1135-T	4	1564	47
35M26	60	191-DF	40	358	33	600-MH	47	861	39	1136-T	4	1565	47
35N40	60	191-NDF	40	362	29	602	72	862	39	1140	51	1570	47
35N41	60	195	32	363-WPH	29	603	72	863	39	1141	51	1575	46
35N42	60	199	39	378	34	604	63	864	39	1142	51	1576	46
35N43	60	200	32	380	28, 29	605	72	888	23	1143	67	1577	46
40BY4	60	201	18	381	28, 29	606	63	889	23	1144	67	1578	46
40BY5	60	205-RB	18	383	28, 29	611	57	892	24, 25	1145	66, 67	1580	48
40BY6	60	207-CC	18	385	34	612	56	900-AN	7	1146	67	1581	48
40BY9	60	210	18	386	28	613	56	900-ABN	7	1147	67	1582	48
43	14	212	18	387-F	29	614	56	900-AR	7	1148	67	1583	48
45H60	60	222-AW	18	389	29	615	56	900-DBN	7	1150	51	1590	48
50U55	60	223	33	390	28	616	57	900-DF9	7	1153	67	1592	48
55V10	60	225	31	395	32	617	58	900-DN	7	1160	25, 26	1593	48
55V15	60	227	31	399	39	618	56	900-DR	7	1161	26	1594	48
60L4	60	234	30	401	45	619	56	905	21	1162	26	1597	48
60L5	60	235	32	402	45	620	57	909	21	1163	17	1599	47
60L6	60	237	31	403	45	621	57	913	18	1170	81	1637	35
60L9	60	240	30	405	46	622	57	915-AN	4	1171	81	1637-AR	35
65E6	60	247	32	406	46	623	57	915-ABN	4	1174	80	1640	35
100	32	258	33	407	45	624	57	915-AR	4	1175	12, 13, 65	1645	35
101	18	278	34	408	45	626	57	915-DBN	4	1176	81	1645-HT	35
103	23, 36	295	32	410	62	627	57	915-DF9	4	1180	49	1920-H	13
105-RB	18	300	32	410-WI	62	633	46	915-DN	4	1181	49	2920-H	13
107-CC	18	301	18	415	62	634	46	915-DR	4	1181-LOX	49	2530-A	36
110	18, 35	303	23	416	62	639	46	920-H	12	1182	49	2728-A	31
112	18, 36	305-RB	18	419	44	643	46	924-F	14	1183	49	3199	75
117	21	307-CC	18	420	61	645	46	943	17	1184	50	3920-H	12
117-W	21	310	18	421	61	650	53	944	17	1185	50	4250	45
118	21, 22	312	18	424	44	658	53	945	17	1186	50	5050	61
122-AW	18	314	22	424-G	44	659	54	959	10	1187	66	5050-SPEC.	61
123	33	315	22	425	44	659-P	54	960	17	1188	50	5055	61
124	31	316	22	426	61	659-R	54	961	17	1188-X	50	5060	61
125	31, 36	317	21	429	61	660	55	962	17	1189	50	5065	61
125-H	32	317-9929	21	432	61	670	55	963	17	1190	50	5400	80
126	31	317-CA	21	435	62	670R	55	964	17	1192	51	5494	80
126-H	32	317-K	21	437	45	671	55	1000	66	1195	51	5495	80
127	31	317-P	21	439	46	673	57	1000-C	66	1197	51	5496	80
128	31	317-W	21	449	44	674	57	1030-A	35	1202	81	5700	60
130	31, 35, 36	318	22	450	44	675	57	1100	51	1206	81	5701	60
134	30	318-C	22	475	62	800	35, 39	1101	26	1258-A	36	5720	60
135	32	318-CA	22	484-A	44	801	38	1102	26	1300	20	6004	75
137	31, 36	318-P	22	501	45	804	40	1103-A	36	1301	20	6004-A	75
138	24	318-W	22	502	45	806	40	1104	26	1302-PSR	20	6004-B	75
139	30	319	22	503	45	807	40	1106	51	1304	20	6004-C	75
140	30	322-AW	18	505	46	808	41	1108	26, 42	1309	20	7830-A	36

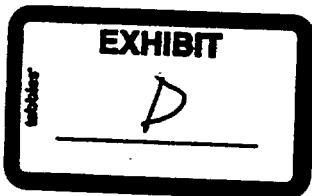
CIVIL ACTION NO. 1998CV02684

IN RE: ALL ASBESTOS-RELATED	)	IN THE SUPERIOR COURTS
PERSONAL INJURY OR DEATH CASES	)	OF
FILED BY BARON & BUDD, P.C. IN	)	FULTON COUNTY, GEORGIA
FULTON COUNTY, GEORGIA	)	

Defendant, GARLOCK INC., responds to Plaintiff's Subpoena Duces Tecum (attached to Plaintiff's Fourth Amended Notice of the Deposition of the Corporate Representative of Garlock Inc), as follows:

GENERAL OBJECTIONS

1. Plaintiff's Subpoena Duces Tecum seeks information going back to the 1930's. Garlock has made a good faith effort to identify and produce documents germane and relevant to Plaintiff's subpoena. However, Garlock has found it difficult, if not impossible to retrieve all of the documents that are potentially responsive to the extremely broad requests tendered by the Plaintiffs. Garlock is producing numerous product catalogs and advertising brochures going back many years, but Garlock does not represent or guarantee that all catalogs or advertising brochures prepared or issued by Garlock over the past seventy years are being produced in response to Plaintiff's request. Garlock does represent that it is producing all relevant and responsive material that has been located in its corporate files after completion of a good faith search by Garlock employees and counsel. Garlock also represents that the catalogs and advertising brochures being produced do identify the gasket products



manufactured and sold by Garlock since the 1930's. Garlock generally objects to all requests in the subpoena on the grounds that the requests are overbroad, vague, ambiguous and unduly burdensome and not reasonably calculated to lead to the discovery of admissible evidence.

2. The subpoena seeks production of all documents relating to all gasket products manufactured/sold and distributed by Garlock from 1930 to the present. The requests are not limited to Garlock asbestos-containing gasket products identified by Plaintiffs in this litigation. Additionally the requests are not limited to the time frame or job sites at issue in this litigation. Therefore, the requests are overbroad, unduly burdensome and are not reasonably calculated to lead to the discovery of admissible evidence. Garlock objects to all individual requests for production set forth in the Subpoena Duces Tecum on the grounds that the requests seek information not relevant to this litigation.

3. The subpoena is duplicative of earlier requests made by Plaintiff's counsel to Garlock in the asbestos litigation. Garlock affirmatively asserts that it has responded to numerous requests for production propounded by Plaintiff's counsel in thousands of asbestos cases over the past two decades. In its search for documents and materials responsive to these requests, Garlock has determined that the majority of documents potentially responsive to these extremely broad requests have previously been produced to counsel representing the Plaintiffs. As evidence of these prior productions, and in support of Garlock's position that Plaintiff's counsel already possesses much of the material requested herein, Garlock attaches as Exhibit "A", a copy of the Exhibit List

filed by Plaintiff's counsel in these cases. Garlock objects to the Subpoena Duces Decum filed here because said requests are duplicative and cumulative in nature. A request that Garlock produce identical or substantially similar catalogs and advertising brochures in this litigation is unduly burdensome and oppressive.

4. Garlock objects to all requests in the Subpoena Duces Tecum to the extent said Subpoena requests the production of trade secret or proprietary material and said material will not be produced absent an appropriate protective order.

RESPONSES TO DOCUMENT REQUESTS

1. See General Objections. Garlock produces the following Document Retention Policies; Bates Nos. GAR0001-GAR0027 in Response to Request No. 1.

2. See General Objections. Garlock produces the following documents in Response to Request No. 2; Bates GAR0170-GAR0177, GAR0248-GAR0364, GAR0389-GAR0400, GAR0430-GAR0439, GAR0570-GAR0612, GAR0637-GAR0815, GAR0898-GAR0906, GAR0919-GAR0922, GAR0951-GAR1088, GAR1135-GAR1207, GAR1220-GAR1271, GAR1324-GAR1335, GAR1396-GAR2005 and GAR2010-GAR2042.

3. See General Objections. See Garlock's Response to Document Request No. 2. In addition, Garlock produces the following documents in Response to Request No. 3; Bates Nos. GAR0045-GAR0169, GAR0178-GAR0247, GAR0365-GAR0388, GAR0401-GAR0429, GAR0440-GAR0569, GAR0613-GAR0636, GAR0816-GAR0897, GAR0907-GAR0918, GAR0923-GAR0950, GAR1089-GAR1134, GAR1208-GAR1219,

GAR1272-GAR1323, GAR1336-GAR1395 and GAR2006-GAR2009.

4. See General Objections. See Garlock's Response to Document Requests 2 and 3. In addition, Garlock produces the following documents in Response to Request No. 4; Bates Nos. GAR0041-GAR0043.

5. See General Objections. See Garlock's Response to Documents Requests 2, 3, and 4.

6. See General Objections. See Garlock's Response to Document Requests 2, 3 and 4.

7. See General Objections. Garlock produces the following documents in Response to Request No. 7; Bates GAR0027-GAR0040 and GAR0044. Garlock affirmatively asserts that the documents produced are samples of the information maintained in Garlock's microfiche database regarding product sales. Garlock maintains a microfiche database regarding sales going back to 1978. The database contains information regarding the identity of customers, dates of sales, the style number of products sold (by product code), the amount of product sold and the value of each sale. If requested, Mr. James Hefron will detail the nature and scope of the microfiche database at his September 10th deposition. Garlock's previously filed Responses to Plaintiff's Master Set of Interrogatories and Document Requests (attached as Exhibit B) stated that Garlock would search its microfiche database for post 1978 sales to customers, job sites and employers at issue in this litigation. (See Answer to Interrogatory 13), and Garlock reiterates its willingness to proceed with Plaintiff specific searches of the microfiche database. The hard copies of the sales

documents referenced in the microfiche database are currently stored at a warehouse in Palmyra, New York. Garlock does not presently have access to those documents because of litigation involving the building. However, a search of the microfiche database will provide the identical sales information contained in the documents stored at the warehouse.

Respectfully Submitted,

CARTER & ANSLEY

By: _____
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One of the Attorneys for GARLOCK INC

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GARLOCK INC'S EXHIBIT LIST

Defendant, Garlock Inc submits the following list of exhibits it may use at the trial of this case in supplementation of all interrogatory or document requests, or disclosure responses and in compliance with any applicable scheduling order:

I.

This Defendant reserves the right to reply on any other parties' exhibits and incorporates by reference the exhibit lists of all defendants. This Defendant further reserves the right to amend or supplement this list at any time.

II.

Garlock Inc reserves the right to introduce exhibits not designated herein for the purpose of impeachment or rebuttal.

III.

Subject to the foregoing, Garlock identifies the following exhibits which are available for inspection and copying at a mutually convenient time in its counsel's offices:

1. OSHA - 29 CFR Part 1910, Federal Register, Vol. 36, No. 234, December 7, 1971. Emergency Standard for Exposure to Asbestos Dust.
2. OSHA - 29 CFR Part 1910, Federal Register, Vol. 37, No. 110, June 7, 1972. Standard for Exposure to Asbestos Dust.
3. OSHA - 29 CFR Parts 1910 and 1926, Federal Register, Vol. 51, No. 119, June 20, 1986. Occupational Exposure to Asbestos, Tremolite, Anthophyllite and Actinolite; Final Rules.
4. OSHA - 29 CFR Parts 1910, 1915, and 1926, Federal Register, Vol. 59, No. 153, August 10, 1994. Occupational Exposure to Asbestos; Final Rule.
5. OSHA - 29 CFR Part 1910, 1919, and 1926, Federal Register, Vol. 60, No. 125, June 29, 1995. Occupational Exposure to Asbestos; Corrections; Final Rule.

6. EPA - 40 CFR Parts 61 & 763, Federal Register, Vol. 54, No. 6, January 10, 1989. Asbestos NESHAP Revision, Including Disposal of Asbestos Containing Materials Removed from Schools.
7. EPA - 40 CFR Part 763. Federal Register, Vol. 54, No. 132, July 12, 1989. Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions; Final Rule.
8. EPA - 40 CFR Part 61, Federal Register, Vol. 55, No. 224, November 20, 1990. National Emission Standards for Hazardous Air Pollutants; Asbestos NESHAP Revision; Final Rule.
9. EPA - 40 CFR Part 763, Federal Register, Vol. 58, No. 213, November 5, 1993. Asbestos, Manufacture, Importation, Processing and Distribution Prohibitions.
10. Nonmetallic Gaskets for Pipe Flanges - American Standard - ASA B16.21-1951 - The American Society of Mechanical Engineers.
11. Nonmetallic Gaskets for Pipe Flanges - American Standard - ASA B16.21-1962 - The American Society of Mechanical Engineers.
12. Nonmetallic Flat Gaskets for Pipe Flanges - American National Standard - ANSI B16.21-1978 - The American Society of Mechanical Engineers.
13. Final Report: Economic Analysis of the Proposed Revisions to the OSHA Asbestos Standards for Construction and General Industry, Contract Number J-9-F-8-0033, Task Order 4, Option Year 1. Prepared for: U.S. Department of Labor, Occupational Safety and Health Administration Office of Regulatory Analysis; Prepared by: CONSAD Research Corporation, July 27, 1990.
14. Ambient Water Quality Criteria For Asbestos. Prepared by U.S. EPA, Office of Water Regulations and Standards, Criteria and Standards Division, Washington D.C., EPA440/5-80-022, October, 1980.
15. Department of Health of Sacramento, CA. Letter to California Employers Who Use Asbestos. Subject: Reporting Asbestos Use to Cal/OSHA. August 1977.
16. Asbestos Exposure from Gasket Operations. Naval Regional Medical Center, Bremerton, WA. L.R. Liukonen, K.R. Still, R.R. Beckett. May 1978.
17. Analysis of Fiber Release from Certain Asbestos Products. GCA Corporation - Technology Division - December 1982; Prepared for U.S. Environmental Protection Agency.

18. The Actual Contribution of Garlock Asbestos Gasket Materials to the Occupational Exposure of Asbestos Workers. Carl A. Mangold, CIH - October 1982.
19. The Actual Occupational Exposure to Airborne Asbestos Released by Garlock Spiral Wound, Braided and Encapsulated Gaskets. Carl A. Mangold, CIH - December 1982.
20. The Actual Contribution of Asbestos Fiber Exposure During Gasket Removal from Pipe Flanges Aboard Ship. Carl A. Mangold, CIH - November 1983.
21. The Actual Release of Asbestos Fibers from New, Used and Flanged Garlock, Inc. Asbestos Gasket Materials. Carl A. Mangold, CIH - September 1985.
22. Garlock, Inc. Gasket Materials - A Comparison of Tyndall Phenomena to the Actual Concentration of Asbestos Fibers in the Breathing Zone of Workers. Carl A. Mangold, CIH - July 1986 (Rev.).
23. The Actual Contribution of Airborne Asbestos Fibers to the Occupational Exposure of By-Standers During Selected Processing of Encapsulated Asbestos Gaskets - Opening of Old Flanges and Removal of Asbestos Gaskets. Carl A. Mangold, CIH - January 1989.
24. The Actual Contribution of Airborne Asbestos Fibers to the Occupational Exposure of By-Standers During Selected Processing of Encapsulated Asbestos Gaskets - Cutting Gaskets With a Circular Cutter. Carl A. Mangold, CIH - January 1989.
25. The Actual Contribution of Airborne Asbestos Fibers to the Occupational Exposure of By-Standers During Selected Processing of Encapsulated Asbestos Gaskets - Gasket Cutting With Hand Shears. Carl A. Mangold, CIH - January 1989.
26. The Actual Contribution of Airborne Asbestos Fibers to the Occupational Exposure of By-Standers During Selected Processing of Encapsulated Asbestos Gaskets - Gasket Cutting With Ball Pein Hammer. Carl A. Mangold, CIH - January 1989.
27. The Actual Contribution of Airborne Asbestos Fibers to the Occupational Exposure of By-Standers During Selected Processing of Encapsulated Asbestos Gaskets - Scribing of Gasket Material. Carl A. Mangold, CIH - January 1989.
28. The Actual Contribution of Airborne Asbestos Fibers to the Occupational Exposure of By-Standers During Selected Processing of Encapsulated Asbestos Gaskets - Flange Face Scraping With Putty Knife. Carl A. Mangold, CIH - January 1989.
29. The Actual Contribution of Airborne Asbestos Fibers to the Occupational Exposure of By-Standers During Selected Processing of Encapsulated Asbestos Gaskets - Hand Wire

Brushing of Asbestos Gasket Residual from Flanges. Carl A. Mangold, CIH - January 1989.

30. The Actual Contribution of Airborne Asbestos Fibers to the Occupational Exposure of By-Standers During Selected Processing of Encapsulated Asbestos Gaskets - Power Wire Brushing of Flange Faces, Carl A. Mangold, CIH - January 1989.
31. The Actual Contribution of Airborne Asbestos Fibers from Removal and Installation of Asbestos Packing from Valves. Carl A. Mangold, CIH, and Robert Gay, Ph.D., May 1991.
32. Final Report - Actual Asbestos Fiber Release During Gasket Removal Work Practices. Robert L. Gay, Ph.D., August 23, 1991.
33. An Industrial Hygiene Survey to Determine Airborne Asbestos Fiber Concentrations During the Utilization of Braided Asbestos Packing Material (Garlock, Inc. - Style 5880). Neilson Associates - June 6, 1980.
34. An Industrial Hygiene Survey to Determine Airborne Asbestos Fiber Concentrations During the Cutting of Garlock Gasket Material Types 900 and 7021. Neilson Associates - June 6, 1980.
35. An Industrial Hygiene Survey to Determine Airborne Asbestos Fiber Concentrations During the Utilization of Garlock Gasket Material (Style No. 7021). Neilson Associates - October 22, 1980.
36. Asbestos- Fiber Exposures Related to the Replacement of Garlock Style 7021 Gaskets. Neilson Associates - May 19, 1981.
37. An Evaluation of Potential Occupational Exposure to Airborne Asbestos During the Installation and Removal of Braided Asbestos Gasketing Material (Braided Asbestos Type 150, 234, 644, 733, 5861 and 5876). Neilson Associates - April 1, 1982.
38. An Evaluation of Potential Occupational Exposure to Airborne Asbestos Fibers Encountered During Installation and Removal of Asbestos-Containing Gaskets - Gasket Type 604. Neilson Associates - April 1, 1982.
39. Technical Report for Garlock, Inc. Occupational Exposures During Processing, Handling, Installation and Removal of Garlock Asbestos-Containing Gaskets. McCrone Environmental Services, Inc. - June 3, 1985.
40. Technical Report. Occupational Exposures During Processing and Handling of Asbestos-Containing Gaskets at Anchor Packing Company. McCrone Project No. ME-5396 - October 12, 1988.

41. DMR & Associates, Donna M. Ringo gasket testing 5/23/91, 91 -LGE-08, Magnolia Station, Louisville, KY.
42. DMR & Associates, Donna M. Ringo gasket testing 9/8/91, 91-LGE-24, Mill Creek Power Plant, Louisville, KY.
43. DMR & Associates, Donna M. Ringo gasket testing 9/20, 23, 24/91, 91-LGE-25, Mill Creek Station, Louisville, KY.
44. DMR & Associates, Donna M. Ringo gasket testing 10/1, 2, 8/91, 91 -LG E-28, Cane Run, Louisville, KY.
45. DMR & Associates, Donna M. Ringo gasket testing 9/30/91 to 10/24/91, 91-LGE-26, Mill Creek Station, Louisville, KY.
46. DMR & Associates, Donna M. Ringo gasket testing 1 1 /4/91, 91 -LG E-38, Mill Creek Station, Louisville, KY.
47. DMR & Associates, Donna M. Ringo gasket testing 12/28, 29/91, 91 -LG E-43, Mill Creek Station, Louisville, KY.
48. DMR & Associates, Donna M. Ringo gasket testing 1/10/92, 92-LGE-02, Mill Creek Station, Louisville, KY.
49. DMR & Associates, Donna M. Ringo gasket testing 1/1 7/92, 92-LGE-05, Can Run Power Plant, Louisville, KY.
50. DMR & Associates, Donna M. Ringo gasket testing 1/16/92, 92-LGE-04, Trimble County, Louisville, KY.
51. DMR & Associates, Donna M. Ringo gasket testing 1/31/92, 92-LGE-08, Trimble County, Louisville, KY.
52. DMR & Associates, Donna M. Ringo gasket testing 2/13/92, 92-LGE-14, Can Run Station, Louisville, KY.
53. DMR & Associates, Donna M. Ringo gasket testing 3/17, 18/92, Trimble County, Louisville, KY.
54. DMR & Associates, Donna M. Ringo gasket testing 3/3/92, 92-LGE-21, AC&S Shop, Louisville, KY.

55. DMR & Associates, Donna M. Ringo gasket testing 3/25/92, 92-LGE-37, The King's Daughter & Son Nursing Home, Louisville, KY.
56. DMR & Associates, Donna M. Ringo gasket testing 4/3/92, 92-LGE-40, Trimble County, Louisville, KY.
57. DMR & Associates, Donna M. Ringo gasket testing 3/27/92, 92-LGE-38, Taylor Boulevard, Louisville, KY.
58. DMR & Associates, Donna M. Ringo gasket testing 3/27/92, 92-LGE-38, Custom Chrome, Louisville, KY.
59. DMR & Associates, Donna M. Ringo gasket testing 3/27/92, 92-LGE-38, Portland Station, Louisville, KY.
60. DMR & Associates, Donna M. Ringo gasket testing 4/22/92, 92-LGE-50, 92-LGE-53, Mill Creek Station, Louisville, KY.
61. DMR & Associates, Donna M. Ringo gasket testing 4/29/92, 92-LGE-56, Ford Truck Plant, Louisville, KY.
62. DMR & Associates, Donna M. Ringo gasket testing 5/12/92, 92-LGE-61, 11th & Main Streets, Louisville, KY.
63. DMR & Associates, Donna M. Ringo gasket testing 5/15/92, 92-LGE-63, Doe Run Station, Louisville, KY.
64. DMR & Associates, Donna M. Ringo gasket testing 4/24-29/92, 92-LGE-55, Gas Department, Louisville, KY.
65. DMR & Associates, Donna M. Ringo gasket testing 3/11/92, 92-LGE-29, Magnolia Compressor Station, Louisville, KY.
66. DMR & Associates, Donna M. Ringo gasket testing 4/6/92, 92-LGE-041, Penille Road Station, Louisville, KY.
67. DMR & Associates, Donna M. Ringo gasket testing 4/21/92, 92-LGE-48-1, Muldraugh Compressor Station, Louisville, KY.
68. DMR & Associates, Donna M. Ringo gasket testing 4/22/92, 92-LGE-48-3, Muldraugh Emergency Shutdown System, Louisville, KY.

69. DMR & Associates, Donna M. Ringo gasket testing 5/26/92, 92-LGE-66, Muldraugh, Louisville, KY.
70. DMR & Associates, Donna M. Ringo gasket testing 4/24-29/92, 92-LGE-55, Various Regulator and Relief Pits, Louisville, KY.
71. DMR & Associates, Donna M. Ringo gasket testing 6/15/92, 92-LGE-71, Magnolia Station, Louisville, KY.
72. DMR & Associates, Donna M. Ringo gasket testing 4/16/92, 92-LGE-45, Crestwood Area, Louisville, KY.
73. DMR & Associates, Donna M. Ringo gasket testing 4/20/92, 92-LGE-47, Muldraugh, Louisville, KY.
74. DMR & Associates, Donna M. Ringo gasket testing 7/10/92, 92-LGE-73, Magnolia Facility, Louisville, KY.
75. DMR & Associates, Donna M. Ringo gasket testing 7/6-10/92, 92-LGE-72, Muldraugh Compressor Station, Louisville, KY.
76. DMR & Associates, Donna M. Ringo gasket testing 7/21-22/92, 92-LGE-75, Muldraugh Station, Louisville, KY.
77. DMR & Associates, Donna M. Ringo gasket testing 7/27/92, 92-LGE-76, Magnolia Station, Louisville, KY.
78. DMR & Associates, Donna M. Ringo gasket testing 7/28/92, 92-LGE-79-1, 4th and Brandies, Frankfort and Stiltz Regulators, Louisville, KY.
79. DMR & Associates, Donna M. Ringo gasket testing 7/29/92, 92-LGE-79-2, Lexington & Braeview, Wallace and Willmington Regulator Stations, Louisville, KY.
80. DMR & Associates, Donna M. Ringo gasket testing 7/30/92, 92-LGE-79-3, Belmont & Bardstown, Taylorsville Road and Bon Air Regulator Stations, Louisville, KY.
81. DMR & Associates, Donna M. Ringo gasket testing 7/30/92, 92-LGE-81, St. Helen's Station, Louisville, KY.
82. DMR & Associates, Donna M. Ringo gasket testing 7/31/92, 92-LGE-82, Muldraugh Station, Louisville, KY.

83. DMR & Associates, Donna M. Ringo gasket testing 8/3/92, 92-LGE-79-5, 3rd & Collins Court, Eastern Parkway and Burnette, Louisville, KY.
84. DMR & Associates, Donna M. Ringo gasket testing 8/5/92, 92-LGE-83, Trimble County Station, Louisville, KY.
85. DMR & Associates, Donna M. Ringo gasket testing 8/6/92, 92-LGE-84, Magnolia Compressor Station, Louisville, KY.
86. DMR & Associates, Donna M. Ringo gasket testing 8/26/92, 92-LGE-86, Muldraugh Compressor Station, Louisville, KY.
87. DMR & Associates, Donna M. Ringo gasket testing 10/5/92, 92-LGE-92, Muldraugh Station, Louisville, KY.
88. DMR & Associates, Donna M. Ringo gasket testing 10/29-30/92, 92-LGE-97, Mill Creek Station, Louisville, KY.
89. DMR & Associates, Donna M. Ringo gasket testing 3/22, 29/93, 93-LGE-1 6, Palmer Ball, Louisville, KY.
90. DMR & Associates, Donna M. Ringo gasket testing 5/12/93, 93-LGE-23, 834 E. Broadway, 1400 W. Broadway, 1024 E. Jefferson, Louisville, KY.
91. DMR & Associates, Donna M. Ringo gasket testing 11/31/93, 93-LGE-43, Muldraugh Gas Compressor Station, Louisville, KY.
92. DMR & Associates, Donna M. Ringo gasket testing 6/7/94, 94-LGE-37, Muldraugh Station, Louisville, KY.
93. DMR & Associates, Donna M. Ringo gasket testing 8/9/94, 94-LGE-42, Muldraugh Station, Louisville, KY.
94. DMR & Associates, Donna M. Ringo gasket testing 6/2-3/92, 92-LGE-66, Muldraugh Compressor Station, Louisville, KY.
95. DMR & Associates, Donna M. Ringo gasket testing 7/31/92, 92-LGE-79-4, Bardstown & Douglas Boulevard, Browns Lane and Taylorsville Road, Louisville, KY.
96. DMR & Associates, Donna M. Ringo gasket testing 10/5-8/93, Major Locomotive Repair Facility During Gasket Removal.

97. DMR & Associates, Donna M. Ringo gasket testing 5/12/94, 94-LGE-28, Muldraugh Station, Louisville, KY.
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99. Boelter & Yates, Fiber Release Study Test Report, Industrial Fittings, Flat Blade Scraper, 10/9/96.
100. Boelter & Yates, Fiber Release Study Test Report, Industrial Fittings, Wire Brush, 10/28/96.
101. Boelter & Yates, Fiber Release Study Test Report, Industrial Fittings, Making Gaskets with a Ball Peen Hammer, 11/5/96.
102. Boelter & Yates, Fiber Release Study Test Report, Industrial Fittings, Power Wire Brush, 11/11/96.
103. Boelter & Yates, Fiber Release Study Test Report, Industrial Fittings, Valve Packing Removal, 11/19/96.
104. Boelter & Yates, Fiber Release Study Test Report, Maritime Fittings, Flat Blade Scraper, 11/22/96.
105. Boelter & Yates, Fiber Release Study Test Report, Maritime Fittings, Wire Brush, 12/1/96.
106. Boelter & Yates, Fiber Release Study Test Report, Maritime Fittings, Power Wire Brush, 12/12/96.
107. Boelter & Yates, Fiber Release Study Test Report, Maritime Fittings, Making Gaskets with a Ball Peen Hammer, 12/18/96.
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110. A.W. Chesterton Company; Testing of Packing and Gasket Materials, Hygeia, Inc. Project No. 5617. March 9, 1989. By Charles Spooner, Ph.D., CIH.

111. Report of Findings. Exposure Assessment: An Evaluation of the Actual Contribution of Airborne Asbestos Fibers From the Removal and Installation of Gaskets and Packing Material. EPI Project No. 8500. September 3, 1998. John W. Spencer, CIH, CSP.
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118. Report on the Measurement of Fiber Release from Simulated Steam-Stressed Durable Gaskets (120°C, 160°C, 190°C for 5 Days) for Health Hazard Evaluation. A.M. Langer, R.P. Nolan, Environmental Sciences Laboratory, Brooklyn College. November 6, 1992.
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128. Threshold Limit Values for Physical Agents in the Work Environment Adopted by ACGIH with Intended Changes for 1987 - 1988. American Conference of Governmental Industrial Hygienists 1986.
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131. Heating and Cooling for Man in Industry. American Industrial Hygiene Association, 1970.
132. Asbestos Elimination Program. Department of the Navy, Office of the Supervisor of Shipbuilding, Conversion and Repair, USN, August 20, 1979.
133. Environmental Protection Agency; Asbestos Advisory; Joseph Schechter, Technical Assistance Section, Environmental Assistance Division; 3/6/91.
134. National Transportation Safety Board; Butadiene Release and Fire From GATX 55996 at the CSX Terminal Junction Interchange New Orleans, Louisiana, September 8, 1987. NTSB/HZM-88/01
135. An Australian Study to Evaluate Worker Exposure to Chrysotile in the Automotive Service Industry; Paul Yeung, Kim Patience, Linda Apthorpe, Deborah Wilcocks; *Applied Occupational Environmental Hygiene*, Volume 14:448-457, 1999.

136. Affidavit of Laurie Bain (with Exhibits)
137. Affidavit of Bonnie Betty (with Exhibits)
138. Any and all medical records of plaintiff including but not limited to documentary records, x-rays, photographs of pathological materials, and reports of Defendant's expert witnesses.
139. The income tax and work records of plaintiff.
140. The Curricula Vitae of any and all expert witnesses called by other parties.
141. Any and all exhibits listed by other parties or otherwise identified during the course of the proceedings in this case.
142. Product samples, including photographs, valves, flanges, packing and gaskets.
143. The medical and scientific literature regarding asbestos related disease.
144. Holiday Dinner Menu.
145. Lifetime Risk Values for Selected Situations.
146. Some Substances that Could Produce Cancer.
147. Symposium of Health Aspects of Exposure to Asbestos on Buildings, 1988.
148. Mortality for Leading Causes of Death United States - 1989.
149. Causes of Death in the United States Ranked by Estimated Years of Life Lost Before Age 65 1984.
150. Proportions of Cancer Deaths Attributed to Various Different Factors.
151. Potential Occupational Carcinogens Recognized by NIOSH.
152. Severity of Pulmonary Function Abnormalities.
153. Etiology Factors in Causation of Cancer in Men.
154. Mesothelioma vs. Adenocarcinoma.
155. Mortality for Leading Causes of Death United States - 1992.

156. Mangold Gasket Fiber Release Testing, Garlock Gaskets, January 1989; Packing; Ambient Air.
157. General PFT Rules of Thumb.
158. American Cancer Society Cancer Book.
159. The Causes of Cancer.
160. Occupational Lung Diseases.
161. Cancer Statistics Review, 1973-1987.
162. Lung Cancer and Smoking Trends in the United States Over the Past 25 Years.
163. Relationship between Occupations and Asbestos-Fiber Content of the Lungs in Patients with Pleural Mesothelioma, Lung Cancer and Other Diseases.
164. Occupational Lung Disorders.
165. Relationship between Asbestosis and Bronchial Cancer.
166. Is Asbestos or Asbestosis the Cause of the Increased Risk of Lung Cancer in Asbestos Workers.
167. A Threshold for Asbestos Related Lung Cancer.
168. Pathology of Lung Cancer Among Asbestos Insulation Workers.
169. Asbestos-Related Pleural Plaques and Lung Cancer.
170. Asbestos, Asbestosis, and Lung Cancer.
171. Medical Progress - Asbestos-Related Disease.
172. Chrysotile, Tremolite and Malignant Mesothelioma in Man.
173. Asbestos-Related Malignancy and the Cairns Hypotheses.
174. Asbestos-Related Mesothelioma: Evidence for a Threshold in Animals and Humans.
175. The Discovery of the Association Between Blue Asbestos and Mesotheliomas in the Aftermath.

176. Exposure to Asbestos and the Risk of Gastrointestinal Cancer: A Reassessment.
177. Pathology of Asbestos Associated Disease.
178. Lung Asbestos Content in Long Term Residents of a Chrysotile Mining Town.
179. Asbestos Fibers in the General Population.
180. A Study of Asbestosis in the Asbestos Textile Industry.
181. Proposed Criteria and Recommended Interim Standard for Asbestos.
182. Partnership for Prevention. The Insulation Industry Hygiene Research Program.
183. Official Statement of the American Thoracic Society.
184. State of Medical Knowledge in the Early 1960's.
185. ASBESTOS - Effects on Health Exposure to Asbestos.
186. Toxicology of Asbestos.
187. Pulmonary Pathology.
188. Environmental Pathology of the Lung.
189. Lung Cancer Among Asbestos Cement Workers. A Swedish Cohort Study and A Review.
190. Asbestos Exposure and Neoplasia.
191. Occupational Lung Diseases.
192. Worldwide Epidemiological Patterns of Lung Cancer in Non-Smokers.
193. Natural History and Epidemiology of Malignant Mesothelioma.
194. Problems in Dose-Response and Risk Assessment: The Example of Asbestos.
195. Latent Period for Malignant Mesothelioma of Occupational Origin.
196. Progression of Asbestosis.

197. Reducing the Health Consequences of Smoking.
198. Ranking Possible Carcinogens Hazards.
199. Fiber Burden and Asbestos-Related Lung Disease: Determinants of Dose-Response Relationships.
200. Mortality Analysis of Plumbers and Pipefitters.
201. The Causes of Cancer.
202. Cigarette Smoking and Health.
203. Report of the Royal Commission on Matters of Health and Safety Arising From the use of Asbestos in Ontario.
204. Impairment Directly Related to Reduced Lung Function.
205. Analysis of Lung Asbestos Content.
206. Threshold Limit Values.
207. A Study of Asbestosis in the Asbestos Textile Industry.
208. Survey of Some Current British and European Studies of Occupational Tumor Problems.
209. Tobacco.
210. A Memorandum on Asbestosis.
211. Asbestosis and Bronchiogenic Carcinoma.
212. Pathology of Occupational Lung Disease.
213. 1951 American Standard Non-Metallic Gaskets for Pipe Flanges.
214. The Industrial Hygiene Research Program.
215. Asbestos Dust Concentrations in Ship Repairing.
216. 1973: Biological Effects of Asbestos: Proceedings of a Working Conference Held at the International Agency for Research on Cancer.

217. Asbestos and Disease.

EXHIBIT

F

MSDS INDEX

1. MSDS-Date Unknown, Gylon Style 3500 (Fawn) Filled Polytetrafluoroethylene; Prepared by Unknown
2. MSDS 1/9/78-by L.R. Sementilli, Manager Production Lines 3/22/95 Hughes Deposition # 2
3. MSDS 6/2/78-Untreated Fiber Glass Cloth Thermo-Sil Fiber Glass Cloth Non Asbestos; Prepared by H. Hughes
4. MSDS 6/15/78-Style 6224 Tacky Asbestos Cloth; Prepared by Unknown
5. MSDS 7/26/78-Style 733 Braided Asbestos Packing; Prepared by H. Hughes
6. MSDS 7/26/78-Style 7817; Prepared by H. Hughes
7. MSDS 7/26/78-Style 5884 Braided Blue Asbestos Packing; Prepared by H. Hughes
8. MSDS 10/4/78-Style 5862 Braided White Asbestos Packing; Prepared by H. Hughes
9. MSDS 11/14/78-Style 7367 Tadpole Tape; Prepared by H. Hughes
10. MSDS 1/2/79-Style 605 Fabric Sheet; Prepared by H. Hughes
3/22/95 Hughes Deposition Exhibit 6
11. ~~MSDS 2/7/79-Style 127 Braided Asbestos Packing; Prepared by H. Hughes~~
12. ~~MSDS 4/9/79-Style 237 Braided Asbestos Packing; Prepared by H. Hughes~~
13. ~~MSDS 4/9/79-Style 629 Tacky Packing Compound; Prepared by H. Hughes~~

14. MSDS 5/22/79-Style 625 Rubber Impregnated Asbestos Fabric; Prepared by H. Hughes
15. MSDS 5/22/79-Style 5855 Braided Asbestos Packing; Prepared by H. Hughes
16. MSDS 7/27/79-Spiral Wound Gasket; Prepared by Larry G. Marlin 3/22/95 Hughes Deposition Exhibit 7
17. MSDS 8/6/79-Style 7819 Compressed Asbestos Sheet; Prepared by H. Hughes 3/22/95 Hughes Deposition Exhibit 3
18. MSDS 9/4/79-Style 5354 Braided Asbestos Packing; Prepared by H. Hughes
19. MSDS 9/10/79-Style 737 Braided Asbestos Packing; Prepared by H. Hughes
20. MSDS 9/11/79-Style 233 Braided Asbestos Packing; Prepared by H. Hughes
21. MSDS 9/11/79-Style 731 Braided Asbestos Packing; Prepared by H. Hughes
22. MSDS 9/11/79-Style 5880 Braided Blue Asbestos Packing; Prepared by H. Hughes
23. MSDS 10/12/79-Style 230 Braided Blue Asbestos Packing; Prepared by H. Hughes
24. MSDS 10/12/79-Style 730 Braided Asbestos Packing; Prepared by H. Hughes
25. MSDS 11/18/79-Style 5875 Braided White Asbestos Packing; Prepared by H. Hughes
26. MSDS 11/28/79-Style 166 Packing Rings; Prepared by H. Hughes

27. MSDS 1/18/80-Style 150 Packing; Prepared by H. Hughes
28. MSDS 1/18/80-Style 5865 Braided Asbestos Packing; Prepared by H. Hughes
29. MSDS 2/14/80-Style 5861 Braided White Asbestos Packing; Prepared by H. Hughes
30. MSDS 2/14/80-Style 5876 Braided White Asbestos Packing; Prepared by H. Hughes
31. MSDS 3/10/80-Style 234 Braided Asbestos Packing; Prepared by H. Hughes
32. MSDS 3/17/80-Style 536 Chevron C, T & B Rings; Prepared by H. Hughes
33. MSDS 5/20/80-Style 926 Shredded Foil Plastallic Packing; Prepared by H. Hughes
34. MSDS 6/12/80-Dust Suppressed Asbestos Cloth Treated Commercial Grade Asbestos Cloth; Prepared by H. Hughes
35. MSDS 10/20/80-Style 8240 Gaskets Elastomer Impregnated Asbestos Fabric; Prepared by H. Hughes
36. MSDS 1/22/81-Style 144 Asbestos Fabric and Rubber Packing; Prepared by H. Hughes
37. MSDS 2/13/81-Style 7021; Prepared by H. Hughes
3/22/95 Hughes Deposition #5
38. MSDS 4/8/81-Style 5022 Braided White Asbestos Packing; Prepared by H. Hughes
39. MSDS 7/28/81-Style 176 Braided Asbestos Packing; Prepared by H. Hughes
40. MSDS 9/16/81-Style 7355 Bonded Asbestos Plastallic Packing; Prepared by H. Hughes

41. MSDS 2/1/82-Style 7705 Compressed Asbestos Sheet; Prepared by H. Hughes
42. MSDS 2/2/82-Style 900/7735 Compressed Asbestos Sheet; Prepared by H. Hughes
43. MSDS 2/2/82-Style 1000 Compressed Asbestos Sheet; Prepared by H. Hughes
44. MSDS 2/2/82-Style 7005 Sheet; Prepared by H. Hughes
45. MSDS 2/2/82-Style 7006 Compressed Asbestos Sheet; Prepared by H. Hughes
46. MSDS 2/2/82-Style 7021; Prepared by H. Hughes
47. MSDS 2/2/82-Style 7228 Compressed Asbestos Sheet; Prepared by H. Hughes
48. MSDS 2/2/82-Style 7405 Compressed Asbestos Sheet; Prepared by H. Hughes
49. MSDS 2/2/82-Style 7735 S-1 Compressed Asbestos Sheet; Prepared by H. Hughes
50. MSDS 2/2/82-Style 7819 Compressed Asbestos Sheet; Prepared by H. Hughes
51. MSDS 2/2/82-Style 8748 Compressed Asbestos Sheet; Prepared by H. Hughes
52. MSDS 2/2/82-Style 9057 Compressed Asbestos Sheet; Prepared by H. Hughes
53. MSDS 9/27/82-Style 5525 Braided White Asbestos Packing; Prepared by H. Hughes
54. MSDS 10/1/82-Style 9533 Compressed Asbestos Packing; Prepared by H. Hughes

69. MSDS 11/22/85-Styles 902, 903, 903 S & 904 Compressed Asbestos Sheet; Prepared by H. Hughes
70. MSDS 2/28/86-Style 734 Braided Asbestos Packing; Prepared by H. Hughes
71. MSDS 5/5/86-Style 7730 Asbestos Fabric Packing; Prepared by H. Hughes
72. MSDS 10/6/86-Styles 900, 900 T, 7005, 7006, 7735, 7735 S-1 & 9532 Compressed Asbestos Sheet; Prepared by H. Hughes
3/22/95 Hughes Deposition Exhibit 1
73. MSDS 10/6/86-Styles 7021, 7021 T, 7405, 7819 & 9533 Compressed Asbestos Sheet; Prepared by H. Hughes
74. MSDS 10/6/86-Styles 902, 903 & 903 S Compressed Asbestos Sheet; Prepared by H. Hughes
75. MSDS 10/6/86-Styles 7228, 9053 & 9057 Compressed Asbestos Sheet; Prepared by H. Hughes
76. MSDS 10/6/86-Styles 8746 & 8748 Compressed Asbestos Sheet; Prepared by H. Hughes
77. MSDS 4/13/87-Styles 900, 900 T, 7005, 7006, 7735, 7735 S-1 & 9532 Compressed Asbestos Sheet; Prepared by H. Hughes
78. MSDS 4/13/87-Styles 902, 903 & 903 S Compressed Asbestos Sheet; Prepared by H. Hughes
79. MSDS 4/13/87-Styles 7021, 7021 T, 7405, 7819 & 9533 Compressed Asbestos Sheet; Prepared by H. Hughes
80. MSDS 4/13/87-Styles 7228, 9053 & 9057 Compressed Asbestos Sheet; Prepared by H. Hughes
81. MSDS 4/13/87-Styles 8746 & 8748 Compressed Asbestos Sheet; Prepared by H. Hughes

55. MSDS 1/7/83-Style 900 T Compressed Asbestos Packing; Prepared by H. Hughes
56. MSDS 1/17/83-Style 7021 T Compressed Asbestos Packing; Prepared by H. Hughes
57. MSDS 5/4/83-Style 9532 Compressed Asbestos Packing; Prepared by H. Hughes
58. MSDS 6/16/83-Style 7020 Molded Packing Ring; Prepared by H. Hughes
59. MSDS 8/22/83-Style 266 Braided Asbestos Packing; Prepared by H. Hughes
60. MSDS 9/7/83-Style 736 Braided Blue Asbestos Packing; Prepared by H. Hughes
61. MSDS 4/27/84-Style 644 Braided Asbestos Packing; Prepared by H. Hughes
62. MSDS 5/16/84-Style 256 Braided Packing; Prepared by H. Hughes
63. MSDS 5/16/84-Style 1700 Braided Asbestos Packing; Prepared by H. Hughes
64. MSDS 5/17/84-Style 531 Chevron Rings; Prepared by H. Hughes
65. MSDS 7/5/84-Style 9053 Compressed Asbestos Sheet; Prepared by H. Hughes
66. MSDS 8/22/84-Style 631 Twisted Lead Foil With Asbestos; Prepared by H. Hughes
67. MSDS 2/6/85-Style 162 Braided Packing; Prepared by H. Hughes
68. MSDS 6/14/85-Style 7953 Asbestos and Neoprene Compound Packing; Prepared by H. Hughes

82. MSDS 6/18/87-Style 1000 Compressed Asbestos Sheet; Prepared by H. Hughes
83. MSDS 4/3/90-Styles 604, 605 & 612; Prepared by H. Hughes

MSDS - Date Unknown; Filled
Polytetrafluoroethylene, Gylon
Style 3500 (Fam)
Prepared by Unknown

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315)-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS Filled Polytetrafluoroethylene		TRADE NAME AND SYNONYMS GYLON Style 3500 (Fawn)
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Product consists of polytetrafluoroethylene resin with a silica filler and an inorganic color. The product is not considered hazardous under normal conditions of use.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	2.19
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Fawn (tan) colored sheet. No odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	None	FLAMMABLE LIMITS	Li	U
Nonflammable				
EXTINGUISHING MEDIA: Fires in areas where GYLON is stored may be fought with water, carbon dioxide, foam or dry chemical.				
FIGHTING PROCEDURES: GYLON will not burn without an external source of fuel. In fighting fires where quantities of GYLON are stored, self contained breathing apparatus should be used to protect against hydrogen fluoride fumes and smoke.				
UNUSUAL FIRE AND EXPLOSION HAZARDS: GYLON may burn in an atmosphere of 100% oxygen when an ignition source is present.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	
None	
EFFECTS OF OVEREXPOSURE	
None under normal conditions of use. Exposure to thermal decomposition products may cause polymer fume fever with flu-like symptoms. This is a temporary condition.	
EMERGENCY AND FIRST AID PROCEDURES	
Not necessary under normal conditions of use. For over-exposure to thermal decomposition products: Move to fresh air. Contact physician for treatment.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Avoid high temperatures without adequate ventilation.
INCOMPATIBILITY (Materials to avoid) None for storage. In actual service, GYLON should not be used against molten alkali metals, fluorine, hydrofluoric acid.			
HAZARDOUS DECOMPOSITION PRODUCTS Certain other fluorine bearing compounds. Hydrogen fluoride gas, carbonyl fluoride, perfluorocarbon olefins are evolved at high temperature.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR.	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No special action.	
WASTE DISPOSAL METHOD	
Normal landfill; waste may be placed in plastic bag if desired. Comply with any local disposal regulations.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) NO special requirements when handling or using GYLON in the normal manner.			
VENTILATION	LOCAL EXHAUST	NO special requirements	SPECIAL
	MECHANICAL (General)	NO special requirements under normal conditions of use.	None
PROTECTIVE GLOVES	Not required.		OTHER
			None
OTHER PROTECTIVE EQUIPMENT		EYE PROTECTION AS generally good practice, safety glasses may be worn.	
Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean, dry place away from highly flammable materials.	
OTHER PRECAUTIONS	
Personnel should avoid contaminating cigarettes or tobacco with dust or particles of GYLON.	

MSDS 1/9/78
by L.R. Sementilli
Manager Production Lines

Hughes Deposition
2
3/22/95

EXHIBIT

PLAINTIFFS 2

PLAINTIFF'S
EXHIBIT

5611.0

January 9, 1978

Web Seal Inc.
15 Oregon Street
Rochester, New York 14605

Attention: Mr. Jerry Crowley
Re: Material Safety Data Sheet
(Rochester Products Division, G.M.C.)

Dear Jerry:

In regard to your letter of 10/4/77 requesting completion of Material Safety Data Sheets for Garlock Style 604, our Legal Department has advised that the law does not require us to furnish these for this type of product and it is currently our policy not to do so.

Additionally, with regard to the Toxic Substances Control Act, our technical people report as follows:

"As you may already be aware, the EPA published inventory reporting regulations in the Federal Register of December 23, 1977. It is now anticipated that the inventory will not be published until late in 1978.

Under the new regulations, items you purchase from us would be classified as either "articles" or "mixtures", depending on the particular item, and as such they would not have to be reported for the inventory.

All chemical substances used as components of our products must, of course, appear on the inventory. This is primarily a responsibility of our suppliers. Under the new regulations, processors and users, like ourselves, are allowed a 210 day period following publication of the inventory to report any chemical substances they use that did not get on the inventory. We will review the inventory and take whatever action is necessary to insure that all the chemical substances used in our products are reported."

Should you require further information, please advise.

Sincerely,
GARLOCK INC.

L.R. Sementilli, Manager Product Line 24

LRS/dm

MSDS 6/2/78
Untreated Fiber Glass Cloth
Thermo-Sil Fiber Glass Cloth
Non Asbestos
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock, Inc.		EMERGENCY TELEPHONE NO. (315)-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS Untreated Fiber Glass Cloth		TRADE NAME AND SYNONYMS Thermo-Sil Fiber Glass Cloth
CHEMICAL FAMILY N/A	FORMULA N/A	(Untreated)

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains fiber glass yarn plus a small percentage (typically				2.5-3.5%	
of organic binder added during yarn production. The compo-					
nents of Thermo-Sil are not believed to be hazardous.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	Approx. 2.54
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	White woven fabric, slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) None	FLAMMABLE LIMITS N/A	LCI	ULI
EXTINGUISHING MEDIA N/A			
SPECIAL FIRE FIGHTING PROCEDURES None			
UNUSUAL FIRE AND EXPLOSION HAZARDS None			

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SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE For glass fiber: $10^{mg}/M^3$ of air for fiber diameters less than 7 microns.	
EFFECTS OF OVEREXPOSURE Temporary mechanical irritation of the skin of certain individuals who may have a sensitivity to the fiber.	
EMERGENCY AND FIRST AID PROCEDURES In cases of irritation of the skin, wash with mild soap and room temperature to cool water. If fibers should get into the eyes, irrigate with clear water.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will burn off the organic binder.
INCOMPATIBILITY (Materials to avoid) None known.			
HAZARDOUS DECOMPOSITION PRODUCTS In a fire the small quantity of organic binder on the fiber will decompose resulting in small quantities of unknown products believed insufficient to be hazardous.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.	
WASTE DISPOSAL METHOD Normal landfill; waste may be placed in plastic bag if desired.	

SECTION VIII - SPECIAL PROTECTION INFORMATION		
RESPIRATORY PROTECTION (Specify type) No special requirements. Mouth and nose mask may be worn when cutting large quantities.		
VENTILATION	LOCAL EXHAUST No special requirement	SPECIAL None
	MECHANICAL (General) No special requirement	OTHER None
PROTECTIVE GLOVES Not required unless individual has a sensitivity to the fiber.		EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT Not required		

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Any persons exhibiting sensitivity to the fibers should avoid excessive contact with skin. All persons should wash normally after handling.	
OTHER PRECAUTIONS None.	

MSDS 6/15/78

Tacky Asbestos Cloth

Style 6224

Prepared by Unknown

N/A - Not Applicable. U.S. Department of Labor
Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

Rec'd 6/15/79
AT PROD LIAISON
COM MTR

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME

Garlock Inc.

EMERGENCY TELEPHONE NO.

(315)-597-4811

ADDRESS (Number, Street, City, State, and ZIP Code)

1666 Division Street, Palmyra, New York 14522

CHEMICAL NAME AND SYNONYMS

N/A

TRADE NAME AND SYNONYMS Style 6224

Tacky Asbestos Cloth

CHEMICAL FAMILY

N/A

FORMULA

N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains about 42% Chrysotile (White) Asbestos.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (____ = 1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR White elastomer compound on fabric-slight characteristic odor			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Let	Uet
EXTINGUISHING MEDIA Water, Carbon Dioxide, Dry Chemical					
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces considerable smoke and fumes when large quantities are involved in a fire.					

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	
EFFECTS OF OVEREXPOSURE	N/A to the cloth. N/A to the cloth.
EMERGENCY AND FIRST AID PROCEDURES	None.

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound and organic portion of yarn in fabric.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Unknown.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	Normal landfill; waste may be placed in plastic bag, if desired.

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirements. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None.
	MECHANICAL (General)	No special requirement.	OTHER None
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place away from strong oxidizing agents.
OTHER PRECAUTIONS	Asbestos is bonded by elastomer compound, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001).

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied is made.

Form OSHA-20

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 733 Braided Asbestos Packing	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Chrysotile (white) asbestos is present to the extent of about 46.5% in 1/2" Style 733. The asbestos yarn is thoroughly impregnated with a petroleum base lubricant which inhibits generation of free asbestos fiber or dust. Asbestos content will vary somewhat in other sizes.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Regular Style 733 is black and has a slight characteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	Flash Point of Petroleum Binder is about 592°F.	FLAMMABLE LIMITS	Lel	Uel
		Unknown		
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self-contained breathing apparatus would be desirable due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.

EFFECTS OF OVEREXPOSURE N/A to the braid.

EMERGENCY AND FIRST AID PROCEDURES

N/A to the braid.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances.			
There may be others which are unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	
Normal landfill; waste may be placed in plastic bag to reduce generation of asbestos fiber to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.		
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
No special requirement		None
No special requirement		None
PROTECTIVE GLOVES	Not required	EYE PROTECTION AS generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT		
Not required. Normal wash up after handling is suggested.		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place, away from strong oxidizing agents.
OTHER PRECAUTIONS	
Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph	

1910.1001).

SPD 934-100

Form OSHA-20

Rev. May 72

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H.R. Hughes
Harold R. Hughes
Senior Chemist

7/26/78

MSDS 7/26/78
Style 7817
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315)-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 7817
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains about 53.7% Chrysotile (White) Asbestos. The asbestos fabric is impregnated with an elastomer compound which inhibits the generation of free asbestos fiber or dust.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	White elastomer compound on fabric - slight characteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA	Water, Carbon Dioxide, Dry Chemical				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke and fumes when large quantities are involved in a fire.				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the product. For free asbestos fiber: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the product.

EMERGENCY AND FIRST AID PROCEDURES None

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound and organic portion of yarn in fabric.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Unknown.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; waste may be placed in plastic bag, if desired.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirements. Mouth and nose mask may be worn when cutting large quantities.

VENTILATION	LOCAL EXHAUST	NO special requirement.	SPECIAL None
	MECHANICAL (General)	NO special requirement.	OTHER None

PROTECTIVE GLOVES Not required. EYE PROTECTION As generally good practice safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT Not required.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place away from strong oxidizing agents.

OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001-10).

Form OSHA-20
Rev. May 72

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied is made.

Prepared by H. R. Hughes
H. R. Hughes
Senior Chemist

7/26/78

MSDS 7/26/78
Style 5884
Braided Blue Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 5884 Braided Blue Asbestos Packing
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Crocidolite (Blue) Asbestos is present to the extent of about 48% in 1/2" Style 5884. The asbestos yarn is impregnated with polytetrafluoroethylene and a petroleum base lubricant which inhibits generation of free asbestos fiber or dust. Asbestos content will vary somewhat in other sizes.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Product is blue with white areas.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.					
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke and hydrogen fluoride fumes produced.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces smoke and decomposition of the polytetrafluoroethylene produces hydrogen fluoride fumes.					

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the braid.

EMERGENCY AND FIRST AID PROCEDURES

N/A to the braid.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite lubricant.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen fluoride fumes, carbonyl fluoride and perfluorocarbon olefins are evolved at high temperatures. There may be			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID others unknown to us.
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
No special action.

WASTE DISPOSAL METHOD
Normal landfill; waste may be placed in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirements	SPECIAL None
	MECHANICAL (General)	No special requirements	OTHER None
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT NOT required. Normal wash up after handling is suggested.			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Store in clean dry place away from strong oxidizing agents.

OTHER PRECAUTIONS
Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA regulations (29CFR, Paragraph 1910.1001).

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SPO 934-110

Form OSHA-20

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H R Hughes
Harold R. Hughes
Senior Chemist

7/26/78

MSDS 10/4/78
Style 5862
Braided White Asbestos Packing
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

OMB No. 44-11387

MATERIAL SAFETY DATA SHEETRequired under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 5862 Braided White Asbestos Packing	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES% TLV
(Units)

Chrysotile (White) asbestos is present to the extent of about 46% in 1/2" Style 5862. The asbestos yarn is impregnated with polytetrafluoroethylene and a petroleum base lubricant which inhibits the generation of free asbestos fiber or dust. Asbestos content will vary somewhat in other sizes.

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		

APPEARANCE AND ODOR Pale grey to white Braided Packing.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.					
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke and hydrogen fluoride fumes produced.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces smoke and decomposition of the polytetrafluoroethylene produces hydrogen fluoride fumes.					

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	None under normal conditions of use. Overexposure to thermal decomposition products of polytetrafluoroethylene may cause flu-like symptoms. This is a temporary condition.
EMERGENCY AND FIRST AID PROCEDURES	Not necessary under normal conditions of use. For overexposure to thermal decomposition products of polytetrafluoroethylene, move to fresh air. Contact physician for treatment.

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite lubricant.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen fluoride fumes, carbonyl fluoride and perfluorocarbon olefins are evolved at high temperatures. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	
Normal landfill; waste may be placed in plastic bag to reduce generation of asbestos fiber to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirements.	SPECIAL None.
	MECHANICAL (General)	No special requirements.	OTHER None
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT Not required. Normal wash up after handling is suggested.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean dry place away from strong oxidizing agents.
OTHER PRECAUTIONS	Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA regulations (29CFR, Paragraph 1910.1001).

PAGE (2)

GPO 934-110

Form OSHA-20

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: HR Hughes
H. R. Hughes, Senior Chemist

10/4/78

MSDS 11/14/78
Style 7367
Tadpole Tape
Prepared by H. Hughes

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

N/A = Not Applicable

FORM REEVALUATED
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I	
MANUFACTURER'S NAME Garlock Inc.	EMERGENCY TELEPHONE NO. (315)-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522	
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 7367 Tadpole Tape
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains about 70% Chrysotile (White) Asbestos. The asbestos fabric is impregnated with an elastomer compound which inhibits the generation of free asbestos fiber or dust. The asbestos rope in the bulb portion is not impregnated.					

SECTION III - PHYSICAL DATA			
BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT. VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR Tadpole shape. White elastomer compound on fabric - slight characteristic odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA							
FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Lel</td> <td style="width: 50%;">Uel</td> </tr> <tr> <td>N/A</td> <td>N/A</td> </tr> </table>	Lel	Uel	N/A	N/A
Lel	Uel						
N/A	N/A						
EXTINGUISHING MEDIA Water, Carbon Dioxide, Dry Chemical, Foam.							
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.							
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces considerable smoke and fumes when large quantities are involved in a fire.							

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the product. For free asbestos fiber: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.

EFFECTS OF OVEREXPOSURE N/A to the product.

EMERGENCY AND FIRST AID PROCEDURES None

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound and organic portion of yarn in fabric and of the rope.

INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain conditions. There may be others unknown to us.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fibers to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) NO special requirements. wear mouth and nose mask when cutting large quantities.

VENTILATION	LOCAL EXHAUST	NO special requirement.	SPECIAL None.
	MECHANICAL (General)	NO special requirement.	OTHER None.

PROTECTIVE GLOVES Not required.

EYE PROTECTION AS generally good practice, safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT Not required.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place away from strong oxidizing agents.

OTHER PRECAUTIONS Most of the asbestos is bonded by elastomer compound, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph, 1910.1001).

PAGE (2)

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

Form OSHA-20
11/14/78

MSDS 1/2/79
Style 605
Fabric Sheet
Prepared by H. Hughes

Hughes Deposition
Exhibit 6
3/22/95

Colt Industries

Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522
315/597-4811

November 3, 1982

Kimberly-Clark Corporation
Neenah, Wisc. 54956

Attn: Lynne V. Paba
Technical Information & Special Services
K-C West Library

Ref: Your letter dated Oct. 22, 1982

Material Safety Data Sheet - Garlock Style 605

Dear Ms. Paba:

Attached is a current Material Safety Data Sheet for Garlock Style 605. It is the same as the one you have, but I felt another copy wouldn't hurt.

In regard to the hazzard ratings requested, our Material Engineer has stated the following:

Health - 2
Flammability - 1
Reactivity - 0

In reference to the other two (2) Garlock items on your list, they have been forwarded to our Compression Packing Division, 300 Alling Drive, Sodus, NY 14551, phone: 315/483-6961.

If you have any questions, or if I can be of any further help, please call.

Sincerely,

GARLOCK



Kathy Cooley
OEM Sales/Gasketing Products

Atts.

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315)-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 605	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Contains about 40-45% Chrysotile (White) Asbestos. The asbestos fabric is impregnated with an elastomer compound which inhibits the generation of free asbestos fiber or dust.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	White elastomer compound on fabric - Slight characteristic odor. Also available with surface graphite.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LM	UM
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE-FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke and fumes when large quantities are involved in a fire.				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the product. For free asbestos fiber, Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the product.

EMERGENCY AND FIRST AID PROCEDURES

None

SECTION VI - REACTIVITY DATA

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

X

Direct flame will ignite elastomer compound and organic portion of yarn in fabric.

INCOMPATIBILITY (Materials to avoid)

Avoid storage with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide under certain circumstances. There may be others unknown

HAZARDOUS
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

to us.

WILL NOT OCCUR

X

None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

No special action.

WASTE DISPOSAL METHOD

Normal landfill; place waste in plastic bag to reduce generation of asbestos fibers to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) NO special requirements. wear mouth and nose mask when cutting large quantities.

VENTILATION

LOCAL EXHAUST

No special requirement.

SPECIAL

None.

MECHANICAL (General)

No special requirement.

OTHER

None.

PROTECTIVE GLOVES

Not required.

EYE PROTECTION AS generally good practice safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT

Not required.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in clean, dry place away

from strong oxidizing agents.

OTHER PRECAUTIONS

Asbestos is bonded by elastomer compound, however, protect against

unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001).

PAGE (2)

Form OSHA-20

Rev. May 72

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by H. R. Hughes
H. R. Hughes, Senior Chemist

1/2/79

Addendum to Section II Form OSHA-20

It is our view that our product No. 605 is exempted from OSHA labeling requirements in accordance with the provisions of (29 C.F.R. §1910.1001(g)(2)(i)). Nonetheless, our product No. 605 carries the OSHA warning label so that our customers may be alerted to the fact that they are purchasing a product containing asbestos.

Addendum to Section VII Form OSHA-20

Waste Disposal Method

Place waste in a plastic bag. Since the asbestos in this product is secured with a binder and is not friable or loose, we do not consider that it presents any disposal hazard under ordinary circumstances. However, the user is responsible for complying with existing local, state and/or federal hazardous waste disposal regulations .

To: H. Hughes - Mat'l. Engineering

From:



Garlock

Gasketing Products

Subject: Kimberly-Clark Corp., Neenah, Wisc. 54956
Material Safety Data Sheet - Garlock Style 605

Date: 11/2/82

Memo: Harold:

Please review the attached. Your help in completing this information that Kimberly-Clark has requested will be most appreciated.

Sincerely,

Kathy Cooley

Atts.

Signed

Inside Sales Correspondent

Reply:

Date: 11/2/82

Attached is current MSDS for 605. It is the same as the one Kimberly-Clark has but another copy won't hurt. As regards the hazard ratings requested, I would say as follows:

Health - 2

Flammability - 1

Reactivity - 0

Signed

G-218-G

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000-000300



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KIMBERLY-CLARK CORPORATION

October 22, 1982

(Lynne V. Paba)
Garlock Inc.
Friends Avenue
Newtown Industrial Commons
Newtown, PA 18940

RECEIVED

OCT 28 1982

PLASTOMER

Gentlemen:

Enclosed please find a list of materials Kimberly-Clark Corporation purchases from you for use in any number of our mills throughout the United States and Canada as well as in our research lab facilities here in Neenah, Wisconsin. We currently maintain a Material Safety Data Sheet for each of the items listed.

As we are in the process of updating and improving our Material Safety Data Sheet program, we would ask that you review the list and send us any revised or updated Material Safety Data Sheets that you have published since the date shown on the list.

You will note that we have included three columns entitled "Health", "Flammability" and "Reactivity", as well as a "Hazard Code" number system. If this number code (usually in the form of a diamond-shaped chart) is not included on your Material Safety Data Sheets, we would appreciate your help in completing this information. This will enable us to enter the data into the computer and provide a print-out to our mills and research locations with the hazard codes immediately available to better ensure the safety of our employees.

Please feel free to contact me if you have any questions regarding our request.

Thank you for your courtesy and cooperation.

Sincerely,

Lynne V. Paba
Lynne V. Paba
Technical Information and
Special Services
K-C West Library

STATISTICAL ANALYSIS SYSTEM

355
13:31 FRIDAY, SEPTEMBER 17, 1982

MANU=GARLOCK

OBS	MANU	NAME	DATE	HEALTH	FLAMMABILITY	REACTIVITY
2306	GARLOCK	GARLOCK LUBRICATING COMPOUND 12	D8101			
2307	GARLOCK	GARLOCK SYTLE 605	D7901			
2308	GARLOCK	SYTLE 234-BRAIDED-ASBESTOS-PACKING	D8003			

Hazard Code

4 - Extreme
3 - High
2 - Moderate
1 - Slight
0 - Insignificant

DATE SAMPLE: If Date Column shows "D8208", this would interpret to August, 1982. Another example would be "D8111" which would interpret to November, 1981, etc.

Colt Industries

Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522
315/597-4811

November 3, 1982

Kimberly-Clark Corporation
Neenah, Wisc. 54956

Attn: Lynne V. Paba
Technical Information & Special Services
K-C West Library

Ref: Your letter dated Oct. 22, 1982

Material Safety Data Sheet - Garlock Style 605

Dear Ms. Paba:

Attached is a current Material Safety Data Sheet for Garlock Style 605. It is the same as the one you have, but I felt another copy wouldn't hurt.

In regard to the hazzard ratings requested, our Material Engineer has stated the following:

Health - 2
Flammability - 1
Reactivity - 0

✓

In reference to the other two (2) Garlock items on your list, they have been forwarded to our Compression Packing Division, 300 Alling Drive, Sodus, NY 14551, phone: 315/483-6961.

If you have any questions, or if I can be of any further help, please call.

Sincerely,

GARLOCK

Kathy Cooley

Kathy Cooley
OEM Sales/Gasketing Products

Atts.



MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315)-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 605
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains about 40-45% Chrysotile (White) Asbestos. The asbestos fabric is impregnated with an elastomer compound which inhibits the generation of free asbestos fiber or dust.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	White elastomer compound on fabric - Slight characteristic odor. Also available with surface graphite.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lim	Lim
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke and fumes when large quantities are involved in a fire.				

Addendum to Section II Form OSHA-20

It is our view that our product No. 605 is exempted from OSHA labeling requirements in accordance with the provisions of (29 C.F.R. §1910.1001(g)(2)(i)). Nonetheless, our product No. 605 carries the OSHA warning label so that our customers may be alerted to the fact that they are purchasing a product containing asbestos.

Addendum to Section VII Form OSHA-20

Waste Disposal Method

Place waste in a plastic bag. Since the asbestos in this product is secured with a binder and is not friable or loose, we do not consider that it presents any disposal hazard under ordinary circumstances. However, the user is responsible for complying with existing local, state and/or federal hazardous waste disposal regulations .

To: H. Hughes - Mat'l. Engineering	From: Gasketing Products
Subject: Kimberly-Clark Corp., Norwalk, Conn. 06855 Material Safety Data Sheet - Gasket, Style 605	
Date: 11/2/69	
Memo: Harold:	
Please review the attached. Your help in completing this information that Kimberly-Clark has requested will be most appreciated.	
Sincerely, <i>Kathy</i>	
Kathy Cooley	
Atts.	Signed Inside Sales Correspondent
Reply:	
Attached is current MSDS for 605. It is the same as the one Kimberly-Clark has but another copy won't hurt. As regards the hazard ratings requested, I would say as follows:	
Health - 2	
Flammability - 1	
Reactivity - 0	
Signed <i>HRC/Hughes</i>	

0-216-0

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000-000000279



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KIMBERLY-CLARK CORPORATION

October 22, 1982

(Lynne V. Paba)
Garlock Inc.
Friends Avenue
Newtown Industrial Commons
Newtown, PA 18940

RECEIVED

OCT 28 1982

PLASTOMER

Gentlemen:

Enclosed please find a list of materials Kimberly-Clark Corporation purchases from you for use in any number of our mills throughout the United States and Canada as well as in our research lab facilities here in Neenah, Wisconsin. We currently maintain a Material Safety Data Sheet for each of the items listed.

As we are in the process of updating and improving our Material Safety Data Sheet program, we would ask that you review the list and send us any revised or updated Material Safety Data Sheets that you have published since the date shown on the list.

You will note that we have included three columns entitled "Health", "Flammability" and "Reactivity", as well as a "Hazard Code" number system. If this number code (usually in the form of a diamond-shaped chart) is not included on your Material Safety Data Sheets, we would appreciate your help in completing this information. This will enable us to enter the data into the computer and provide a print-out to our mills and research locations with the hazard codes immediately available to better ensure the safety of our employees.

Please feel free to contact me if you have any questions regarding our request.

Thank you for your courtesy and cooperation.

Sincerely,

Lynne V. Paba
Technical Information and
Special Services
K-C West Library

STATISTICAL ANALYSIS SYSTEM

1331 FRIDAY, SEPTEMBER 17, 1982

MANU=GARLOCK

OBS	MANU	NAME	DATE	HEALTH	FLAMMABILITY	REACTIVITY
2106	GARLOCK	GARLOCK-LUBRICATING COMPOUND #2	D8101			
2107	GARLOCK	GARLOCK SYTLE 605	D7901			
2108	GARLOCK	SIXE-314-BRAIDED-ARRESTOR-PACKING	D8003			

Health Code
 4 - Extreme
 3 - High
 2 - Moderate
 1 - Slight
 0 - Indefinite

DATE SAMPLE: If Date Column shows "D8208", this would interpret to August, 1982. Another example would be "D8111" which would interpret to November, 1981, etc.

MSDS 2/26/79
Style 127
Braided Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive, Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 127 Braided Asbestos Packing
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Chrysotile (white) asbestos is present to the extent of about					
50-55% in 1/4" Style 127. This product also contains zinc dust					
and graphite. Amounts of asbestos, zinc and graphite will vary					
with different sizes.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR Grey-Black braided packing - slight odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Let	Uel
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.					
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self-contained breathing apparatus would be desirable.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces some smoke when large quantities are burned.					

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the braid. For graphite: 15 mppcf of air.

EMERGENCY AND FIRST AID PROCEDURES N/A to the braid.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite the binder and organic portion of the yarn.

INCOMPATIBILITY (Materials to avoid)

Avoid storage or contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS Some carbon monoxide under certain circumstances. There may be others which are unknown to us.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD

Normal landfill; waste may be placed in a plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
	No special requirement.	None.
	No special requirement.	None.

PROTECTIVE GLOVES Not required. EYE PROTECTION As generally good practice, safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT Not required. Normal wash up after handling is suggested.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place, away from strong oxidizing agents.

OTHER PRECAUTIONS Product has a small quantity of binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001).

PAGE (2)

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Form OSHA-20
Rev. May 72

Prepared by: HR Hughes
Harold R. Hughes, Senior Chemist

2/26/79

MSDS 4/9/79
Style 237
Braided Asbestos Packing
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315) 483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive, Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 237 Braided Asbestos Packing
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Chrysotile (White) Asbestos is present to the extent of about 44% in 1/2" Style 237. The product also contains some graphite. The asbestos yarn is well impregnated with a lubricant which inhibits generation of free asbestos fiber or dust. Asbestos content will vary somewhat in other sizes.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%) (2)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER 1/2" size, about 36% (1)			
APPEARANCE AND ODOR Style 237 is black and has a characteristic odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) of lowest flash component of lubricant is about 320°F.	FLAMMABLE LIMITS Unknown	Lel	Uel
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.			

PAGE (1)

(Continued on reverse side)

Form OSHA-20
Rev. May 72

(1) Lubricant is water soluble.

(2) At sufficiently high temperature, organic portion of yarn and lubricant will be lost.

Produced Asbestos Packing
Prepared by H. Hughes

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
 EFFECTS OF OVEREXPOSURE N/A to the braid. For graphite: 15 mppcf of air.

EMERGENCY AND FIRST AID PROCEDURES N/A to the braid.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	<u>Direct flame will ignite the binder and organic portion of yarn.</u>
INCOMPATIBILITY (Materials to avoid) <u>Avoid storage with strong oxidizing agents.</u>			
HAZARDOUS DECOMPOSITION PRODUCTS <u>Carbon monoxide under certain circumstances. There may be others unknown to us.</u>			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	<u>None.</u>

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD
Normal landfill; waste may be placed in plastic bag to reduce generation of free asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) <u>NO special requirement. Mouth and nose mask may be worn when cutting or handling large quantities.</u>		
VENTILATION	LOCAL EXHAUST	SPECIAL <u>None.</u>
	MECHANICAL (General)	OTHER <u>None.</u>
PROTECTIVE GLOVES <u>Not required.</u>		EYE PROTECTION <u>AS generally good practice, safety glasses may be worn.</u>
OTHER PROTECTIVE EQUIPMENT <u>Not required. Normal wash up after handling is suggested.</u>		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place, away from strong oxidizing agents.

OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001).

PAGE (2)
 NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: Harold R. Hughes
Harold R. Hughes, Senior Chemist

4/9/79

MSDS 4/9/79
Style 929
Loose Packing Compound
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive, Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 929 Loose Packing Compound	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Chrysotile (White) Asbestos is present to the extent of about					
53% in Style 929. The product also contains some graphite.					
There is some high temperature lubricant present which in-					
hibits the generation of free asbestos fiber or dust.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Grey-black colored packing, slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Of lubricant	above 575°F.	FLAMMABLE LIMITS	Lower	Upper
		Unknown		
EXTINGUISHING MEDIA Foam, carbon dioxide, dry chemical				
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self-contained breathing apparatus should be used due to smoke and hydrogen fluoride fumes produced				
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces some smoke and hydrogen fluoride fumes.				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air. For graphite: 15 mppcf of air.

EFFECTS OF OVEREXPOSURE

None under normal conditions of use. Overexposure to thermal decomposition products may cause flu-like symptoms. This is a temporary condition.

EMERGENCY AND FIRST AID PROCEDURES

Not necessary under normal conditions of use.

For overexposure to thermal decomposition products, move to fresh air. Contact a physician for treatment.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Avoid direct flame.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen fluoride fumes, carbonyl fluoride, perfluorocarbon olefins and silicon tetrafluoride may be evolved at high temperatures. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Mouth and nose mask should be worn when handling large quantities or when working with the product for prolonged periods.		
VENTILATION	LOCAL EXHAUST	NO special requirement.
	MECHANICAL (General)	NO special requirement.
	SPECIAL	None.
	OTHER	None.
PROTECTIVE GLOVES Not required.		EYE PROTECTION AS generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT Not required. Normal wash up after handling is suggested.		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place, away from strong oxidizing agents.

OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when handling. See OSHA Regulations (29CFR, Paragraph 1910.1001)

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GPO 934-170

Form OSHA-20
Rev. May 72

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is given.

Prepared by: H.R. Hughes
Harold R. Hughes, Senior Chemist

4/9/79

MSDS 5/22/79
Style 625
Rubber Impregnated Asbestos
Fabric
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc.	EMERGENCY TELEPHONE NO. (315)-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522	
CHEMICAL NAME AND SYNONYMS Rubber Impregnated Asbestos Fabric	TRADE NAME AND SYNONYMS Style 625
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains about 40-45% Chrysotile (White) Asbestos. The asbestos fabric is impregnated with an elastomer compound which inhibits the generation of free asbestos fiber or dust.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR Elastomer compound on fabric - black on one side and red on the other - slight characteristic odor			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke and fumes when large quantities are involved in a fire.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the product. For free asbestos fiber: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air

EFFECTS OF OVEREXPOSURE

N/A to the product.

EMERGENCY AND FIRST AID PROCEDURES None.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound and organic portion of yarn in fabric.

INCOMPATIBILITY (Materials to avoid)

Avoid storage with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide under certain circumstances. There may be others unknown

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None to us.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

No special action.

WASTE DISPOSAL METHOD

Normal landfill: place waste in plastic bag to reduce generation of asbestos fibers to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirements. Wear mouth and nose mask when cutting large quantities.

VENTILATION	LOCAL EXHAUST	SPECIAL	None.
	MECHANICAL (General)	OTHER	None.

PROTECTIVE GLOVES Not required. EYE PROTECTION AS generally good practice safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT Not required.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in clean, dry place away from strong oxidizing agents.

OTHER PRECAUTIONS

Asbestos is bonded by elastomer compound, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001).

PAGE (2)

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made

Prepared by:

H. R. Hughes Senior Chemist

Form OSHA-20
Rev. May 72

5/22/79

MSDS 5/22/79
Style 5855
Braided Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division	EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive, Sodus, New York 14551	
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 5855 Braided Asbestos Packing (with core)
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Contains about 40% Chrysotile (White) Asbestos Fiber and about 30% graphite. Core contains some neoprene elastomer. The elastomer does not present a hazard in itself, but some chlorine bearing combustion products will be generated on burning. Binders in Style 5855 inhibit the generation of free asbestos fiber or dust.

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		

APPEARANCE AND ODOR Style 5855 is black and has a slight characteristic odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves substantial quantities self-contained breathing apparatus should be used due to smoke produced; presence of hydrogen chloride and possibly other chlorine bearing combustion products.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Considerable smoke and fumes generated on burning. Some hydrogen chloride and possibly other chlorine bearing combustion products will be generated also.				

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(Continued on reverse side)

Form OSHA-20
Rev. May 72

Prepared by H. Hughes

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air. For graphite: 15 mppcf of air.
EFFECTS OF OVEREXPOSURE	N/A to the braid.
EMERGENCY AND FIRST AID PROCEDURES N/A to the braid.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binders and organic portion of yarn.
INCOMPATABILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen chloride fumes, carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD Normal landfill. Place waste in plastic bag to reduce generation of asbestos fibers to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None.
	MECHANICAL (General)	No special requirement.	OTHER None.
PROTECTIVE GLOVES	Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT Not required. Normal wash up after handling is suggested.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place, away from strong oxidizing agents.
OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001).	

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GPO 934-100

Form OSHA-20
Rev. May 72

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H R Hughes
Harold R. Hughes, Senior Chemist

5/22/79

MSDS 7/27/79
Spiral Wound Gasket
Prepared by Larry G. Marlin

Hughes Deposition
Exhibit 7
3/22/95

U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration	Form Approved OSHA 201-101-1017
MATERIAL SAFETY DATA SHEET	
Required under OSHA Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)	

SECTION I	
MANUFACTURER'S NAME Carlock Precision Seal	EMERGENCY TELEPHONE NO. 704-864-8351
ADDRESS: Number, Street, City, State, and ZIP Code 4307 South York Road, Gastonia, NC 28052	
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Spiral Wound Gaskets
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS						
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)	
PIGMENTS		N/A	BASE METAL		N/A	
CATALYST		N/A	ALLOYS		N/A	
VEHICLE		N/A	METALLIC COATINGS		N/A	
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A	
ADDITIVES		N/A	OTHERS		N/A	
OTHERS		N/A				
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES					%	TLV (Units)
Spiral Wound Gaskets use latex bonded white asbestos paper as a filler material. The paper is composed of 90% white Canadian or Chrysolite asbestos bound by an elastomer binder and water proofed with paraffin which inhibits generation of free asbestos fiber or dust.						

SECTION III - PHYSICAL DATA			
BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT. VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR: coarse, white colored paper; no odor			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Methods used)	N/A	FLAMMABLE LIMITS	N/A
EXTINGUISHING MEDIA: water, foam, carbon dioxide, dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES: None; when fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS: None; produces smoke when large quantities are burned.			

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(Continued on reverse side)

Form OSHA-20
Rev. May 72

*Newport News Shipbuilding
 And Dry Dock Company
 Purchase Order 9975-9602-R*

*Release #5
 citem 23
 NNP/N 97-54-273*

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the paper. For free asbestos fibers: not more than 5 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the paper.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the paper.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binders.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS			
Unknown			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No special action	
WASTE DISPOSAL METHOD	
Normal landfill; waste may be placed in plastic bag to reduce generation of asbestos fiber to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement; mouth and nose mask may be worn when handling large quantities.			
VENTILATION	LOCAL EXHAUST		SPECIAL
	No special requirement		None
PROTECTIVE GLOVES	MECHANICAL (General)		OTHER
	No special requirement		None
OTHER PROTECTIVE EQUIPMENT		EYE PROTECTION	
Not required		As generally good practice, safety glasses may be worn.	

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean, dry place away from strong oxidizing agents.	
OTHER PRECAUTIONS	
Asbestos paper is bonded by elastomer compound, however, protect against unnecessary release of fiber or dust when handling. See OSHA regulations (29 CFR, paragraph 1910.1001).	

PAGE (2)
GPO 9-20-540

Form OSHA-20
Rev. May 72

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, expressed or implied, is made.

Prepared by: Larry G. Marlin
Larry G. Marlin, Chief Chemist

7/27/79

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Precision Seal		EMERGENCY TELEPHONE NO. 704-864-8351
ADDRESS (Number, Street, City, State, and ZIP Code) 4307 South York Road, Gastonia, NC 28052		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Spiral Wound Gaskets	
CHEMICAL FAMILY N/A	FORMULA	N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Spiral Wound Gaskets use latex bonded white asbestos paper as a filler material. The paper is composed of 90% white Canadian or Chrysolite asbestos bound by an elastomer binder and water proofed with paraffin which inhibits generation of free asbestos fiber or dust.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (= 1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR course, white colored paper; no odor			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	Let	Uet
EXTINGUISHING MEDIA	water, foam, carbon dioxide, dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES	None; when fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None; produces smoke when large quantities are burned.			

*Report News Shipbuilding and Dry Dock
Company's Purchase Order 6210-9002-N2,
All items.*

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the paper. For free asbestos fibers: not more than 1 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the paper.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the paper.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binders.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS			
Unknown			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No special action	
WASTE DISPOSAL METHOD	
Normal landfill; waste may be placed in plastic bag to reduce generation of asbestos fiber to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement; mouth and nose mask may be worn when handling large quantities.			
VENTILATION	LOCAL EXHAUST		SPECIAL
	No special requirement		None
MECHANICAL (General)			OTHER
	No special requirement		None
PROTECTIVE GLOVES		EYE PROTECTION	
Not required		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT			
Not required			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean, dry place away from strong oxidizing agents.	
OTHER PRECAUTIONS	
Asbestos paper is bonded by elastomer compound, however, protect against unnecessary release of fiber or dust when handling. See OSHA regulations (29 CFR, paragraph 1910.1001).	

PAGE (2)
SPC 120-140

Form OSHA-20
Rev. May 72

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty expressed or implied, is made.

Prepared by: Larry G. Marlin
Larry G. Marlin, Chief Chemist

7/27/79

U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration		OSHA 309 3-78
MATERIAL SAFETY DATA SHEET		
Required under USCL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)		

SECTION I	
MANUFACTURER'S NAME Carlock Precision Seal	EMERGENCY TELEPHONE NO. 704-864-8351
ADDRESS (Number, Street, City, State, and ZIP Code) 4307 South York Road, Gastonia, NC 28052	
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Spiral Wound Gaskets
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS						
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (mg/m ³)	ALLOYS AND METALLIC COATINGS	%	TLV (mg/m ³)	
PIGMENTS		N/A	BASE METAL		N/A	
CATALYST		N/A	ALLOYS		N/A	
VEHICLE		N/A	METALLIC COATINGS		N/A	
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A	
ADDITIVES		N/A	OTHERS		N/A	
OTHERS		N/A				
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES					%	TLV (mg/m ³)
Spiral Wound Gaskets use latex bonded white asbestos paper as a filler material. The paper is composed of 90% white Canadian or Chrysolite asbestos bound by an elastomer binder and water proofed with paraffin which inhibits generation of free asbestos fiber or dust.						

SECTION III - PHYSICAL DATA			
BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ = 1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR: coarse, white colored paper; no odor			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (MINIMUM °F)	N/A	FLAMMABLE LIMITS	LEL UEL
EXTINGUISHING MEDIA: water, foam, carbon dioxide, dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES: None; when fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS: None; produces smoke when large quantities are burned.			

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(Continued on reverse side)

 Form OSHA-20
 Rev. May 78


Newport News Shipbuilding
 And Dry Dock Company
 Purchase Order 9915-9602-R

Release #5
 citem 23
 NNP/N 97-54-273

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the paper. For free asbestos fibers: not more than 5 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the paper.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the paper.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binders.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS			
Unknown			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No special action	
WASTE DISPOSAL METHOD	
Normal landfill; waste may be placed in plastic bag to reduce generation of asbestos fiber to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement; mouth and nose mask may be worn when handling large quantities.			
VENTILATION	LOCAL EXHAUST		SPECIAL
	MECHANICAL (General)	No special requirement	None
PROTECTIVE GLOVES			OTHER
	Not required		None
OTHER PROTECTIVE EQUIPMENT		EYE PROTECTION AS generally good practice, safety glasses may be worn.	
Not required			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean, dry place away from strong oxidizing agents.	
OTHER PRECAUTIONS	
Asbestos paper is bonded by elastomer compound, however, protect against unnecessary release of fiber or dust when handling. See OSHA regulations (29 CFR, paragraph 1910.1001).	

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Form OSHA-20
Rev. May 72

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty expressed or implied, is made.

Prepared by: Larry H. Marlin
Larry H. Marlin, Chief Chemist

7/27/79

MSDS 8/6/79
Style 7819
Compressed Asbestos Sheet
Prepared by H. Hughes

Hughes Deposition
Exhibit 3
3/22/95

Colt Industries



Garlock Inc.
Mechanical Packing Division
Industrial Packing
1660 Broadway Street
Rumney, New York 14622
315 297-4811

Prepared by H. Hughes

Gentlemen:

This is in regard to the handling of Garlock products containing asbestos in general and compressed asbestos sheet in particular.

The Occupational Safety and Health Administration (OSHA) has published a regulation covering the safe handling of asbestos and asbestos products (29CFR 1910.1001). A portion of this regulation states that "Caution labels shall be affixed to all raw materials, mixtures, scrap, waste, debris and other products containing asbestos fibers, or to their containers, except that no label is required where asbestos fibers have been modified by a bonding agent, coating, binder or other material so that during any reasonably foreseeable use, handling, storage, disposal, processing or transportation, no airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section will be released."

All of our asbestos containing products are currently carrying the OSHA warning label so that our customers will be alerted to the fact that the products they are receiving do contain asbestos. This is being done even though products like compressed asbestos sheet contain a binder which performs a bonding function and tends to inhibit the generation of free asbestos fiber. We consider the possibility of release of fibers in the case of products like compressed asbestos sheet remote under normal handling and use.

It is, of course, impossible for us to know of all uses our customers (or the customers of our customers) may make of our products. If, for instance, a customer was to perform certain unusual operations like power wire brushing or disc grinding, or if the compressed asbestos sheet were used as a pile driver pad, it is possible that there might be a release of asbestos sufficient to exceed that specified in 29CFR 1910.1001.

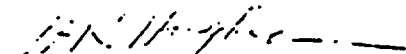
The user should, therefore, refer to 29CFR 1910.1001 for information on handling asbestos and monitoring the release of asbestos fibers.

OSHA Regulation 29CFR 1910.1001 is contained in Title 29 of the Code of Federal Regulations - Labor (Parts 1900-1919). This publication is available from:

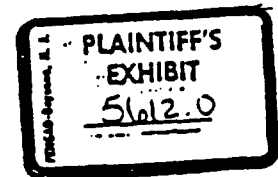
Superintendent of Documents
U.S. Government Printing Office
Washington, D. C. 20402

We hope that this information will be helpful to you.

Very truly yours,


Harold R. Hughes
Senior Chemist

HRH:mop



N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 43-01387

MATERIAL SAFETY DATA SHEET

Required under USOL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 7819 Compressed Asbestos Sheet
CHEMICAL FAMILY —	N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

	%	TLV (Units)
Style 7819 contains in excess of 80% of Chrysotile (White)		
stos. The asbestos is bound and encapsulated by an		
elastomeric binder which inhibits the generation of free		
asbestos fiber or dust.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black colored sheet or masket - slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	LFL	UFL
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES				
One. When fire involves large quantities of product, self contained				
breathing apparatus would be desirable due to smoke produced.				
USUAL FIRE AND EXPLOSION HAZARDS				
One. Produces thick smoke when large quantities are burned.				

(Continued on reverse side)

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SECTION V - HEALTH HAZARD DATA

HAZARDOUS DECOMPOSITION PRODUCTS N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air. N/A to the sheet.

AGENCY AND FIRST AID PROCEDURES N/A to the sheet.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

DISPOSAL METHOD Normal landfill; waste may be placed in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None
PROTECTIVE GLOVES Not required.		EYE PROTECTION AS generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT Not required.			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE Store in clean, dry place away from strong oxidizing agents.

OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001).

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H. R. Hughes, Senior Chemist

Form OSHA-20

8/6/79

MSDS 9/4/79
Style 5354
Braided Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315) 483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 5354 Braided Asbestos Packing	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Chrysotile (white) asbestos is present to the extent of about 65% in 1/2" Style 5354. The asbestos yarn is impregnated with a petroleum base lubricant which inhibits generation of free asbestos fiber or dust. Asbestos content will vary depending on size and whether or not wire is present.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		

APPEARANCE AND ODOR Style 5354 is black and has a slight characteristic odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Flash Point of Petroleum lubricant is about 510°F.	FLAMMABLE LIMITS Unknown	Lel	Uel
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self-contained breathing apparatus would be desirable due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.

EFFECTS OF OVEREXPOSURE

N/A to the braid.

EMERGENCY AND FIRST AID PROCEDURES

N/A to the braid.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others which are unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

No special action.

WASTE DISPOSAL METHOD

Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) NO special requirement. Mouth and nose mask may be worn when cutting large quantities.

VENTILATION	LOCAL EXHAUST	NO special requirement.	SPECIAL	None
	MECHANICAL (General)	NO special requirement.	OTHER	None.

PROTECTIVE GLOVES

Not required

EYE PROTECTION AS generally good practice, safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT

Not required. Normal wash up after handling is suggested.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in clean, dry place, away

from strong oxidizing agents.

OTHER PRECAUTIONS

Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph

1910.1001).

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GPO 134-110

Form OSHA-20

Rev. May 72

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by:

H. R. Hughes, Senior Chemist

9/4/79

MSDS 9/10/79
Style 737
Braided Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 737 Braided Asbestos Packing	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Chrysotile (white) asbestos is present to the extent of about					
60% in 1/2" Style 737. The asbestos yarn is thoroughly im-					
pregnated with a petrolatum lubricant which inhibits genera-					
tion of free asbestos fiber or dust. Asbestos content will vary					
somewhat in other sizes.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Regular Style 737 is brown colored and has a slight characteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Flash Point of Pet-	FLAMMABLE LIMITS	Lel	Uel
roleum Binder is about 592°F. (C.O.C.)	Unknown		
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.		
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self-contained breathing apparatus would be desirable due to smoke produced.		
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.		

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.

EFFECTS OF OVEREXPOSURE N/A to the braid.

EMERGENCY AND FIRST AID PROCEDURES N/A to the braid.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others which are unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.

VENTILATION	LOCAL EXHAUST	SPECIAL
	No special requirement.	None.
	MECHANICAL (General)	OTHER
	No special requirement.	None.
PROTECTIVE GLOVES	Not required.	EYE PROTECTION AS generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT	Not required. Normal wash up after handling is suggested.	

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place, away from strong oxidizing agents.

OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001).

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GPO 934-110

Form OSHA-20

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

9/10/79

MSDS 9/11/79
Style 233
Braided Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 233 Braided Asbestos Packing
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Chrysotile (white) asbestos is present to the extent of about 42% in 1/2" Style 233. The asbestos yarn is thoroughly impregnated with a petrolatum lubricant and graphite which inhibits generation of free asbestos fiber or dust. Asbestos content will vary somewhat in other sizes.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Regular Style 233 is black and has a slight characteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	Flash Point of Petroleum Binder is about 592°F. (C.O.C.)	FLAMMABLE LIMITS	LeI	UeI
		Unknown.		
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self-contained breathing apparatus would be desirable due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the braid. For graphite: 15 mppcf of air.

EMERGENCY AND FIRST AID PROCEDURES N/A to the braid.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others which are unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.

VENTILATION	LOCAL EXHAUST	SPECIAL
	No special requirement.	None.
	MECHANICAL (General)	OTHER
	No special requirement.	None.

PROTECTIVE GLOVES Not required. EYE PROTECTION As generally good practice, safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT Not required. Normal wash up after handling is suggested.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place, away from strong oxidizing agents.

OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001).

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GPO 834-190

Form OSHA-20

Rev. May 72

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

9/11/79

MSDS 9/11/79
Style 731
Braided Asbestos Packing
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 731 Braided Asbestos Packing
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Chrysotile (white) asbestos is present to the extent of about					
57% in 1/2" Style 731. The asbestos yarn is thoroughly impreg-					
nated with vegetable oil, Marine Oil and graphite lubricant					
which inhibits generation of free asbestos fiber or dust.					
Asbestos content will vary somewhat in other sizes.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Regular Style 731 is black and has a characteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	Flash Point of	FLAMMABLE LIMITS	Lel	Uel
	Binder is about 530°F. (C.O.C.)	Unknown		
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self-contained breathing apparatus would be desirable due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the braid. For graphite: 15 mppct of air.
EMERGENCY AND FIRST AID PROCEDURES	N/A to the braid.

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others which are unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	Normal landfill; waste may be placed in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	SPECIAL	None.
	MECHANICAL (General)	OTHER	None
PROTECTIVE GLOVES		EYE PROTECTION	
Not required.		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT			
Not required. Normal wash up after handling is suggested.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place, away from strong oxidizing agents.
OTHER PRECAUTIONS	
Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001).	

PAGE (2)

GPO 934-110

Form OSHA-20

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

9/11/79

MSDS 9/11/79
Style 5880
Braided Blue Asbestos Packing
Prepared by H. Hughes

N/A = Not Application

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 5880 Braided Blue Asbestos Packing
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Crocidolite (blue) asbestos is present to the extent of about					
57% in 1/2" Style 5880. The asbestos yarn is impregnated with					
polytetrafluoroethylene which inhibits the generation of free					
asbestos fiber or dust. Asbestos content will vary somewhat in					
other sizes.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		N/A
APPEARANCE AND ODOR	Blue colored Braided Packing with white areas.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke and hydrogen fluoride fumes produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces smoke and decomposition of the polytetrafluoroethylene produces hydrogen fluoride fumes.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.

EFFECTS OF OVEREXPOSURE None under normal conditions of use. Overexposure to thermal decomposition products of polytetrafluoroethylene may cause flu-like symptoms. This is a temporary condition.

EMERGENCY AND FIRST AID PROCEDURES
Not necessary under normal conditions of use. For overexposure to thermal decomposition products of polytetrafluoroethylene, move to fresh air. Contact physician for treatment.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Avoid direct flame.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen fluoride fumes, carbonyl fluoride and perfluorocarbon olefins are evolved at higher temperatures. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
	No special requirements.	None
	No special requirements.	None

PROTECTIVE GLOVES Not required. EYE PROTECTION AS generally good practice, safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT Not required. Normal wash up after handling is suggested.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean dry place away from strong oxidizing agents.

OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA regulations (29CFR, Paragraph 1910.1001).

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H. R. Hughes, Senior Chemist

9/11/79

MSDS 10/12/79
Style 230
Braided Blue Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division	EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551	
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 230 Braided Blue Asbestos Packing
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Crocidolite (Blue) asbestos is present to the extent of about 76.5% in 1/2" Style 230. The asbestos yarn is thoroughly impregnated with a hydrocarbon type lubricant which inhibits generation of free asbestos fiber or dust. Asbestos content will vary somewhat in other sizes.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Regular Style 230 is blue-grey and has a slight characteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	Flash Point of Hydrocarbon Binder is about 415°F.	FLAMMABLE LIMITS	Lower	Upper
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self-contained breathing apparatus would be desirable due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the braid.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the braid.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others which are unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	
Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None.
	MECHANICAL (General)	No special requirement.	OTHER None
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT			
Not required. Normal wash up after handling is recommended.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place, away from strong oxidizing agents.
OTHER PRECAUTIONS	
Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph	

1910.1001).
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GPO 934-110

Form OSHA-20
Rev. May 72

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H R Hughes
Harold R. Hughes, Senior Chemist

10/12/79

MSDS 10/12/79
Style 730
Braided Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 730 Braided Asbestos Packing
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Chrysotile (white) asbestos is present to the extent of about 50% in 1/2" Style 730. The asbestos yarn is thoroughly impregnated with vegetable oil, Marine Oil, petroleum oil and graphite lube which inhibits generation of free asbestos fiber or dust. Asbestos content will vary somewhat in other sizes.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Regular Style 730 is black and has a characteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	Flash Point of Binder is about 530°F (C.O.C.)	FLAMMABLE LIMITS	Lel	Uel
		Unknown		
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self-contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the braid. For graphite: 15 mppcf of air.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the braid.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn.
INCOMPATABILITY (Materials to avoid)			
Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others which are unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	
Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION		
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.		
VENTILATION	LOCAL EXHAUST	SPECIAL
	No special requirement.	None.
	MECHANICAL (General)	OTHER
	No special requirement.	None.
PROTECTIVE GLOVES	Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT		
Not required. Normal wash up after handling is recommended.		

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place, away from strong oxidizing agents.
OTHER PRECAUTIONS	
Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph	

1910.1001).

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GPO 934-110

Form OSHA-20

Rev. May 72

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

10/12/79

MSDS 11/18/79

Style 5875

Braided White Asbestos Packing

Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
Garlock Inc. Compression Packing Division	(315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code)	
Sodus, New York 14551	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
N/A	Style 5875 Braided White Asbestos Packing
CHEMICAL FAMILY	FORMULA
N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

	%	TLV (Units)
Chrysotile (White) asbestos is present to the extent of about 45-50% in 1/2" Style 5875. The asbestos yarn is impregnated with polytetrafluoroethylene which inhibits the generation of free asbestos fiber or dust. Asbestos content will vary somewhat in other sizes.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Pale grey to white Braided Packing.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke and hydrogen fluoride fumes produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces smoke and decomposition of the polytetrafluoroethylene produces hydrogen fluoride fumes.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers. Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.

EFFECTS OF OVEREXPOSURE

None under normal conditions of use. Overexposure to thermal decomposition products of polytetrafluoroethylene may cause flu-like symptoms. This is a temporary condition.

EMERGENCY AND FIRST AID PROCEDURES

Not necessary under normal conditions of use. For overexposure to thermal decomposition products of polytetrafluoroethylene, move to fresh air. Contact physician for treatment.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite organic portion of yarn.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen fluoride fumes, carbonyl fluoride and perfluorocarbon olefins are evolved at high temperatures. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.		
VENTILATION	LOCAL EXHAUST	SPECIAL
	No special requirements.	None
	MECHANICAL (General)	OTHER
	No special requirements.	None
PROTECTIVE GLOVES	Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT	Not required. Normal wash up after handling is recommended.	

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean dry place away from strong oxidizing agents.
OTHER PRECAUTIONS	Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA regulations (29CFR, Paragraph 1910.1001).

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GPO 934-110

Form OSHA-20
Rev. May 72

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

11/18/79

MSDS 11/28/79
Style 166
Packing Rings
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division	EMERGENCY TELEPHONE NO. (315) 483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551	
CHEMICAL NAME AND SYNONYMS Nitrile Elastomer Bonded Asbestos Fibrous Plastalltic Packing	TRADE NAME AND SYNONYMS Style 166 Packing Rings
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Style 166 contains about 28-30% of Chrysotile (White) Asbestos. It also contains a Nitrile elastomer. The elastomer does not present a hazard in itself, but there is a possibility that acrylonitrile monomer may be generated on burning the product.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black Rings - Slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke produced and possible production of acrylonitrile monomer fumes.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke and fumes when large quantities are involved in a fire. Burning may generate some acrylonitrile monomer fumes.				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the ring. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the rings. For Graphite: 15 mppcf of air.

EMERGENCY AND FIRST AID PROCEDURES N/A to the rings.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain conditions. Possibly some acrylonitrile monomer fumes. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill: waste may be placed in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)			
No special requirement under normal conditions of use.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None.
	MECHANICAL (General)	No special requirement.	OTHER None.
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT		Not required.	

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

OTHER PRECAUTIONS
Asbestos is bonded by elastomer compound, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001). GPO 334-100

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NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

11/28/79

Form OSHA-20
Rev. May 72

MSDS 1/18/80
Style 150
Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Divn.		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS Rolled rubber impregnated asbestos fabric over core of asbestos fabric and red SBR elastomer compound		TRADE NAME AND SYNONYMS Style 150
CHEMICAL FAMILY N/A		FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains significant quantity of Chrysotile (White) Asbestos					
The asbestos fabric is impregnated with an elastomer compound					
which inhibits the generation of free asbestos fiber or dust.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Rolled rubber impregnated asbestos fiber over core - slight odor. Surface Graphite makes product black.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lel	Uel
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke and fumes when large quantities are involved in a fire.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE N/A to the product. For free asbestos fiber: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.	
EFFECTS OF OVEREXPOSURE For Graphite: 15 MPPCF of air. N/A to the product.	
EMERGENCY AND FIRST AID PROCEDURES	
None.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound and organic portion of yarn in fabric.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others unknown.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID to us.
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No special action.	
WASTE DISPOSAL METHOD	
Normal landfill; place waste in plastic bag to reduce generation of asbestos fibers to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirements. Wear mouth and nose mask when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean, dry place away from strong oxidizing agents.	
OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001).	

PAGE (2) NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied is made.

Prepared By: H. R. Hughes
H.R. Hughes, Senior Chemist

1/18/80

(MSDS 1/18/80
Style 5865
Braided Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division	EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive, Sodus, New York 14551	
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 5865 Braided Asbestos Packing (with Core)
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

	%	TLV (Units)
Braid and core contain substantial quantities of Chrysotile (white) asbestos fiber. Braid and core contain Mica. Core contains neoprene elastomer. The elastomer does not present a hazard in itself, but some chlorine bearing combustion products will be generated on burning. Binders in Style 5865 inhibit the generation of free asbestos fiber or dust.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		

APPEARANCE AND ODOR Style 5865 is tan and has a slight characteristic odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lei	Uei
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves substantial quantities, self-contained breathing apparatus should be used due to smoke produced, presence of hydrogen chloride and possibly other chlorine bearing combustion products.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Considerable smoke and fumes generated on burning. Some hydrogen chloride and possibly other chlorine bearing combustion products will be generated also.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	For Mica: 20 MPPCF of air. N/A to the braid.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the braid	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binders and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen chloride fumes, carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	
Normal landfill. Place waste in plastic bag to reduce generation of asbestos fibers to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None.
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT			
Not required. Normal wash up after handling is suggested.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place, away from strong oxidizing agents.
OTHER PRECAUTIONS	
Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Para. 1910.1001).	

PAGE (2) NOTE:

The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Form OSHA-20
Rev. May 72

Prepared by:

HR Hughes

Harold R. Hughes, Senior Chemist

1/18/80

MSDS 2/14/80
Style 5861
Braided White Asbestos Packing
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive, Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 5861 Braided White Asbestos Packing	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Chrysotile (White) asbestos is present to the extent of about 46% in		
1/2" Style 5861. The Asbestos yarn is impregnated with polytetrafluoroethylene which inhibits the generation of free asbestos fiber or dust.		
Asbestos content will vary somewhat in other sizes.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Pale grey to white braided packing.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke and hydrogen fluoride fumes produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces smoke and decomposition of the polytetrafluoroethylene produces hydrogen fluoride fumes and other fluoride containing fumes.				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.

EFFECTS OF OVEREXPOSURE None under normal conditions of use. Over exposure to thermal decomposition products of polytetrafluoroethylene may cause flu-like symptoms. This is a temporary condition.

EMERGENCY AND FIRST AID PROCEDURES Not necessary under normal conditions of use. For overexposure to thermal decomposition products of polytetrafluoroethylene, move to fresh air.

Contact physician for treatment.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite organic portion of yarn.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen fluoride fumes, carbonyl fluoride and perfluorocarbon olefins are evolved at high temperatures. There may be others -			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID unknown to us.
	WILL NOT OCCUR	X	NONE

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill: place waste in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirements.	SPECIAL NONE
	MECHANICAL (General)	No special requirements	OTHER NONE
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT Not required. Normal wash up after handling is recommended.			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean dry place away from strong oxidizing agents.

OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA regulations (29CFR, Para. 1910.1001).

PAGE (2) NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Form OSHA-20
Rev. May 72

Prepared by:

H.R. Hughes
H.R. Hughes, Senior Chemist.

2/14/80

MSDS 2/14/80
Style 5876
Braided White Asbestos Packing
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME
Garlock Inc., Compression Packing Division

EMERGENCY TELEPHONE NO.
(315)-483-6961

ADDRESS (Number, Street, City, State, and ZIP Code)
300 Ailing Drive - Sodus, N.Y. 14551

CHEMICAL NAME AND SYNONYMS
N/A

TRADE NAME AND SYNONYMS
Style 5876
Braided White Asbestos Packing.

CHEMICAL FAMILY

N/A

FORMULA

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

	%	TLV (Units)
Chrysotile (white) asbestos is present to the extent of about 45-50% in 1/2" Style 5876. The asbestos yarn is impregnated with polytetrafluoroethylene which inhibits the generation of free asbestos fiber or dust. Product also contains a petroleum base break in lubricant.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Pale grey to white braided packing.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	Flash point of lubricant (C.O.C.) is about 395 F.	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke and hydrogen fluoride fumes produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces smoke and decomposition of the polytetrafluoroethylene produces hydrogen fluoride fumes.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	None under normal conditions of use. Over exposure to thermal decomposition products of polytetrafluoroethylene may cause flu-like symptoms.
This is a temporary condition.	
EMERGENCY AND FIRST AID PROCEDURES	Not necessary under normal conditions of use. For over exposure to thermal decomposition products of polytetrafluoroethylene, move to fresh air.
Contact physician for treatment.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite lubricant and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen fluoride fumes, carbonyl fluoride and per-fluorocarbon olefins are evolved at high temperatures. There may be other unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	NONE

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL NONE
	MECHANICAL (General)	No special requirement.	OTHER NONE
PROTECTIVE GLOVES Not required.		EYE PROTECTION As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT Not required. Normal wash up after handling is recommended.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean dry place away from strong oxidizing agents.
OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Para. 1910.1001).	

PAGE (2) NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made. Form OSHA-20 Rev. May 72

Prepared by: H.R. Hughes
H.R. Hughes, Senior Chemist

2/14/80

MSDS 3/10/80
Style 234
Braided Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Ailing Drive - Sodus, New York 14511		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 234 Braided Asbestos Packing.	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Chrysotile (white) asbestos is present to the extent of		
about 43.5% in 5/16" Style 234. The asbestos yarn is		
thoroughly impregnated with a petrolatum lubricant and graphite		
which inhibits generation of free asbestos fiber or dust.		
Asbestos content will vary somewhat in other sizes.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR Style 234 is black and has a slight characteristic odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	Flash Point of Pet-roleum binder is about 592°F. (C.O.C.)	FLAMMABLE LIMITS	Lower	Upper
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE For graphite: 15 mppcf of air.
N/A to the braid.

EMERGENCY AND FIRST AID PROCEDURES N/A to the braid.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others which are unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	NONE

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.		
VENTILATION	LOCAL EXHAUST	SPECIAL NONE.
	MECHANICAL (General)	OTHER NONE.
PROTECTIVE GLOVES Not required.		EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT Not required. Normal wash up after handling is suggested.		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place, away from strong oxidizing agents.

OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29 CFR, Para. 1910.1001)

PAGE (2)

GPO 934-100

Form OSHA-20

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by:

H.R. Hughes, Supvr., Chemist 3/10/80

MSDS 3/17/80
Style 536
Chevron C, T & B Rings
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME GARLOCK INC.	EMERGENCY TELEPHONE NO. (315)-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division St., Palmyra, N.Y. 14522	
CHEMICAL NAME AND SYNONYMS Nitrile rubber compd impregnated asbestos fabric.	TRADE NAME AND SYNONYMS Style 536 Chevron C. T & B Rings.
CHEMICAL FAMILY	FORMULA

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Style 536 contains about 53% of Chrysotile (White) Asbestos.		
It also contains a Nitrile elastomer. The elastomer does not		
present a hazard in itself, but there is a possibility that		
acrylonitrile monomer may be generated on burning the product.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT. VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black elastomer compound and fabric rings - slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Let	Uel
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None when fire involves large quantities of product. self contained breathing apparatus should be used due to smoke produced and possible production of acrylonitrile monomer fumes.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke and fumes when large quantities are involved in a fire. Burning may generate some acrylonitrile monomer-fumes.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the rings. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeters of air.
EFFECTS OF OVEREXPOSURE	N/A to the rings.
EMERGENCY AND FIRST AID PROCEDURES	N/A to the rings.

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound and organic portion of yarn in fabric.
INCOMPATIBILITY (Materials to avoid)		Avoid storage with strong oxidizing agents.	
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain conditions. Possibly some acrylonitrile monomer fumes. There may be others unknown.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID to us.
	WILL NOT OCCUR	X	NONE

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No special action.	
WASTE DISPOSAL METHOD	
Normal landfill: Place waste in plastic bag to reduce generation of asbestos fiber to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL NONE
	MECHANICAL (General)	No special requirement.	OTHER NONE
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean, dry place away from strong oxidizing agents.	
OTHER PRECAUTIONS	
Asbestos is bonded by elastomer compound, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Para. 1910.1001)	

PAGE (2) **NOTE:** The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H.R. Hughes
H.R. HUGHES, Supvr., Chemist

Form OSHA-20
Rev. May 72

3/17/80

[REDACTED]

MSDS 5/20/80
Style 926
Shredded Foil Plastall
Packing
Prepared by H. Hughes

[REDACTED]

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock, Inc. Compression Pkg. Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive - Sodus, N.Y. 14551		
CHEMICAL NAME AND SYNONYMS Shredded Lead Foil and Asbestos Packing, Petroleum Base Lubricant.	TRADE NAME AND SYNONYMS Style 926 Shredded Foil Plastallic.	
CHEMICAL FAMILY	FORMULA	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Packing contains about 57% lead foil and about 13% Chrysotile (White) asbestos fiber. It also contains graphite. The packing contains a lubricant throughout which inhibits the generation of free asbestos fiber or dust.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT, VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR - Black coil or rings with braided skeleton jacket - slight odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lel	Uel
EXTINGUISHING MEDIA Water, Foam, carbondioxide, dry chemical.					
SPECIAL FIRE FIGHTING PROCEDURES None. If fire involves large quantities, self contained breathing apparatus should be used due to smoke produced and possibly toxic lead vapors.					
UNUSUAL FIRE AND EXPLOSION HAZARDS - None Lead melts at about 621.1°F. (327.3°C.) Lead vapor may be given off even though lead is not heated to its boiling point.					

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the Packing. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air. For airborne lead: 30 micrograms per cubic meter of air. For Graphite: 15 million particles per cubic ft. of air.

Effects of Overexposure N/A to the Packing

EMERGENCY AND FIRST AID PROCEDURES N/A to the packing. Avoid generation and ingestion of lead particles. If accidentally ingested, give emetics, sodium, potassium or magnesium sulfate orally or give milk or albumin.

Call Physician at once.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite the binder.
INCOMPATABILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances, possibly toxic lead vapors under conditions of high heat. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		Conditions to Avoid
	WILL NOT OCCUR	X	NONE

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No Special Action.
WASTE DISPOSAL METHOD	Normal landfill; place waste in plastic bag.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement under normal conditions of use.			
VENTILATION	LOCAL EXHAUST	No special requirement under normal conditions of use.	SPECIAL NONE
	MECHANICAL (General)	No special requirement under normal conditions of use.	OTHER NONE
PROTECTIVE GLOVES	Not required.		EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT	Not required, normal washup after handling is recommended.		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place away from strong oxidizing agents.
OTHER PRECAUTIONS	- Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001). The lead is present in metallic form. It would not become airborne under normal conditions of use. See OSHA Regulations (29CFR, Paragraph 1910.1025) and Federal Register, Vol. 44 Page 60980 for information on occupational exposure to lead.

PAGE (2) NOTE:

The information contained herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Form OSHA-20
Rev. May 72

Prepared By: HR Hughes
Harold R. Hughes, Supvr., Chemist

5/20/80

MSDS 6/12/80
Dust Supressed Asbestos Cloth
Treated Commercial Grade
Asbestos Cloth
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315)-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, N.Y. 14522		
CHEMICAL NAME AND SYNONYMS Treated Commercial Grade Asbestos Cloth		TRADE NAME AND SYNONYMS Dust - Suppressed Asbestos Cloth
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains about 75% Chrysotile (White) Asbestos					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	N/A		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA Water, Carbon Dioxide, Dry Chemical, Foam.					
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces considerable smoke and fumes when large quantities are involved in a fire.					

Prepared by H. Hughes

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the cloth. For free asbestos fiber: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the cloth.
EMERGENCY AND FIRST AID PROCEDURES	
None	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite treatment and organic portion of yarn in fabric.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS			
Carbon monoxide under certain circumstances. Possibly some acrylic monomer fumes. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No Special Action	
WASTE DISPOSAL METHOD	
Normal landfill: Place waste in plastic bag to reduce generation of asbestos fiber to a minimum.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)			
No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	SPECIAL	
	No special requirement.	None	
	MECHANICAL (General)	OTHER	
	No special requirement.	None	
PROTECTIVE GLOVES		EYE PROTECTION	
Not required.		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT			
Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean, dry place away from strong oxidizing agents.	
OTHER PRECAUTIONS	
Product is treated with a material to suppress dust, however, protect against unnecessary release of fiber when cutting or handling.	

PAGE (2)

GPO 934-110

(See OSHA Reg. (29CFR) 1910. Form OSHA-20 1001 Rev. May 72

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied is made.

Prepared By: H.R. Hughes, Supv., Chemist

6/12/80

MSDS 10/20/80
Style 8240 Gaskets
Elastomer Compound Impregnated
Asbestos Fabric
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME GARLOCK INC.		EMERGENCY TELEPHONE NO. (315)-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division St., Palmyra, N.Y. 14522		
CHEMICAL NAME AND SYNONYMS Elastomer Compound Impregnated Asbestos Fabric.		TRADE NAME AND SYNONYMS Style 8240 Gaskets
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Style 8240 contains about 40-50% of Chrysotile (white) asbestos.					
It also contains neoprene elastomer. The elastomer does not					
present a hazard in itself, but some chlorine bearing combustion					
products will be generated on burning the elastomer.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black elastomer compound on fabric - slight odor. May have soapstone on the surface.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lel	Uel
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced and presence of hydrogen chloride and possibly other chlorine bearing combustion products.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke and fumes when large quantities are involved in a fire. Burning will generate hydrogen chloride and other chlorine bearing products.				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the product. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.

EFFECTS OF OVEREXPOSURE

N/A to the product.

EMERGENCY AND FIRST AID PROCEDURES NONE

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound and organic portion of yarn in fabric.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen chloride fumes. Possibly carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	NONE

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL
	MECHANICAL (General)	No special requirement.	OTHER NONE
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT Not required.			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place away from strong oxidizing agents.

OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, protect against un-necessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Para. 1910.

PAGE (2) NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made. Form OSHA-10 Rev. May 72

Prepared by: H.R. Hughes
H.R. Hughes, Supvr., Chemist

10/20/80

MSDS 1/22/81

Style 144

Asbestos Fabric & Rubber
Packing

Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc. Compression Packing Divn.		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS Asbestos Fabric & Rubber Packing		TRADE NAME AND SYNONYMS Style 144
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains about 40% Chrysotile (White) Asbestos. The asbestos fabric is impregnated with an elastomer compound which inhibits the generation of free asbestos fiber or dust.					
Asbestos content differs somewhat with size.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black surface, round red elastomer compound core - distinct odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lei	Uei
EXTINGUISHING MEDIA	Water, Carbon Dioxide, Dry Chemical				
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke produced.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces considerable smoke and fumes when large quantities are involved in a fire.					

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the product. For free asbestos fiber: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the product.
EMERGENCY AND FIRST AID PROCEDURES	None

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound, core and organic portion of yarn in fabric.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	Normal landfill; place waste in plastic bag.

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirements. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place away from strong oxidizing agents.
OTHER PRECAUTIONS	
Asbestos is bonded by elastomer compound, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR, Paragraph 1910.1001)	

PAGE (2)

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied is made.

Form OSHA-20

Prepared by:

H.R. Hughes, Supvr., Chemist

1/22/81

MSDS 2/13/81
Style 7021
Prepared by H. Hughes

Hughes Deposition
5
3/22/95

Colt Industries



Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522
315/597-4811

September 16, 1981

York Division
Borg-Warner Corporation
P.O. Box 1592
York, PA 17405

Attn: Ivy L. Collins, Buyer
E. M. Purchasing

Subject: Your Letter dated 9/10/81
- - - - -
York P/N 028-05151-000
Garlock Style 7021

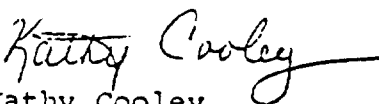
Dear Ivy:

In regards to the above subject file enclosed are three (3) copies of the completed Material Safety Data Sheet for our Style 7021 (York P/N 028-05151-000). Also enclosed are three (3) copies of our product data sheet for this particular style.

If you should have any questions, please do not hesitate to give me a call.

Sincerely,

GARLOCK


Kathy Cooley
O.E.M. Sales/Gasketing Products

Encs.

Colt Industries



Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522
315/597-4811

September 16, 1981

York Division
Borg-Warner Corporation
P.O. Box 1592
York, PA 17405

Attn: Ivy L. Collins, Buyer
E. M. Purchasing

Subject: Your Letter dated 9/10/81

York P/N 028-05151-000
Garlock Style 7021

Dear Ivy:

In regards to the above subject file enclosed are three (3) copies of the completed Material Safety Data Sheet for our Style 7021 (York P/N 028-05151-000). Also enclosed are three (3) copies of our product data sheet for this particular style.

If you should have any questions, please do not hesitate to give me a call.

Sincerely,

GARLOCK

Kathy Cooley
Kathy Cooley
O.E.M. Sales/Gasketing Products

Encs.



MATERIAL SAFETY DATA SHEET

YORK P/N 028-05151-000

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 7021 Compressed Asbestos Sheet	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Style 7021 contains in excess of 80% of Chrysotile (White)					
Asbestos. Typically the level is about 82%. The asbestos					
is bound and encapsulated by an elastomeric binder which					
inhibits the generation of free asbestos fiber or dust.					

(See Attached Sheet)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black colored sheet or gasket - slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LM	UEL
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.				

Addendum to Section II Form OSHA-20

It is our view that our product No. 7001 is exempted from OSHA labeling requirements in accordance with the provisions of (29 C.F.R. §1910.1001(g)(2)(i)). Nonetheless, our product No. 7001 carries the OSHA warning label so that our customers may be alerted to the fact that they are purchasing a product containing asbestos.

Addendum to Section VII Form OSHA-20

Waste Disposal Method

Place waste in a plastic bag. Since the asbestos in this product is secured with a binder and is not friable or loose, we do not consider that it presents any disposal hazard under ordinary circumstances. However, the user is responsible for complying with existing local, state and/or federal hazardous waste disposal regulations.

Compressed Asbestos Gasketing

GARLOCK STYLE 7021

GARLOCK anti-stick releasing agent, blended into the surface of all GARLOCK compressed asbestos gasketing, eliminates the need for graphited sheet. All styles are excellent for severe service applications involving high pressures or high temper-

atures. GARLOCK compressed asbestos gasketing materials are especially useful where heavy flanges and high bolt loads are commonly found, such as in steam line flanges, cylinder heads of engines, compressors and refrigeration equipment.

The purp
with the lo
you select
application
design and
trouble-free
than 90 ye
experience
manufactur

STYLE NO.	1000	3007 7745	7021	7006 7819	7705	
Material	Wire inserted white chrysotile asbestos with special rubber binder	White chrysotile asbestos with SBR binder	White chrysotile asbestos with SBR binder	White chrysotile asbestos with SBR binder	Blue crocidolite asbestos with acid-resisting SBR binder	
Color	Grey-black	Off white	Grey-black	7006-Off White 7819-Grey-black	Grey-black	
Tensile strength Across grain*	24.1 MPa (3500 psi)	19.3 MPa (2800 psi)	20.7 MPa (3000 psi)	16.5 MPa (2400 psi)	10.3 MPa (1500 psi)	
Compressibility under 5000 psi load (%) Recovery (% min.)	7-17 40	7-17 40	7-17 40	7-17 40	15-25 40	
Oil resistance after 5 hrs. in ASTM #3 oil @ 300°F: Thickness increase (%) Tensile loss (% max.)	20 35	20-50 70	20-50 70	20-50 70		
Fuel resistance after 5 hrs. in ASTM Ref. Fuel B @ R.T.: Thickness increase (%) Weight increase (% max.)	15 20	15-35 40	15-35 40	15-35 40		
Flexibility	Bends 180° around rod (diameter 16" thicker than sheet) without cracking	Bends 180° around rod (diameter 12" thicker than sheet) without cracking	Bends 180° around rod (diameter 12" thicker than sheet) without cracking	Bends 180° around rod (diameter 12" thicker than sheet) without cracking	Bends 180° around rod (diameter 12" thicker than sheet) without cracking	
Density (min.)	2.24 g/cm ³ (140 lbs./ft. ³)	1.68 g/cm ³ (105 lbs./ft. ³)	1.68 g/cm ³ (105 lbs./ft. ³)	1.60 g/cm ³ (100 lbs./ft. ³)	1.44 g/cm ³ (90 lbs./ft. ³)	
Thicknesses available (inches)	1/32, 1/16, 1/8	1/64, 1/32, 1/16, 3/32, 1/8, 3/16, 1/4	1/64, 1/32, 1/16, 3/32, 1/8, 3/16, 1/4	1/64, 1/32, 1/16, 3/32, 1/8	1/32, 1/16, 3/32, 1/8	
Sheet sizes (inches)	60 x 60	40 x 40 40 x 60 40 x 120		50 x 50 50 x 75 50 x 150	60 x 60 60 x 120 60 x 180	
Tolerance on thicknesses (inches)	1/32 ± .004 1/16 ± .003, -.009 1/8 ± .005, -.019	Refer to the "Standard Commercial Tolerances of Compressed Asbestos Gasketing" chart on page 11.				
How branded	* Style numbers 900, 1000, 7021, 7278, 7705, and 8748 are branded with GARLOCK name and style number thru 60". Over 60" standard is unbranded unless otherwise specified.			Unbranded		

CAUTION: See
content label
must have card
listed and add
GARLOCK is
gaskets, and g

[Tested in accordance with ASTM-F-104 Properties based on 1/32" thickness]

MSDS 4/8/81
Style 5022
Braided White Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Braided white asbestos packing style 5022	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Chrysotile (white) asbestos present to extent of 40-50%.					
Yarn impregnated with polytetrafluoro ethylene which inhibits					
generation of free fiber or dust. Product also contains a					
petroleum base break-in lubricant when requested.					

(SEE ATTACHED SHEET.)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR Pale grey to white Braided Packing Rings.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	LeI	UeI
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke, hydrogen fluoride and other toxic fumes produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces smoke and decomposition of the polytetrafluoroethylene produces hydrogen fluoride and other toxic fumes.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeters of air.

EFFECTS OF OVEREXPOSURE
None under normal conditions of use. Overexposure to thermal decomposition products of polytetrafluoroethylene may cause flu-like symptoms. This is a temporary condition.

EMERGENCY AND FIRST AID PROCEDURES
Not necessary under normal conditions of use. For overexposure to thermal decomposition products of polytetrafluoroethylene, move to fresh air. Contact physician for treatment.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite lubricant and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen fluoride fumes, carbonyl fluoride, and perfluorocarbon olefins are evolved at high temperatures. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
No special action.

WASTE DISPOSAL METHOD
Normal landfill; waste may be placed in plastic bag to reduce generation of asbestos fiber to a minimum.

(SEE ATTACHED SHEET)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.

VENTILATION	LOCAL EXHAUST	No special requirements	SPECIAL NONE
	MECHANICAL (General)	No special requirements	OTHER NONE

PROTECTIVE GLOVES Not required. EYE PROTECTION As generally good practice, safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT
Not required. Normal wash up after handling is suggested.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Store in clean dry place away from strong oxidizing agents.

OTHER PRECAUTIONS
Product has a binder, however, protect against unnecessary release of fiber when cutting or handling, See OSHA Regulations (29CFR, Para.

PAGE (2)

GPO 934-110

1910.1001

Form OSHA-20

Rev. May 72

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H.R. Hughes
H.R. Hughes, Supvr., Chemist

4/8/81

MSDS 7/28/81
Style 176
Braided Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 176 Braided Asbestos Packing	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Braids and core contain substantial quantities of Chrysotile (white) asbestos fiber. The braids and core are treated with an elastomeric cement which inhibits the generation of free asbestos fiber or dust.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Regular Style 176 is black and has a slight characteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self-contained breathing apparatus should be used due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	For Graphite: 15 mppcf of air. N/A to the braid.
EMERGENCY AND FIRST AID PROCEDURES	N/A to the braid.

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn.
INCOMPATABILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others which are unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.
(SEE ATTACHED SHEET)	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	SPECIAL	None
	MECHANICAL (General)	OTHER	None
PROTECTIVE GLOVES		EYE PROTECTION	
Not required.		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT			
Not required. Normal wash up after handling is suggested.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place, away from strong oxidizing agents.
OTHER PRECAUTIONS	Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Reg. (29CFR, Para. 1910.1001)

PAGE (2) **NOTE:** The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H.R. Hughes
H.R. Hughes, Supvr., Chemist

Form OSHA-20
Rev. May 72

7/28/81

MSDS 9/16/81
Style 7355
Bonded Asbestos Plastalllic
Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock, Inc., Compression Packing Divn.	EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551	
CHEMICAL NAME AND SYNONYMS Synthetic Hydrocarbon Bonded Asbestos Fibrous Plastallic Packing Style 7355	
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains about 30% Chrysotile (white) asbestos and about 53% graphite. The packing contains a binder which inhibits the generation of free asbestos fiber or dust.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black rings - slight odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lel	Uel
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical					
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves significant quantities of product, self contained breathing apparatus should be worn due to smoke produced.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces significant amount of smoke when large quantities are involved in a fire.					

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the pkg. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the packing. For Graphite: 15 MPPCF of air.
EMERGENCY AND FIRST AID PROCEDURES	
Generally N/A to the packing. In case of particles of packing getting in the eyes, flush with water and contact a physician as a precaution.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite product.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS			
Smoke, carbon monoxide under certain circumstances. There may be others			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	unknown to us.
None			

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No special action.	
WASTE DISPOSAL METHOD	
Normal landfill. Place waste in plastic bag.	
comply with any local or state regulations covering disposal of asbestos products.	
SEE ATTACHED SHEET	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)			
No special requirement under normal conditions of use.			
VENTILATION	LOCAL EXHAUST	SPECIAL	None
	MECHANICAL (General)	No special requirement	None
		OTHER	None
PROTECTIVE GLOVES		EYE PROTECTION	
Not required		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT			
Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean dry place away from strong oxidizing agents. Normal wash up after handling is recommended.	
OTHER PRECAUTIONS	
Asbestos is bonded by elastomer compound, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (21CFR 1910.1001).	

PAGE (2) **NOTE:** The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied is made.

Form OSHA-20
Rev. May 72

Prepared by: H. R. Hughes
Harold R. Hughes, Supvr., Chemist

9/16/81

MSDS 2/1/82
Style 7705
Compressed Asbestos Sheet
Prepared by H. Hughes

Colt Industries



Garlock
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315/597-4811

Interoffice

To: L Green
Subject: Material Safety Data Sheet

Style 7705

From: HR Hughes, Supvr.,
Chemist
Date: February 1, 1982

Attached is a copy of the Material Safety Data Sheet for
Style 7705, revised to incorporate the changes requested
by the Law Department.

If you wish additional copies, please advise.

Harold R. Hughes/nw

cc: R Watson

These two items
Show the addendum
sheet added to the
MSDS sheets and also
change in wording
requested by Law Dept.

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME GARLOCK INC.		EMERGENCY TELEPHONE NO. (315)-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street - Palmyra, N.Y. 14522		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 7705 Compressed Asbestos Sheet	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

Product contains about 75% of mixed Crocidolite (blue) and Chrysotile (white) asbestos. The asbestos is bound and encapsulated by an elastomeric binder so that generation of free asbestos fibers or dust is negligible and well below the OSHA standards for warning requirements (See attached sheet

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Grey-black colored sheet or gasket - slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lel	Uel
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.					
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.					

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the sheet.

EMERGENCY AND FIRST AID PROCEDURES N/A to the sheet.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others unknown			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID to us.
	WILL NOT OCCUR	X	NONE

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; waste may be placed in plastic bag to reduce generation of asbestos fiber to a minimum.
(See Attached Sheet)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities, though no known OSHA requirements

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
	No special requirement.	NONE

PROTECTIVE GLOVES Not required. EYE PROTECTION As generally good practice, safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT Not required.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in clean, dry place away from strong oxidizing agents.

OTHER PRECAUTIONS

Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. (See OSHA Regulations (29CFR, Para. 1910.1001))

PAGE (2) NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made. Form OSHA-7 Rev. May 72

Prepared by: H.R. Hughes
H.R. Hughes, Supvr., Chemist

2/1/82

MSDS 2/2/82
Style 900/7735
Compressed Asbestos Sheet
Prepared by H. Hughes

11/1/82

11/1/82

N/A = Not Applicable.

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME

Garlock Inc.

EMERGENCY TELEPHONE NO.

(315) 597-4811

ADDRESS (Number, Street, City, State, and ZIP Code)

1666 Division Street, Palmyra, New York 14522

CHEMICAL NAME AND SYNONYMS

N/A

TRADE NAME AND SYNONYMS

Styles 900 & 7735 Compressed Asbestos Sheet

CHEMICAL FAMILY

N/A

FORMULA

N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

Style 900/7735 contains in excess of 80% Chrysotile (white) asbestos.

The asbestos is bound and encapsulated by an elastomeric binder so
that generation of free asbestos fiber or dust is negligible and well
below the OSHA Stds. for warning requirements (See attached Sheet).

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Pale grey-cream colored sheet or gasket - slight characteristic odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Let	Uel
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.				

retrieved by H. Hughes

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the sheet.

EMERGENCY AND FIRST AID PROCEDURES N/A to the sheet.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum. (See attached sheet).

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST		SPECIAL None
	No special requirement.		
	MECHANICAL (General)		OTHER None
No special requirement.			
PROTECTIVE GLOVES		EYE PROTECTION As generally good practice, safety glasses may be worn.	
Not required.			
OTHER PROTECTIVE EQUIPMENT			
Not required.			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place away from strong oxidizing agents.

OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. (See OSHA Regulations 29CFR, Para.1910.1001)

PAGE (2)

OSHA 334-110

Form OSHA-20

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H.R. Hughes
H. R. Hughes, Senior Chemist

2/2/82

Addendum to Section II Form OSHA-20

It is our view that our product No. ^{900/}7735 is exempted from OSHA labeling requirements in accordance with the provisions of (29 C.F.R. §1910.1001(g)(2)(i)). Nonetheless, our product No. ^{900/}7735 carries the OSHA warning label so that our customers may be alerted to the fact that they are purchasing a product containing asbestos.

Addendum to Section VII Form OSHA-20

Waste Disposal Method

Place waste in a plastic bag. Since the asbestos in this product is secured with a binder and is not friable or loose, we do not consider that it presents any disposal hazard under ordinary circumstances. However, the user is responsible for complying with existing local, state and/or federal hazardous waste disposal regulations .

MSDS 2/2/82
Style 1000
Compressed Asbestos Sheet
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

Distributed by:

Garlock Inc.

EMERGENCY TELEPHONE NO.

(315) 597-4811

ADDRESS (Number, Street, City, State, and ZIP Code)

1666 Division Street, Palmyra, N.Y. 14522

CHEMICAL NAME AND SYNONYMS

Wire inserted compressed asbestos sheet.

TRADE NAME AND SYNONYMS Style 1000

Compressed Asbestos Sheet

CHEMICAL FAMILY

N/A

FORMULA

N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Style 1000 contains in excess of 50% of Chrysotile (White)					
Asbestos. The asbestos is bound and encapsulated by an					
elastomeric binder so that generation of free asbestos fiber					
or dust is negligible and well below the OSHA Stds. for					
warning requirements. (See attached sheer)					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Grey-black colored sheet or gasket - slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lei	Uei
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained				
	breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large				
	quantities are burned.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the sheet.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the sheet.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS			
Carbon monoxide under certain circumstances. There may be others unknown to US.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	NONE

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	
Normal landfill; Place waste in plastic bag to reduce generation of asbestos fiber to a minimum.	
(See Attached Sheet)	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	No special requirements	SPECIAL NONE
	MECHANICAL (General)	No special requirement	OTHER NONE
PROTECTIVE GLOVES		Not required.	EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT		Not required.	As generally good practice, safety glasses may be worn.

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place away from strong oxidizing agents. Handle carefully to avoid cuts by wire insertion.
OTHER PRECAUTIONS	Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. (See OSHA Reg. (29CFR, Para. 1910.1001)

PAGE (2) **NOTE:** The information furnished herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by:

Harold R. Hughes,
Senior Chemist

2/2/82

Form OSHA-20
Rev. May 72

MSDS 2/2/82
Style 7005
Sheet
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc.	EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522	
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 7005 Compressed Asbestos Sheet
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Style 7005 contains in excess of 80% of Chrysotile (White)					
Asbestos. The asbestos is bound and encapsulated by an					
elastomeric binder so that generation of free asbestos fiber					
or dust is negligible and well below the OSHA Std. for					
warning requirements (See attached sheet)					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Pale grey-cream colored sheet or gasket - slight char- acteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Let	Uet
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.					

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the sheet.

EMERGENCY AND FIRST AID PROCEDURES N/A to the sheet.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid) <u>Avoid storage with strong oxidizing agents.</u>			
HAZARDOUS DECOMPOSITION PRODUCTS <u>Carbon monoxide under certain circumstances. There may be others unknown to us.</u>			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.
(See Attached Sheet)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None.
	MECHANICAL (General)	No special requirement.	OTHER None.
PROTECTIVE GLOVES Not required.		EYE PROTECTION As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT Not required.			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place away from strong oxidizing agents.

OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. ----- See OSHA Regulations (29CFR, Paragraph 1910.1001)

PAGE (2)
NOTE: The information furnished herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H.R. Hughes
H. R. Hughes, Senior Chemist

Form OSHA-20
Rev. May 72

2/2/82

Addendum to Section II Form OSHA-20

It is our view that our product No. 7005 is exempted from OSHA labeling requirements in accordance with the provisions of (29 C.F.R. §1910.1001(g)(2)(i)). Nonetheless, our product No. 7005 carries the OSHA warning label so that our customers may be alerted to the fact that they are purchasing a product containing asbestos.

Addendum to Section VII Form OSHA-20

Waste Disposal Method

Place waste in a plastic bag. Since the asbestos in this product is secured with a binder and is not friable or loose, we do not consider that it presents any disposal hazard under ordinary circumstances. However, the user is responsible for complying with existing local, state and/or federal hazardous waste disposal regulations .

MSDS 2/2/82
Style 7006
Compressed Asbestos Sheet
Prepared by H. Hughes

U.S. DEPARTMENT OF LABOR

Form Approved
OMB No. 44-R1387

N/A = Not Applicable Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEETRequired under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 7006 Compressed Asbestos Sheet	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Style 7006 contains in excess of 80% of Chrysotile (White)		
Asbestos. The asbestos is bound and encapsulated by an		
elastomeric binder so that generation of free asbestos fiber		
or dust is negligible and well below the OSHA Stds. for		
warning requirements. (See attached sheet)		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Pale grey-cream colored sheet or gasket - slight characteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the sheet. For free asbestos fibers. Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the sheet.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the sheet.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid)		Avoid storage with strong oxidizing agents.	
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	
Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum. (See attached sheet)	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	SPECIAL	
	MECHANICAL (General)	OTHER	
PROTECTIVE GLOVES		EYE PROTECTION	
Not required.		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT			
Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place away from strong oxidizing agents.
OTHER PRECAUTIONS	
Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. (See OSHA Regulations 29CFR, 1910.1001).	

PAGE (2)

29 CFR 1910.1001 Para. 1910.1001).

Form OSHA-20

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

2/2/82

MSIS 2/2/82
Style 7021
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME	Garlock Inc.	EMERGENCY TELEPHONE NO.	(315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code)	1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS	N/A	TRADE NAME AND SYNONYMS	Style 7021 Compressed Asbestos Sheet
CHEMICAL FAMILY	N/A	FORMULA	N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

Style 7021 contains in excess of 80% of Chrysotile (White)

Asbestos. The asbestos is bound and encapsulated by an elastomeric binder so that generation of free asbestos fiber or dust is negligible and well below the OSHA Stds. for warning requirements. (See Attached Sheet)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT. VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black colored sheet or gasket - slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	L _{EL}	U _{EL}
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.

EFFECTS OF OVEREXPOSURE N/A to the sheet.

EMERGENCY AND FIRST AID PROCEDURES N/A to the sheet.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED 'No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fibers to a minimum. (See attached sheet).

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None
PROTECTIVE GLOVES		EYE PROTECTION	
Not required.		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT			
Not required.			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place away from strong oxidizing agents.

OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulations-

GE (2)

320 134-110 (29CFR, Para. 1910.1001)

Form OSHA-20

NOTE: The information furnished herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

2/2/82

Addendum to Section II Form OSHA-20

It is our view that our product No. 7021 is exempted from OSHA labeling requirements in accordance with the provisions of (29 C.F.R. §1910.1001(g)(2)(i)). Nonetheless, our product No. 7021 carries the OSHA warning label so that our customers may be alerted to the fact that they are purchasing a product containing asbestos.

Addendum to Section VII Form OSHA-20

Waste Disposal Method

Place waste in a plastic bag. Since the asbestos in this product is secured with a binder and is not friable or loose, we do not consider that it presents any disposal hazard under ordinary circumstances. However, the user is responsible for complying with existing local, state and/or federal hazardous waste disposal regulations .

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the pkg. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the packing. For graphite: 15 mppcf of air.
EMERGENCY AND FIRST AID PROCEDURES	
Generally N/A to the packing. If particles get in the eyes, seek medical attention as a precaution.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite product.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Some hydrogen chloride fumes. Carbon monoxide under certain circumstances and smoke. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No Special Action.	
WASTE DISPOSAL METHOD	
Normal landfill; Place waste in plastic bag.	
Comply with any local or state regulations covering disposal of asbestos products. Asbestos fiber in this product is bonded by elastomer and is not loose. (see attached sheet)	

SECTION VIII - SPECIAL PROTECTION INFORMATION		
RESPIRATORY PROTECTION (Specify type)		
No special requirement under normal conditions of use.		
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
No special requirement.		None
PROTECTIVE GLOVES		EYE PROTECTION
Not required		As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT		
Not required.		

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean, dry place, away from strong oxidizing agents. Normal wash up after handling is recommended.	
OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, however, protect against unnecessary release of fiber when cutting or handling.	
See OSHA Regulations (21CFR, Para. 1910.1001).	

PAGE (2) NOTE:

GPO 934-110

Form OSHA-20
Rev. May 72

The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied is made.

Prepared by:

H.R. Hughes, Supvr.,
Chemist

DATE

6/16/83

MSDS 2/2/82
Style 7228
Compressed Asbestos Sheet
Prepared by H. Hughes

U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration MATERIAL SAFETY DATA SHEET	Form Approved OMB No. 44-R1387
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Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I	
MANUFACTURER'S NAME GARLOCK, INC.	EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522	
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 7228 Compressed Asbestos Sheet
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Style 7228 contains in excess of 70% of Chrysotile (white) asbestos.					
It also contains neoprene elastomer. The elastomer does not present					
a hazard in itself, but some chlorine bearing combustion products					
will be generated on burning the elastomer.					

(See Attached Sheet)

SECTION III - PHYSICAL DATA			
BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Dark grey to black colored sheet or gasket - slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA							
FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Lel</td> <td style="width: 50%;">Uel</td> </tr> <tr> <td colspan="2" style="text-align: center; height: 20px;">N/A</td> </tr> </table>	Lel	Uel	N/A	
Lel	Uel						
N/A							
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical							
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained							
breathing apparatus would be desirable due to smoke produced and							
presence of hydrogen chloride and possibly other chlorine bearing com-							
bustion products.							
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces considerable smoke and fumes when large quantities							
are involved in a fire. Burning will generate hydrogen chloride and							
other chlorine bearing products.							

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the sheet.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the sheet.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid)		Avoid storage with strong oxidizing agents.	
HAZARDOUS DECOMPOSITION PRODUCTS		Hydrogen chloride fumes. Possibly carbon monoxide under certain circumstances. There may be others unknown to us.	
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	
Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.	
(See Attached Sheet)	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None.
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT		Not required.	

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place away from strong oxidizing agents.
OTHER PRECAUTIONS	
Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Reg. (29CFR, Para. 1910.1001)	

PAGE (2)

OSHA 101-110

Form OSHA-20

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

2/2/82

MSDS 2/2/82
Style 7405
Compressed Asbestos Sheet
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 7405 Compressed Asbestos Sheet.
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

	%	TLV (Units)
Style 7405 contains in excess of 80% of Chrysotile (White) Asbestos. The asbestos is bound and encapsulated by an elastomeric binder so that generation of free asbestos fiber or dust is negligible and well below the OSHA Standards for warning requirements. (See attached sheet)		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black colored sheet or gasket - slight characteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Let	Uet
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.					
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.					

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the sheet.

EMERGENCY AND FIRST AID PROCEDURES N/A to the sheet.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid) <u>Avoid storage with strong oxidizing agents.</u>			
HAZARDOUS DECOMPOSITION PRODUCTS <u>Carbon monoxide under certain circumstances. There may be others unknown to us.</u>			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.
(See Attached Sheet)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) <u>No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.</u>			
VENTILATION	LOCAL EXHAUST	<u>No special requirement.</u>	SPECIAL <u>None</u>
	MECHANICAL <u>General</u>	<u>No special requirement.</u>	OTHER <u>None</u>
PROTECTIVE GLOVES <u>Not required</u>		EYE PROTECTION <u>As generally good practice, safety glasses may be worn.</u>	
OTHER PROTECTIVE EQUIPMENT <u>Not required.</u>			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place away from strong oxidizing agents.

OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Reg. (29CFR, Para. 1910.1001)

PAGE (2)

OSHA 101-100

Form OSHA-20

Rev. May 72

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

2/2/82

Addendum to Section II Form OSHA-20

It is our view that our product No. 7405 is exempted from OSHA labeling requirements in accordance with the provisions of (29 C.F.R. §1910.1001(g)(2)(i)). Nonetheless, our product No. 7405 carries the OSHA warning label so that our customers may be alerted to the fact that they are purchasing a product containing asbestos.

Addendum to Section VII Form OSHA-20

Waste Disposal Method

Place waste in a plastic bag. Since the asbestos in this product is secured with a binder and is not friable or loose, we do not consider that it presents any disposal hazard under ordinary circumstances. However, the user is responsible for complying with existing local, state and/or federal hazardous waste disposal regulations .

MSDS 2/2/82
Style 7735 S-1
Compressed Asbestos Sheet
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME

Garlock Inc.

EMERGENCY TELEPHONE NO.

(315) 597-4811

ADDRESS (Number, Street, City, State, and ZIP Code)

1666 Division Street, Palmyra, New York 14522

CHEMICAL NAME AND SYNONYMS

N/A

TRADE NAME AND SYNONYMS Style 7735 S-1

Compressed Asbestos Sheet

CHEMICAL FAMILY

N/A

FORMULA

N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Style 7735 S-1 contains in excess of 80% Chrysotile (white)					
asbestos. The asbestos is bound and encapsulated by an					
elastomeric binder so that generation of free asbestos fiber					
or dust is negligible and well below the OSHA Stds. for					
warning requirements. (See attached sheet)					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT, VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	White colored sheet or gasket - slight characteristic odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Let	Uet
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained				
	breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the sheet.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the sheet.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS			
Carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No special action.	
WASTE DISPOSAL METHOD	
Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.	
(See Attached Sheet)	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None
PROTECTIVE GLOVES		EYE PROTECTION	
Not required.		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT			
Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean, dry place away from strong oxidizing agents.	
OTHER PRECAUTIONS	
Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Reg. (29CFR, Para. 1910.1001)	

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OSHA 934-110

Form OSHA-20

Rev. May 72

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

2/2/82

MSDS 2/2/82
Style 7819
Compressed Asbestos Sheet
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 7819 Compressed Asbestos Sheet	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Style 7819 contains in excess of 80% of Chrysotile (White) Asbestos. The asbestos is bound and encapsulated by an elastomeric binder so that generation of free asbestos fiber or dust is negligible and well below the OSHA Standards for warning requirements. (See attached sheet).

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black colored sheet or gasket - slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) N/A	FLAMMABLE LIMITS N/A	Lel	Uel
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the sheet.

EMERGENCY AND FIRST AID PROCEDURES N/A to the sheet.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.
(See Attached Sheet)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None
PROTECTIVE GLOVES		Not required.	EYE PROTECTION AS generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT Not required.			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place away from strong oxidizing agents.
OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Reg. (29CFR, Para. 1910.1001)

PAGE (2)

OSHA 934-110

Form OSHA-20

Rev. May 72

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

2/2/82

Addendum to Section II Form OSHA-20

It is our view that our product No. 7819 is exempted from OSHA labeling requirements in accordance with the provisions of (29 C.F.R. §1910.1001(g)(2)(i)). Nonetheless, our product No. 7819 carries the OSHA warning label so that our customers may be alerted to the fact that they are purchasing a product containing asbestos.

Addendum to Section VII Form OSHA-20

Waste Disposal Method

Place waste in a plastic bag. Since the asbestos in this product is secured with a binder and is not friable or loose, we do not consider that it presents any disposal hazard under ordinary circumstances. However, the user is responsible for complying with existing local, state and/or federal hazardous waste disposal regulations .

MSDS 2/2/82
Style 8748
Compressed Asbestos Sheet
Prepared by H. Hughes

U.S. DEPARTMENT OF LABOR

Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

N/A = Not Applicable.

MATERIAL SAFETY DATA SHEETRequired under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME Garlock, Inc.		EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 8748 Compressed Asbestos Sheet
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Style 8748 contains in excess of 70% of Chrysotile (white) asbestos.					
It also contains a Nitrile elastomer. The elastomer does not					
present a hazard in itself, but there is a possibility that					
acrylonitrile monomer may be generated on burning the product.					
(See Attached Sheet)					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT. VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Dark grey to black sheet or gasket - slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke produced and possible production of acrylonitrile monomer fumes.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke and fumes when large quantities are involved in a fire. Burning may generate some acrylonitrile monomer fumes.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the sheet.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the sheet.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATABILITY (Materials to avoid)			
Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS			
Carbon monoxide under certain conditions. Possibly some acrylonitrile monomer fumes. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	
Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.	
(See attached sheet)	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)			
No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST		SPECIAL
	MECHANICAL (General)		OTHER
No special requirement.		None.	
PROTECTIVE GLOVES		EYE PROTECTION	
Not required.		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT			
Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place away from strong oxidizing agents.
OTHER PRECAUTIONS	
Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Reg. (29CFR, Para. 1910.1001)	

PAGE (2)

GPO 934-110

Form OSHA-20

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H. R. Hughes 2/2/82
H. R. Hughes, Senior Chemist

MSDS 2/2/82
Style 9057
Compressed Asbestos Sheet
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock, Inc.		EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 9057 Compressed Asbestos Sheet	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Style 9057 contains in excess of 70% of Chrysotile (white) asbestos.					
It also contains neoprene elastomer. The elastomer does not					
present a hazard in itself, but some chlorine bearing combustion					
products will be generated on burning the elastomer.					
(See Attached Sheet)					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black colored sheet or gasket - slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced and presence of hydrogen chloride and possibly other chlorine bearing combustion products.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke and fumes when large quantities are involved in a fire. Burning will generate hydrogen chloride and other chlorine bearing products.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the sheet.
EMERGENCY AND FIRST AID PROCEDURES	N/A to the sheet.

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen chloride fumes. Possibly carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum. (See attached sheet)

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	SPECIAL	None
	MECHANICAL (General)	OTHER	None.
PROTECTIVE GLOVES		EYE PROTECTION	
Not required.		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place away from strong oxidizing agents.
OTHER PRECAUTIONS	
Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Reg. (29CFR, Para. 1910.1001)	

PAGE (2)

GPO 934-110

Form OSHA-20

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Senior Chemist

2/2/82

MSDS 9/27/82
Style 5525
Braided White Asbestos Packing
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME

Garlock, Inc. Compression Packing Divn.

EMERGENCY TELEPHONE NO.

(315)-483-6961

ADDRESS (Number, Street, City, State, and ZIP Code)

300 Alling Drive, Sodus, New York 14551

CHEMICAL NAME AND SYNONYMS

N/A

TRADE NAME AND SYNONYMS Style 5525
Braided White Asbestos Packing

CHEMICAL FAMILY

N/A

FORMULA

N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Chrysotile (white) asbestos is present to the extent of 70+ %.					
Yarn is impregnated with polytetrafluoroethylene which inhibits generation of free asbestos fiber or dust. Style 5525 also available with wire inserted yarn and with petroleum base break- in lubricant. (See attached sheet)					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Grey to white braided packing		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Let	Uet
About 395° F. for break-in lube.	N/A		
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.		
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke and fluoride containing compounds produced.		
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces smoke. Decomposition of the polytetrafluoroethylene produces hydrogen fluoride and other fluoride containing fumes.		

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	None under normal conditions of use. Over exposure to thermal decomposition products of polytetrafluoroethylene may cause flu-like symptoms. This is a temporary condition.
EMERGENCY AND FIRST AID PROCEDURES	Not necessary under normal conditions of use. For over exposure to thermal decomposition products of polytetrafluoroethylene, move to fresh air.
	Contact physician for treatment.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite organic portion of yarn and break-in lubricant.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing Agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen fluoride fumes, carbonyl fluoride and perfluorocarbon olefins are evolved at high temp. there may be others			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID unknown to us.
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
No special action.
WASTE DISPOSAL METHOD
Normal landfill; place waste in plastic bag to reduce any chance of generation of fiber to a minimum. (See attached sheet)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirements	SPECIAL None
	MECHANICAL (General)	No special requirements	OTHER None
PROTECTIVE GLOVES		Not required	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT		Not required. Normal wash up after handling is recommended.	

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Store in clean, dry place, away from strong oxidizing agents.
OTHER PRECAUTIONS
Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. (See OSHA Regulations 21CFR, Para. 1910.1001).

PAGE (2) NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

Form OSHA
Rev. May 72

Prepared by: Harold R. Hughes, Supvr., Chemist

9/27/82

MSDS 10/1/82
Style 9533
Compressed Asbestos Sheet
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 9533 Compressed Asbestos Sheet
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

	%	TLV (Units)
Style 9533 contains in excess of 80% of Chrysotile (White) Asbestos. The asbestos is bound and encapsulated by an elastomeric binder so that generation of free asbestos fiber or dust is negligible and well below the OSHA Stds. for warning requirements.		
(See Attached Sheet)		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black colored sheet or gasket - slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	Uel
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.

EFFECTS OF OVEREXPOSURE

N/A to the sheet.

EMERGENCY AND FIRST AID PROCEDURES

N/A to the sheet.

SECTION VI - REACTIVITY DATA

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

X

Direct flame will ignite elastomer compound.

INCOMPATIBILITY (Materials to avoid)

Avoid storage with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide under certain circumstances. There may be others unknown to us.

HAZARDOUS
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

X

None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

No special action.

WASTE DISPOSAL METHOD

Normal landfill; place waste in plastic bag to reduce generation of asbestos fibers to a minimum. (See attached sheet).

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.

VENTILATION

LOCAL EXHAUST

No special requirement.

SPECIAL

None

MECHANICAL (General)

No special requirement.

OTHER

None

PROTECTIVE GLOVES

Not required.

EYE PROTECTION As generally good practice, safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT

Not required.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in clean, dry place away from

strong oxidizing agents.

OTHER PRECAUTIONS

Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulations-

PAGE (2)

29 CFR, Para. 1910.1001

Form OSHA-20

NOTE: The information furnished herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by:

H. R. Hughes, Supvr., Chemist

10/1/82

MSDS 1/7/83
Style 900 T
Compressed Asbestos Sheet
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME <u>Garlock Inc.</u>		EMERGENCY TELEPHONE NO. <u>(315) 597-4811</u>
ADDRESS (Number, Street, City, State, and ZIP Code) <u>1666 Division Street, Palmyra, New York 14522</u>		
CHEMICAL NAME AND SYNONYMS <u>N/A</u>	TRADE NAME AND SYNONYMS <u>Styles 900T Compressed Asbestos Sheet.</u>	
CHEMICAL FAMILY <u>N/A</u>	FORMULA <u>N/A</u>	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

Style 900T - contains in excess of 80% Chrysotile (white) asbestos.
The asbestos is bound and encapsulated by an elastomeric binder so
that generation of free asbestos fiber or dust is negligible and well
below the OSHA Stds. for warning requirements (See attached Sheet).

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Pale grey-cream colored sheet or gasket - slight char- acteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LC ₅₀	UL
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the sheet.

EMERGENCY AND FIRST AID PROCEDURES N/A to the sheet.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATABILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum. (See attached sheet).

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	SPECIAL	None
	No special requirement.		
	MECHANICAL (General)	OTHER	None
No special requirement.			
PROTECTIVE GLOVES		EYE PROTECTION	
Not required.		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT			
Not required.			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place away from strong oxidizing agents.

OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. (See OSHA Regulations 29CFR, Para.1910.1001)

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OSHA 104-110

Form OSHA-20

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Supvr., Chemist

1/7/83

MSDS 1/17/83
Style 7021 T
Compressed Asbestos Sheet
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 7021T Compressed Asbestos Sheet.
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

	%	TLV (Units)
Style 7021T contains in excess of 80% of Chrysotile (White) Asbestos. The asbestos is bound and encapsulated by an elastomeric binder so that generation of free asbestos fiber or dust is negligible and well below the OSHA Stds. for warning requirements.		
(See Attached Sheet)		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ = 1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black colored sheet or gasket - slight odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Let	Uet
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces thick smoke when large quantities are burned.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the sheet.
EMERGENCY AND FIRST AID PROCEDURES	N/A to the sheet.

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid)		Avoid storage with strong oxidizing agents.	
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.	
WASTE DISPOSAL METHOD	Normal landfill; place waste in plastic bag to reduce generation of asbestos fibers to a minimum. (See attached sheet).

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None
PROTECTIVE GLOVES		EYE PROTECTION	
Not required.		AS generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place away from strong oxidizing agents.	
OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulations-	

PAGE (2) 29 CFR, Para. 1910.1001 Form OSHA-20 Rev. May 72

NOTE: The information furnished herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by: H. R. Hughes 1/7/83
H. R. Hughes, Supvr., Chemist

MSDS 5/4/83
Style 9532
Compressed Asbestos Sheet
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME Garlock Inc.		EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 9532 Compressed Asbestos Sheet	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Style 9532 contains in excess of 80% Chrysotile (white)					
asbestos. The asbestos is bound and encapsulated by an					
elastomeric binder so that generation of free asbestos fiber					
or dust is negligible and well below the OSHA Stds. for					
warning requirements. (See attached sheet)					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		

APPEARANCE AND ODOR White colored sheet or gasket - slight characteristic odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lel	Uel
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.					
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.					

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the sheet.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the sheet.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS			
Carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	
Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.	
(See Attached Sheet)	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None
PROTECTIVE GLOVES		EYE PROTECTION	
Not required.		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT			
Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place away from strong oxidizing agents.
OTHER PRECAUTIONS	
Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Reg. (29CFR, Para. 1910.1001)	

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OSHA 334-110

Form OSHA-20

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H. R. Hughes
H. R. Hughes, Supvr., Chemist

5/4/83

MSDS 6/16/83
Style 7020
Molded Packing Ring
Prepared by H. Hughes

NA - Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock, Inc., Compression Packing Div.		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS Neoprene-SBR elastomer bonded Asb. Fibrous Plastallic		TRADE NAME AND SYNONYMS Style 7020 Molded Packing Rings.
CHEMICAL FAMILY N/A	packing	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains about 30% Chrysotile (white) asbestos and about 46% graphite. It also contains a neoprene elastomer which does					
not present a hazard in itself, but some chlorine bearing					
combustion products will be generated on burning. Contains					
small amount (about 3%) mineral oil.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR Black Solid Rings - Slight Odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lel	Uel
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.					
SPECIAL FIRE FIGHTING PROCEDURES					
None. When fire involves significant quantities of product, self contained breathing apparatus should be used due to smoke produced, presence of hydrogen chloride fumes and possibly other chloride					
UNUSUAL FIRE AND EXPLOSION HAZARDS bearing combustion products.					
None. Produces considerable smoke and fumes when large quantities are involved in a fire. Burning will generate hydrogen chloride and other chlorine bearing products.					

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the pkg. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the packing. For graphite: 15 mppcf of air.
EMERGENCY AND FIRST AID PROCEDURES	
Generally N/A to the packing. If particles get in the eyes, seek medical attention as a precaution.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite product.
INCOMPATIBILITY (Materials to avoid)			
Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Some hydrogen chloride fumes. Carbon monoxide under certain circumstances and smoke. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No Special Action.	
WASTE DISPOSAL METHOD	
Normal landfill; Place waste in plastic bag.	
Comply with any local or state regulations covering disposal of asbestos products. Asbestos fiber in this product is bonded by elastomer and is not loose. (see attached sheet)	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)			
No special requirement under normal conditions of use.			
VENTILATION	LOCAL EXHAUST	No special requirement	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None
PROTECTIVE GLOVES		EYE PROTECTION	
Not required		As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT			
Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean, dry place, away from strong oxidizing agents. Normal wash up after handling is recommended.	
OTHER PRECAUTIONS Asbestos is bonded by elastomer compound, however protect against unnecessary release of fiber when cutting or handling.	
See OSHA Regulations (21CFR, Para. 1910.1001).	

PAGE (2) NOTE:

The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied is made.

Form OSHA-20
Rev. May 72

Prepared by: H.R. Hughes
H.R. Hughes, Supvr.,
Chemist

DATE
6/16/83

MSDS 8/22/83
Style 266
Braided Asbestos Packing
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Ailing Drive - Sodus, New York 14511		
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS Style 266 Braided Asbestos Packing.	
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Chrysotile (white) asbestos is present to the extent of					
about 65 - 75% in Style 266. The asbestos yarn is					
impregnated with a petroleum oil and graphite which inhibits					
generation of free asbestos fiber or dust.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR Black braided packing - slight odor. Coil or rings.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Flash Point of petroleum oil is about 555°F. (C.O.C.)	FLAMMABLE LIMITS Unknown	LeI	UeI
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the braid. For graphite: 15 mppcf of air.

EMERGENCY AND FIRST AID PROCEDURES N/A to the braid.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others which are unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	NONE

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.
(See attached sheet)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)				No special requirement.		Mouth and nose mask may be worn when cutting large quantities.	
VENTILATION	LOCAL EXHAUST		No special requirement.		SPECIAL		NONE.
	MECHANICAL (General)		No special requirement.		OTHER		NONE.
PROTECTIVE GLOVES			Not required.		EYE PROTECTION As generally good practice, safety glasses may be worn.		
OTHER PROTECTIVE EQUIPMENT							
Not required. Normal wash up after handling is suggested.							

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place, away from strong oxidizing agents.

OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29 CFR, Para. 1910.1001)

PAGE (2)

GPO 934-110

Form OSHA-20

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by:

W.R. Hughes

W.R. Hughes, Subvr., Chemist

8/22/83

MSDS 9/7/83
Style 736
Braided Blue Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917).

SECTION I

MANUFACTURER'S NAME Garlock, Inc. Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive, Sodus, New York 14511		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 736 Braided Blue Asbestos Packing
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Crocidolite (Blue) asbestos is present to the extent of 40-60% depending on size. The asbestos is thoroughly impregnated with a petrolatum base lubricant and graphite which inhibits the generation of free asbestos fiber or dust.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Style 736 is black with slight odor-coil and ring form.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Flash point of lubricant is about 415°F. (C.O.C. Method)	FLAMMABLE LIMITS N/A	Lel	Uel
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.			

Prepared by H. Hughes

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air. For EFFECTS OF OVEREXPOSURE N/A to the braid. graphite: 15 mppcf of air.

EMERGENCY AND FIRST AID PROCEDURES N/A to the braid.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite lubricant
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of free asbestos fiber.

(See attached sheet)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirement	SPECIAL None
	MECHANICAL (General)	No special requirement	OTHER None
PROTECTIVE GLOVES Not required		EYE PROTECTION As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT Not required. Normal wash up after handling is recommended.			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Store in clean, dry place, away from strong oxidizing agents.

OTHER PRECAUTIONS Product has a binder (lubricant) however, protect against unnecessary release of fiber when cutting or handling.
See OSHA Regulations (29CFR, Para. 1910.1001).

PAGE (2) NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made. Form OSHA-20 Rev. May 73

Prepared by: Harold R. Hughes, Supvr., Chemist

9/7/83

MSDS 4/27/84
Style 644
Braided Asbestos Packing
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME Garlock, Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive, Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS Square Braided, Lead Wire Inserted Asbestos Yarn Packing		TRADE NAME AND SYNONYMS Style 644 Braided Asbestos Packing
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains Chrysotile (white) asbestos yarn with lead wire. Yarn is impregnated with a petroleum lubricant and graphite which inhibits generation of free asbestos fiber or dust.					
(See attached sheet)					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR Black braided packing - slight odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Flash Point of petroleum is about 592°F (C.O.C.)	FLAMMABLE LIMITS Unknown	LeI	Uel
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES None, If fire involves substantial quantities, self contained breathing apparatus should be used due to smoke and possibly toxic lead vapors.			
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Lead melts at about 621.1°F (327.3°C). Lead vapors may be given off even though lead is not heated to its boiling point.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers/cubic centimeter of air. For airborne lead: 30mcg/cc of air
EFFECTS OF OVEREXPOSURE	N/A to the braid.
EMERGENCY AND FIRST AID PROCEDURES	N/A to the braid. Avoid generation and ingestion of free asbestos fibers and/or lead particles.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn
INCOMPATIBILITY (Materials to avoid)			
Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Possibly toxic lead vapors under conditions of high heat. Possibly carbon monoxide under certain circumstances. There may be others unknown to US.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No special action.	
WASTE DISPOSAL METHOD	Normal landfill. Place waste in plastic bag to reduce generation of asbestos fiber to a minimum.
(See attached sheet)	

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.		
VENTILATION	LOCAL EXHAUST	SPECIAL
	No special requirement	None
	MECHANICAL (General)	OTHER
	No special requirement	None
PROTECTIVE GLOVES	Not required.	EYE PROTECTION As generally good practice safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT		
Not required. Normal wash up after handling is recommended.		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE	
Store in clean, dry place, away from strong oxidizing agents. Lead will not become airborne under normal conditions of use. See OSHA Regulations (29 CFR 1910.1025) for information on exposure to lead.	
OTHER PRECAUTIONS	
Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR 1910.1001)	

PAGE (2) NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

Prepared by: Harold R. Hughes, Supvr., Chemist

4/27/84

Form OSHA
Rev. May 72

MSDS 8/22/83
Style 266
Braided Asbestos Packing
Prepared by H. Hughes

N/A = Not Applicable

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health AdministrationForm Approved
OMB No. 44-R1387**MATERIAL SAFETY DATA SHEET**Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)**SECTION I**

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Ailing Drive - Sodus, New York 14511		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 266 Braided Asbestos Packing.
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Chrysotile (white) asbestos is present to the extent of about 65 - 75% in Style 266. The asbestos yarn is impregnated with a petroleum oil and graphite which inhibits generation of free asbestos fiber or dust.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR Black braided packing - slight odor. Coil or rings.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Flash point of petroleum oil is about 555°F. (C.O.C.)	FLAMMABLE LIMITS	Lel	Uel
Unknown			
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE For graphite: 15 mppcf of air.
N/A to the braid.

EMERGENCY AND FIRST AID PROCEDURES N/A to the braid.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others which are unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	NONE

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.
(See attached sheet)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)				No special requirement.		Mouth and nose mask may be worn when cutting large quantities.	
VENTILATION	LOCAL EXHAUST		No special requirement.		SPECIAL	NONE.	
	MECHANICAL (General)		No special requirement.		OTHER	NONE.	
PROTECTIVE GLOVES			Not required.		EYE PROTECTION As generally good practice, safety glasses may be worn.		
OTHER PROTECTIVE EQUIPMENT							
Not required. Normal wash up after handling is suggested.							

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place, away from strong oxidizing agents.

OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29 CFR, Para. 1910.1001)

PAGE (2)

GPO 934-100

Form OSHA-20 Rev. May 72

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by:

W.R. Hughes

W.R. Hughes. Subvr.. Chemist 8/22/83

MSDS 9/7/83
Style 736
Braided Blue Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock, Inc. Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive, Sodus, New York 14511		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 736 Braided Blue Asbestos Packing
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Crocidolite (Blue) asbestos is present to the extent of 40-60%					
depending on size. The asbestos is thoroughly impregnated with					
a petrolatum base lubricant and graphite which inhibits the					
generation of free asbestos fiber or dust.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Style 736 is black with slight odor-coil and ring form.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Flash point of lubricant is about 415°F. (C.O.C Method)	FLAMMABLE LIMITS N/A	Lel	Uel
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke produced.			
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air. For	graphite: 15 mppcf of air.
EFFECTS OF OVEREXPOSURE N/A to the braid.	
EMERGENCY AND FIRST AID PROCEDURES N/A to the braid.	

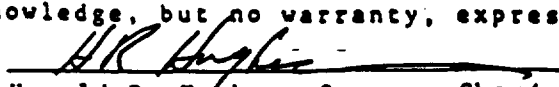
SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite lubricant
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No special action.	
WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of free asbestos fiber.	
(See attached sheet)	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.			
VENTILATION	LOCAL EXHAUST	No special requirement	SPECIAL None
	MECHANICAL (General)	No special requirement	OTHER None
PROTECTIVE GLOVES Not required		EYE PROTECTION As generally good practice, safety glasses may be worn.	
OTHER PROTECTIVE EQUIPMENT Not required. Normal wash up after handling is recommended.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean, dry place, away from strong oxidizing agents.	
OTHER PRECAUTIONS Product has a binder (lubricant) however, protect against unnecessary release of fiber when cutting or handling.	
See OSHA Regulations (29CFR, Para. 1910.1001).	

PAGE (2) NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made. Form OSHA-20 Rev. May 72


 Prepared by: Harold R. Hughes, Supvr., Chemist 9/7/83

MSDS 4/27/84
Style 644
Braided Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock, Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive, Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS Square Braided, Lead Wire Inserted Asbestos Yarn Packing		TRADE NAME AND SYNONYMS Style 644 Braided Asbestos Packing
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains Chrysotile (white) asbestos yarn with lead wire. Yarn is impregnated with a petroleum lubricant and graphite which inhibits generation of free asbestos fiber or dust.					
(See attached sheet)					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ = 1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR Black braided packing - slight odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Flash Point of petroleum is about 592°F. (C.O.C.)	FLAMMABLE LIMITS Unknown	Let	Use
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES None, If fire involves substantial quantities, self contained breathing apparatus should be used due to smoke and possibly toxic lead vapors.			
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Lead melts at about 621.1°F. (327.3°C). Lead vapors may be given off even though lead is not heated to its boiling point.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers/cubic centimeter of air. For airborne lead: 30mcg/cc of air
EFFECTS OF OVEREXPOSURE	N/A to the braid.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the braid. Avoid generation and ingestion of free asbestos fibers and/or lead particles.	

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn
INCOMPATIBILITY (Materials to avoid)			
Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Possibly toxic lead vapors under conditions of high heat. Possibly carbon monoxide under certain circumstances. There may be others unknown to US.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
No special action.	
WASTE DISPOSAL METHOD	Normal landfill. Place waste in plastic bag to reduce generation of asbestos fiber to a minimum.
(See attached sheet)	

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.		
VENTILATION	LOCAL EXHAUST	SPECIAL
	No special requirement	None
	MECHANICAL (General)	OTHER
	No special requirement	None
PROTECTIVE GLOVES	Not required.	EYE PROTECTION As generally good practice safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT		
Not required. Normal wash up after handling is recommended.		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in clean, dry place, away from strong oxidizing agents. Lead will not become airborne under normal conditions of use. See OSHA Regulations (29CFR 1910.1025) for information on exposure to lead.	
OTHER PRECAUTIONS	
Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR 1910.1001)	

PAGE (2) NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made. Form OSHA Rev. May 72

Prepared by: Harold R. Hughes, Supvr., Chemist

4/27/84

MSDS 5/16/84
Style 256
Braided Packing
Prepared by H. Hughes



MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29.CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc., Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Ailing Drive - Sodus, New York 14511		
CHEMICAL NAME AND SYNONYMS Multiple carrier Braided White Asbestos Pkg.		TRADE NAME AND SYNONYMS Style 1700 Braided Asbestos Packing.
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Unit)	ALLOYS AND METALLIC COATINGS	%	TLV (Unit)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Unit)
Chrysotile (white) asbestos is present to the extent of more than 40%. The asbestos yarn is treated with a compound which inhibits the generation of free asbestos fiber or dust.					
(see attached sheet)					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR Style 1700 is black and has a slight characteristic odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	Lower	Upper
		Unknown		
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE N/A to the braid. For graphite: 15 mppcf of air.

EMERGENCY AND FIRST AID PROCEDURES N/A to the braid.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid) Avoid storage or contact with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide under certain circumstances. There may be others which are unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	NONE

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED No special action.

WASTE DISPOSAL METHOD Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum. Comply with any local disposal regulations. (See Attached Sheet)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)				No special requirement.		Mouth and nose mask may be worn when cutting large quantities.	
VENTILATION	LOCAL EXHAUST		No special requirement.		SPECIAL		NONE.
	MECHANICAL (General)		No special requirement.		OTHER		NONE.
PROTECTIVE GLOVES			Not required.		EYE PROTECTION As generally good practice, safety glasses may be worn.		
OTHER PROTECTIVE EQUIPMENT							
Not required. Normal wash up after handling is suggested.							

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place, away from strong oxidizing agents.

OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29 CFR, Para. 1910.1001)

PAGE (2)

GPO 334-110

Form OSHA-20

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied, is made.

Prepared by:

H.R. Hughes, Supvr., Chemist

5/16/84

MSDS 5/17/84
Style 531
Chevron Rings
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME GARLOCK, INC.	EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522	
CHEMICAL NAME AND SYNONYMS Asbestos fabric and Neoprene Elastomer Compound.	TRADE NAME AND SYNONYMS Style 531 CHEVRON Rings.
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

Style 531 CHEVRON contains a Commercial Grade asbestos fabric.

It also contains neoprene elastomer. The elastomer does not present a hazard in itself, but some chlorine bearing combustion products will be generated on burning the elastomer.

(See Attached Sheet)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		

APPEARANCE AND ODOR Black elastomer compound and fabric rings - slight odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lel	Uel
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced and presence of hydrogen chloride and possibly other chlorine bearing combustion products.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke and fumes when large quantities are involved in a fire. Burning will generate hydrogen chloride and other chlorine bearing products.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the rings. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the rings.
EMERGENCY AND FIRST AID PROCEDURES	
N/A to the rings.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen chloride fumes. Possibly carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	
Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.	
(See Attached Sheet) Comply with any local disposal regulations.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None.
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT Not required.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place away from strong oxidizing agents.
OTHER PRECAUTIONS	
Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Reg. (29CFR, Para. 1910.1001)	

PAGE (2)

NOTE:

The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Form OSHA-20

Rev. May 78

Prepared by:

H.R. Hughes, Supervising Chemist

5/17/84

100-452415-209-1231

100-452415-209-1231

MSDS 7/5/84
Style 9053
Compressed Asbestos Sheet
Prepared by H. Hughes

N/A = Not Applicable Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME GARLOCK, INC.		EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522		
CHEMICAL NAME AND SYNONYMS N/A		TRADE NAME AND SYNONYMS Style 9053 Compressed Asbestos Sheet
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

% TLV (Units)

Style 9053 contains in excess of 75% of Chrysotile (white) asbestos. It also contains neoprene elastomer. The elastomer does not present a hazard in itself, but some chlorine bearing combustion products will be generated on burning the elastomer.

(See Attached Sheet)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		

APPEARANCE AND ODOR **Dark grey to black colored sheet or gasket - slight odor.**

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LeI	UeI
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical					
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus would be desirable due to smoke produced and presence of hydrogen chloride and possibly other chlorine bearing combustion products.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces considerable smoke and fumes when large quantities are involved in a fire. Burning will generate hydrogen chloride and other chlorine bearing products.					

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(Continued on reverse side)

Form OSHA-20
Rev. May 72

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.
EFFECTS OF OVEREXPOSURE	N/A to the sheet.
EMERGENCY AND FIRST AID PROCEDURES	N/A to the sheet.

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATIBILITY (Materials to avoid)		Avoid storage with strong oxidizing agents.	
HAZARDOUS DECOMPOSITION PRODUCTS		Hydrogen chloride fumes. Possibly carbon monoxide under certain circumstances. There may be others unknown to us.	
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	No special action.
WASTE DISPOSAL METHOD	Normal landfill; place waste in plastic bag to reduce generation of asbestos fiber to a minimum.
(See Attached Sheet)	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirements.			
VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL None
	MECHANICAL (General)	No special requirement.	OTHER None.
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice, safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT		Not required.	

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry place away from strong oxidizing agents.
OTHER PRECAUTIONS	
Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Reg. (29CFR, Para. 1910.1001)	

PAGE (2)

OSHA 334-110

Form OSHA-20

NOTE: The information furnished herein is accurate to the best of our knowledge but no warranty, express or implied, is made.

Prepared by: H.R. Hughes
H.R. Hughes, Supvr., Chemist

7/5/84

MSDS 8/22/84
Style 631
Twisted Lead Foil With
Asbestos
Prepared by H. Hughes



MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock, Inc., Compression Packing Divn.		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive, Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS Twisted lead foil over a braided asbestos core.		TRADE NAME AND SYNONYMS Style 631 twisted lead foil with asbestos
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Braided Chrysotile (white) asbestos yarn is present to the extent					
of about 10% by weight. It is wrapped with twisted lead foil					
which inhibits generation of free asbestos fiber.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm.Hg.)	N/A	PERCENT. VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Black metallic surface - distinct odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) N/A	FLAMMABLE LIMITS N/A	Lat	Uet
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES If fire involves large quantities, self contained breathing apparatus should be used due to smoke and possible toxic lead vapors.			
UNUSUAL FIRE AND EXPLOSION HAZARDS Lead melts at about 621.1 F. (327.3°). Lead vapor may be given off even though lead is not heated to its boiling point.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE For airborne lead: 30 mcg/cc of air. For graphite; 15mpp/cft air. For asbestos fiber: not more than 2 fibers longer than 5 microns per cc of air.

EFFECTS OF OVEREXPOSURE N/A to the packing.

EMERGENCY AND FIRST AID PROCEDURES Avoid generation and ingestion of lead particles. If accidentally ingested, give emetics, sodium, potassium or magnesium sulfate or give milk or albumin. Call physician at once. If fibers get in the eyes accidentally, irrigate with clear water and contact physician.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will burn off treatment and organic portion of yarn.
INCOMPATIBILITY (Materials to avoid) Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Possibly toxic lead vapors under conditions of high heat. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

No special action.

WASTE DISPOSAL METHOD

Normal landfill, place waste in plastic bag.
Comply with any local disposal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)			
No special requirement under normal conditions of use.			
VENTILATION	LOCAL EXHAUST	No special requirement under normal conditions of use.	SPECIAL None
	MECHANICAL (General)	No special requirement under normal conditions of use.	OTHER None
PROTECTIVE GLOVES		Not required.	EYE PROTECTION As generally good practice safety glasses may be worn.
OTHER PROTECTIVE EQUIPMENT			
Not required. Normal wash up after handling is recommended.			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Store in clean, dry place away from strong oxidizing agents.
Other Precautions: Lead is present in metallic form. It would not become airborne under normal conditions of use. See OSHA Regs. (29CFR 1910.1025).
Braided asbestos is wrapped with lead, however, protect against unnecessary release of fiber when cutting and/or handling.
See OSHA Regulations (29CFR 1910.1001).

PAGE (2) **NOTE:** The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

Form OSHA
Rev. May 73

Prepared by: Harold R. Hughes, Supvr., Chemist

8/22/84

Addendum to Section II Form OSHA-20

It is our view that our product No. 631 is exempted from OSHA labeling requirements in accordance with the provisions of (29 C.F.R. §1910.1001(g)(2)(i)). Nonetheless, our product No. 631 carries the OSHA warning label so that our customers may be alerted to the fact that they are purchasing a product containing asbestos.

Addendum to Section VII Form OSHA-20

Waste Disposal Method

Place waste in a plastic bag. Since the asbestos in this product is secured with a binder and is not friable or loose, we do not consider that it presents any disposal hazard under ordinary circumstances. However, the user is responsible for complying with existing local, state and/or federal hazardous waste disposal regulations .

MSDS 2/6/85
Style 162
Braided Packing
Prepared by H. Hughes

N/A = Not Applicable.

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-21387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock Inc, Compression Packing Division		EMERGENCY TELEPHONE NO. (315) 483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Alling Drive Sodus New York 14551		
CHEMICAL NAME AND SYNONYMS Multiple Carrier Braided Conner Wire Inst Asbestos Yarn Packing		TRADE NAME AND SYNONYMS Style 162 Braided Asbestos Packing (Regular)
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Contains about 25-30% Chrysotile (White) Asbestos. Packing is impregnated with a lubricant which inhibits generation of fiber or dust. Sizes below 5/16" contain a lead ribbon core. The regular version of Style 162 is graphited. Other versions are available.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ = 1)	N/A
SOLUBILITY IN WATER Lubricant is soluble	10-15%		
APPEARANCE AND ODOR Regular version is black and has a distinct odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) A portion of the lubricant has a flash point of 320°F	FLAMMABLE LIMITS N/A	LFL	UFL
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURES If fire involves large quantities, self contained breathing apparatus should be used due to smoke produced and possibly toxic lead vapors.			
UNUSUAL FIRE AND EXPLOSION HAZARDS Lead (present in sizes below 5/16") melts at about 621.1°F. Lead vapors may be given off even though lead is not heated to its boiling point.			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE FOR free asbestos fibers: Not more than 2 fibers longer than 5 micrometers/cubic centimeters of air. For airborne lead: 30 mcg/c.c. of air.

EFFECTS OF OVEREXPOSURE

N/A to the braid.

EMERGENCY AND FIRST AID PROCEDURES

N/A to the braid. If overcome by smoke and fumes in a fire involving quantities of the product, remove to fresh air and contact a physician if recovery is not prompt.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn.

INCOMPATIBILITY (Materials to avoid)

Avoid storage with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS Possibly toxic lead vapors (from sizes under 5/16") under high heat conditions. Possibly carbon monoxide under certain conditions. There may be others unknown to us.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

No special action.

WASTE DISPOSAL METHOD

Normal landfill. Place waste in plastic bag to reduce generation of asbestos fiber to a minimum. Comply with any local disposal regulations. (See attached sheet.)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.

VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL	None
	MECHANICAL (General)	No special requirement.	OTHER	None

PROTECTIVE GLOVES Not required. EYE PROTECTION AS generally good practice, safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT Not required. Normal wash up after handling is recommended.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place away from strong oxidizing agents. Lead will not become airborne under normal conditions of use. See OSHA Regulations (29CFR1910.1025) for information on exposure to lead.

OTHER PRECAUTIONS Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulations (29CFR1910.1001).

PAGE (2) NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made. Form OSHA Rev. May 72

Prepared by: Harold R. Hughes, Supvr., Chemist

2/6/85

MSDS 6/14/85
Style 7953
Asbestos and Neoprene Compound
Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME GARLOCK, INC.		EMERGENCY TELEPHONE NO. (315) 597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street Palmyra, N. Y. 14522		
CHEMICAL NAME AND SYNONYMS Wire inserted Asbestos and Neoprene Cmpd. Packing		TRADE NAME AND SYNONYMS Style 7953
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Style 7953 contains wire inserted asbestos fabric and a Neoprene elastomer. The elastomer does not present a hazard in itself, but some chlorine bearing combustion products will be generated on burning the elastomer.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR Product is black and has a slight odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	LC ₅₀	LD ₅₀
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.					
SPECIAL FIRE FIGHTING PROCEDURES When fire involves significant quantities of product, self contained breathing apparatus should be used due to smoke produced, some hydrogen chloride fumes and possibly other chlorine bearing combustion products.					
UNUSUAL FIRE AND EXPLOSION HAZARDS Produces considerable smoke and fumes when substantial quantities are burned. Burning will generate some toxic fumes (See above).					

Asbestos and neoprene compounds
Packing
Prepared by H. Hughes

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the product. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cm³ of air.
EFFECTS OF OVEREXPOSURE N/A to the product.

EMERGENCY AND FIRST AID PROCEDURES

N/A to the product. If overcome by fumes from the product in a fire, remove to fresh air and consult a physician if recovery is not prompt.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.
INCOMPATABILITY (Materials to avoid)			
Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Some hydrogen chloride fumes, possibly other chlorine bearing decomposition products. Possibly carbon monoxide under certain circumstances. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

No special action.

WASTE DISPOSAL METHOD

Normal landfills. Place waste in plastic bag to reduce generation of asbestos fiber to a minimum. Comply with any local disposal regulation.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn if cutting large quantities. No known OSHA requirements.

VENTILATION	LOCAL EXHAUST	SPECIAL
	No special requirement under normal conditions of use.	None
	MECHANICAL (General)	OTHER
	No special requirement under normal conditions of use.	None

PROTECTIVE GLOVES Not required EYE PROTECTION AS generally good practice, safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT Not required.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

OTHER PRECAUTIONS

Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulation (29CFR1910.1001).

PAGE (2) NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

Form OSHA-
Rev. May 72

6-14-85

Prepared by: HR Hughes
Harold R. Hughes, Supvr., Chemist

(Date)

MSDS 11/22/85
Styles 902, 903, 903 S & 904
Compressed Asbestos Sheet
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock, Inc.		EMERGENCY TELEPHONE NO. 315-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, N.Y. 14522		
CHEMICAL NAME AND SYNONYMS EPDM Elastomer Bonded Compressed Asbestos Sheet.		TRADE NAME AND SYNONYMS Styles 902, 903, 904 Compressed Asbestos Sheet.
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
These styles contain in excess of 75% of chrysotile (white) asbestos.					
The asbestos is bound and encapsulated by an elastomeric binder so					
that generation of free asbestos fiber or dust is negligible and					
well below the OSHA Standard for warning requirements.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT. VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR White colored sheet - slight characteristic odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Lel	Uel
EXTINGUISHING MEDIA Water, foam, carbon dioxide, dry chemical.					
SPECIAL FIRE FIGHTING PROCEDURES None. When fire involves large quantities of product, self contained breathing apparatus should be used due to smoke produced.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None. Produces thick smoke when large quantities are burned.					

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the sheet. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeters of air.

EFFECTS OF OVEREXPOSURE N/A to the sheet.

EMERGENCY AND FIRST AID PROCEDURES

N/A to the sheet.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite elastomer compound.

INCOMPATIBILITY (Materials to avoid)

Avoid storage with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS In a fire, carbon monoxide under certain circumstances. There may be others unknown to us.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

No special action.

WASTE DISPOSAL METHOD

Normal landfill. Place waste in plastic bag. Comply with

any local disposal regulations.

(See attached sheet)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities. No known OSHA requirement.

VENTILATION	LOCAL EXHAUST	No special requirement.	SPECIAL	None.
	MECHANICAL (General)	No special requirement.	OTHER	None.

PROTECTIVE GLOVES Not required.

EYE PROTECTION As generally good practice, Safety glasses may be worn.

OTHER PROTECTIVE EQUIPMENT Not required.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Store in clean, dry place away from strong oxidizing agents.

Normal wash up after handling is recommended.

OTHER PRECAUTIONS

Asbestos is bonded by elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Reg. 29CFR 1910.1000.

PAGE (2) **NOTE:** The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made. Form OSHA Rev. May 72

Prepared by: Harold R. Hughes, Supvr., Chemist

11/22/85

MSDS 2/28/86
Style 734
Braided Asbestos Packing
Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock, Inc. Compression Packing Division		EMERGENCY TELEPHONE NO. (315)-483-6961
ADDRESS (Number, Street, City, State, and ZIP Code) 300 Ailing Drive, Sodus, New York 14551		
CHEMICAL NAME AND SYNONYMS Lattice Braided, Grease Impregnated, Asbestos Packing.		TRADE NAME AND SYNONYMS Style 734 Braided Asbestos Packing.
CHEMICAL FAMILY N/A	FORMULA N/A	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains about 40% chrysotile (white) asbestos. Packing is					
thoroughly impregnated with a grease lubricant which inhibits					
generation of free asbestos fiber or dust.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Lubricant partially soluble.		
APPEARANCE AND ODOR	Style 734 is black and has a characteristic odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Flash point of grease impregnant is about 445°F. (C.O.C.)	FLAMMABLE LIMITS N/A	Let	Let
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.		
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves significant quantities of product, self contained breathing apparatus should be used due to smoke produced.		
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke when burned.		

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A to the braid. For free asbestos fibers: Not more than 2 fibers longer than 5 micrometers per cubic centimeter of air.

EFFECTS OF OVEREXPOSURE

N/A to the braid.

For graphite: 15mppcf of air.

EMERGENCY AND FIRST AID PROCEDURES

N/A to the braid. If overcome by smoke in a fire, remove to fresh air.

If victim is unconscious, exhibits breathing difficulty or if recovery is not prompt, contact a physician at once.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct flame will ignite binder and organic portion of yarn
INCOMPATIBILITY (Materials to avoid)			
Avoid storage with strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS When burned: Carbon monoxide under certain circumstances. Some hydrocarbons. There may be others unknown to us.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

No Special Action

WASTE DISPOSAL METHOD

Normal landfill. Place waste in plastic bag. Comply with any local disposal regulation.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) No special requirement. Mouth and nose mask may be worn when cutting large quantities.

VENTILATION	LOCAL EXHAUST No special requirement under normal conditions of use.	SPECIAL None.
	MECHANICAL (General) No special requirement under normal conditions of use.	OTHER None.
PROTECTIVE GLOVES Not required.		EYE PROTECTION As generally good practice, safety glasses should be worn.
OTHER PROTECTIVE EQUIPMENT Not required.		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

OTHER PRECAUTIONS

Product has a binder, however, protect against unnecessary release of fiber when cutting or handling. See OSHA Regulation 29CFR 1910.1001.

PAGE (2) NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made. Form OSHA- Rev. May 72

Prepared by: Harold R. Hughes, Supvr., Chemist

2/28/86

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wet waste.

vacuum up any waste with HEPA filtered vacuum cleaner. Wear protective equipment and half face respirator with HEPA filters.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be wetted and vacuumed up with HEPA filtered vacuum cleaner, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use.

If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved half face respirator with HEPA filters.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Not required under ordinary conditions of use

SECTION IX - SPECIAL PRECAUTIONS

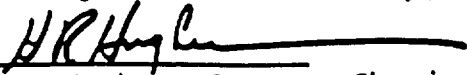
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos bonded by an elastomer compound, however, do not misuse by improper cutting or handling.
See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal. As a precaution, a half face respirator with HEPA filters should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY:


H.R. Hughes, Supvr., Chemist

4-13-87

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The asbestos sheets are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide under certain circumstances. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

Colt Industries



Garlock Inc
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315/597-4811

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURED BY: Garlock, Inc. EMERGENCY PHONE: (315)-597-4811

ADDRESS: 1666 Division St., Palmyra, N.Y. 14522

TRADE NAME: Styles 7021, 7021T, 7405, 7819 and 9533 Compressed Asbestos Sheets.

SYNONYMS: Styrene-Butadiene Elastomer Bonded Compressed Asbestos Sheet.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	%	TLV	CAS NUMBER
Chrysotile (White) Asbestos* *The asbestos fiber is bound and encapsulated by a vulcanized elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.	80-90	0.2 fibers longer than 5 micrometers per cubic centimeter of air. (OSHA PEL)	12001-29-5

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable.

Vapor Pressure: Not Applicable.

Solubility in Water: Negligible.

Specific Gravity: Not Applicable.

Volatile by Volume: Not Applicable

APPEARANCE AND ODOR: Grey-black to black sheet or gasket - Slight odor.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable.

FLAMMABLE LIMITS: Not Applicable.

EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke produced and possible release of asbestos fibers when binder is burned.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some fumes and possibly some free asbestos fibers when burned.

MSDS 4/13/87
Styles 7021, 7021 T, 7405,
7819 & 9533
Compressed Asbestos Sheet
Prepared by H. Hughes

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wet waste.

vacuum up any waste with HEPA filtered vacuum cleaner. Wear protective equipment and half face respirator with HEPA filters.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be wetted and vacuumed up with HEPA filtered vacuum cleaner, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved half face respirator with HEPA filters.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Not required under ordinary conditions of use

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos bonded by an elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal. As a precaution, a half face respirator with HEPA filters should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY:

H.R. Hughes
H.R. Hughes, Supvr., Chemist

4-13-87

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The asbestos sheets are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide, under certain circumstances. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

Colt Industries



Garlock Inc
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315-597-4811

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURED BY: Garlock, Inc. EMERGENCY PHONE: (315)-597-4811

ADDRESS: 1666 Division St., Palmyra, N.Y. 14522

TRADE NAME: Styles 902, 903 and 903S Compressed Asbestos Sheets.

SYNONYMS: EPDM Elastomer Bonded Compressed Asbestos Sheet.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	%	TLV	CAS NUMBER
Chrysotile (White) Asbestos* *The asbestos fiber is bound and encapsulated by a vulcanized elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.	80-90	0.2 fibers longer than 5 micrometers per cubic centimeter of air. (OSHA PEL)	12001-29-5

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable.

Vapor Pressure: Not Applicable.

Solubility in Water: Negligible.

Specific Gravity: Not Applicable.

Volatile by Volume: Not Applicable

APPEARANCE AND ODOR: Off-white sheet or gaskets - slight odor.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable.

FLAMMABLE LIMITS: Not Applicable.

EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke produced and possible release of asbestos fibers when binder is burned.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some fumes and possibly some free asbestos fibers when burned.

Prepared by H. Hughes

MSDS 4/13/87
Styles 902, 903 & 903 S
Compressed Asbestos Sheet
Prepared by H. Hughes

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wet waste.

Vacuum up any waste with HEPA filtered vacuum cleaner. Wear protective equipment and half face respirator with HEPA filters.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be wetted and vacuumed up with HEPA filtered vacuum cleaner, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use.

If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved half face respirator with HEPA filters.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Not required under ordinary conditions of use.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos bonded by an elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal. As a precaution, a half face respirator with HEPA filters should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY:

H.R. Hughes
H.R. Hughes, Supvr., Chemist

4-13-87

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The asbestos sheets are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide, under certain circumstances. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

Colt Industries



Garlock Inc
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315-597-4811

Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURED BY: Garlock, Inc.

EMERGENCY PHONE: (315)-597-4811

ADDRESS: 1666 Division St., Palmyra, N.Y. 14522

TRADE NAME: Styles 900, 900T, 7005, 7006, 7735, 7735S-1 & 9532 Compressed Asbestos Sheets.

SYNONYMS: Styrene-Butadiene Elastomer Bonded Compressed Asbestos Sheet.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	%	TLV	CAS NUMBER
Chrysotile (White) Asbestos* *The asbestos fiber is bound and encapsulated by a vulcanized elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.	80-90	0.2 fibers longer than 5 micrometers per cubic centimeter of air. (OSHA PEL)	12001-29-5

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable.

Specific Gravity: Not Applicable.

Vapor Pressure: Not Applicable.

Volatile by Volume: Not Applicable

Solubility in Water: Negligible.

APPEARANCE AND ODOR: Off-white sheet or gaskets - slight odor.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable.

FLAMMABLE LIMITS: Not Applicable.

EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke produced and possible release of asbestos fibers when binder is burned.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some fumes and possibly some free asbestos fibers when burned.

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SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: No special action.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be vacuumed up, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved dust mask.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Not required under ordinary conditions of use.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos is bonded by an elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal. As a precaution, a dust mask should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY: H.R. Hughes
H.R. Hughes, Supvr., Chemist

10/6/86

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The asbestos sheets are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide under certain circumstances and possibly some acrylonitrile monomer fumes. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

Colt Industries



Garlock Inc.
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315-597-4811

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURERS NAME: Garlock, Inc. **EMERGENCY PHONE:** (315)-597-4811
ADDRESS: 1666 Division Street, Palmyra, N.Y. 14522
TRADE NAME: Style 8746 and 8748 Compressed Asbestos Sheets.
SYNONYMS: Acrylonitrile-Butadiene Elastomer Bonded Compressed Asbestos Sheet.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	Z	TLV	CAS NUMBER
Chrysotile (White) Asbestos* *The asbestos fiber is bound and encapsulated by a vulcanized elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.	75-85	0.2 fibers longer than 5 micrometers per cubic centimeter of air. (OSHA Limit)	12001-29-5

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable. Specific Gravity: Not Applicable.
Vapor Pressure: Not Applicable. Volatile by Volume: Not Applicable.
Solubility in Water: Negligible.
APPEARANCE AND ODOR: Grey-black to black sheet or gaskets - Slight odor.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable. **FLAMMABLE LIMITS:** Not Applicable.
EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.
SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke and possible production of some acrylonitrile monomer fumes. Also, some asbestos fibers may be released when binder is burned.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some toxic fumes and possibly free asbestos fibers when burned.

Colt Industries



Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522-9355
315/597-4811

October 20, 1986

Dear Customer:

In complying with the OSHA Hazard Communication Standard 29 CFR 1910.1200, please find enclosed a material safety data sheet covering the Garlock, Inc. style(s) recently requested or shipped to you. Please communicate this information to those end users or individual employees in accordance with the provisions set forth in the Standard.

If further information or clarification is required, please call me using extension 3271.

Sincerely,



Kurt Salomon
Supervisor, Safety/Security/Medical

Enclosure(s)

KS:at

MSDS 10/6/86
Styles 8746 & 8748
Compressed Asbestos Sheet
Prepared by H. Hughes

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: No special action.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be vacuumed up, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved dust mask.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Not required under ordinary conditions of use.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos is bonded by an elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal. As a precaution, a dust mask should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY: H.R. Hughes
H.R. Hughes, Supvr., Chemist

10/6/86

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The asbestos sheets are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide under certain conditions, some hydrogen chloride fumes and possibly other chlorine bearing decomposition products. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

Colt Industries



Garlock Inc.
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315-597-4811

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURERS NAME: Garlock, Inc. EMERGENCY PHONE: (315)-597-4811
ADDRESS: 1666 Division Street, Palmyra, N.Y. 14522
TRADE NAME: Styles 7228, 9053 and 9057 Compressed Asbestos Sheets.
SYNONYMS: Polychloroprene (Neoprene) Bonded Compressed Asbestos Sheet.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	Z	TLV	CAS NUMBER
Chrysotile (White) Asbestos(1)	72-85	0.2 fibers longer than 5 micrometers per cc of air.	12001-29-5
Ethylene Thiourea (2)	0.1-0.3	Suspected Carcinogen.	96-45-7
(1) The asbestos fiber is bound and encapsulated by vulcanized elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.			
(2) The amount shown is the quantity added during production. Most is believed consumed during the curing process. Any remaining is not free to become airborne.			

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable. Specific Gravity: Not Applicable.
Vapor Pressure: Not Applicable. Volatile by Volume: Not Applicable
Solubility in water: Negligible.
APPEARANCE AND ODOR: Gray-black to black sheet or gaskets - Slight odor.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable. FLAMMABLE LIMITS: Not Applicable.

EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke, hydrogen chloride fumes and possible presence of other chlorine bearing combustion products. Also, some asbestos fibers may be released when binder is burned.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some toxic fumes and possibly some free asbestos fibers when burned.

MSDS 10/6/86
Styles 7228, 9053 & 9057
Compressed Asbestos Sheet
Prepared by H. Hughes

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: No special action.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be vacuumed up, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved dust mask.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Not required under ordinary conditions of use.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos is bonded by an elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal. As a precaution, a dust mask should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY: H. R. Hughes
H. R. Hughes, Supvr., Chemist

10/6/86

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The asbestos sheets are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide under certain circumstances. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

Colt Industries



Garlock Inc.
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315-597-4811

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURED BY: Garlock, Inc. EMERGENCY PHONE: (315)-597-4811

ADDRESS: 1666 Division St., Palmyra, N.Y. 14522

TRADE NAME: Styles 902, 903 and 903S Compressed Asbestos Sheets.

SYNONYMS: EPDM Elastomer Bonded Compressed Asbestos Sheet.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	Z	TLV	CAS NUMBER
Chrysotile (White) Asbestos* *The asbestos fiber is bound and encapsulated by a vulcanized elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.	80-90	0.2 fibers longer than 5 micrometers per cubic centimeter of air. (OSHA Limit)	12001-29-5

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable.

Specific Gravity: Not Applicable.

Vapor Pressure: Not Applicable.

Volatile by Volume: Not Applicable

Solubility in Water: Negligible.

APPEARANCE AND ODOR: Off-white sheet or gaskets - slight odor.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable.

FLAMMABLE LIMITS: Not Applicable.

EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke produced and possible release of asbestos fibers when binder is burned.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some fumes and possibly some free asbestos fibers when burned.

Colt Industries



Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522-9355
315/597-4811

October 20, 1986

Dear Customer:

In complying with the OSHA Hazard Communication Standard 29 CFR 1910.1200, please find enclosed a material safety data sheet covering the Garlock, Inc. style(s) recently requested or shipped to you. Please communicate this information to those end users or individual employees in accordance with the provisions set forth in the Standard.

If further information or clarification is required, please call me using extension 3271.

Sincerely,



Kurt Salomon
Supervisor, Safety/Security/Medical

Enclosure(s)

KS:at

MSDS 10/6/86
Styles 902, 903 & 903 S
Compressed Asbestos Sheet
Prepared by H. Hughes

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: No special action.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be vacuumed up, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved dust mask.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Not required under ordinary conditions of use.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos is bonded by an elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal. As a precaution, a dust mask should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY:

H. R. Hughes
H. R. Hughes, Superv. Chemist

10/6/86

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The asbestos sheets are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide under certain circumstances. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

Colt Industries



Garlock Inc
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra New York 14522
315-597-4811

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURED BY: Garlock, Inc. EMERGENCY PHONE: (315)-597-4811

ADDRESS: 1666 Division St., Palmyra, N.Y. 14522

TRADE NAME: Styles 7021, 7021T, 7405, 7819 and 9533 Compressed Asbestos Sheets.

SYNONYMS: Styrene-Butadiene Elastomer Bonded Compressed Asbestos Sheet.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	%	TLV	CAS NUMBER
Chrysotile (White) Asbestos* *The asbestos fiber is bound and encapsulated by a vulcanized elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.	80-90	0.2 fibers longer than 5 micrometers per cubic centimeter of air. (OSHA Limit)	12001-29-5

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable.

Specific Gravity: Not Applicable.

Vapor Pressure: Not Applicable.

Volatile by Volume: Not Applicable

Solubility in Water: Negligible.

APPEARANCE AND ODOR: Gray-black to black sheet or gasket - Slight odor.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable.

FLAMMABLE LIMITS: Not Applicable.

EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke produced and possible release of asbestos fibers when binder is burned.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some fumes and possibly some free asbestos fibers when burned.

Colt Industries



Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522-9355
315/597-4811

October 20, 1986

Dear Customer:

In complying with the OSHA Hazard Communication Standard 29 CFR 1910.1200, please find enclosed a material safety data sheet covering the Garlock, Inc. style(s) recently requested or shipped to you. Please communicate this information to those end users or individual employees in accordance with the provisions set forth in the Standard.

If further information or clarification is required, please call me using extension 3271.

Sincerely,

Kurt Salomon
Supervisor, Safety/Security/Medical

Enclosure(s)

KS:at

MSDS 10/6/86
Styles 7021, 7021 T, 7405,
7819 & 9533
Compressed Asbestos Sheet
Prepared by H. Hughes

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wet waste.

Vacuum up any waste with HEPA filtered vacuum cleaner. Wear protective equipment and half face respirator with HEPA filters.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be wetted and vacuumed up with HEPA filtered vacuum cleaner, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use.

If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved half face respirator with HEPA filters.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Not required under ordinary conditions of use.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos bonded by an elastomer compound, however, do not misuse by improper cutting or handling.

See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal.

As a precaution, a half face respirator with HEPA filters should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY:

HRH
U.S. District Court Chemist

4-13-87

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The asbestos sheets are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide under certain circumstances. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

Colt Industries



EXHIBIT

Plaintiffs 1

3/22/85 JMM

Garlock Inc.
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315-597-4811

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURED BY: Garlock, Inc.

EMERGENCY PHONE: (315)-597-4811

ADDRESS: 1666 Division St., Palmyra, N.Y. 14522

TRADE NAME: Styles 900, 900T, 7005, 7006, 7735, 7735S-1 & 9532 Compressed Asbestos Sheets.

SYNONYMS: Styrene-Butadiene Elastomer Bonded Compressed Asbestos Sheet.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	Z	TLV	CAS NUMBER
Chrysotile (White) Asbestos* *The asbestos fiber is bound and encapsulated by a vulcanized elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.	80-90	0.2 fibers longer than 5 micrometers per cubic centimeter of air. (OSHA PEL)	12001-29-5

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable.

Specific Gravity: Not Applicable.

Vapor Pressure: Not Applicable.

Volatile by Volume: Not Applicable.

Solubility in Water: Negligible.

APPEARANCE AND ODOR: Off-white sheet or gaskets - slight odor.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable.

FLAMMABLE LIMITS: Not Applicable.

EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke produced and possible release of asbestos fibers when binder is burned.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some fumes and possibly some free asbestos fibers when burned. ✓

PLAINTIFF'S
EXHIBIT

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SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: No special action.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be vacuumed up, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved dust mask.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Not required under ordinary conditions of use.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos is bonded by an elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal. As a precaution, a dust mask should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY: BK Hughes

10/6/96

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The asbestos sheets are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide under certain circumstances. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

Colt Industries



Garlock Inc.
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315-597-4811

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURED BY: Garlock, Inc. EMERGENCY PHONE: (315)-597-4811
ADDRESS: 1666 Division St., Palmyra, N.Y. 14522
TRADE NAME: Styles 900, 900T, 7005, 7006, 7735, 7735S-1 & 9532 Compressed Asbestos Sheets.
SYNONYMS: Styrene-Butadiene Elastomer Bonded Compressed Asbestos Sheet.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	%	TLV	CAS NUMBER
Chrysotile (White) Asbestos* *The asbestos fiber is bound and encapsulated by a vulcanized elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.	80-90	0.2 fibers longer than 5 micrometers per cubic centimeter of air. (OSHA Limit)	12001-29-5

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable. Specific Gravity: Not Applicable.
Vapor Pressure: Not Applicable. Volatile by Volume: Not Applicable
Solubility in Water: Negligible.
APPEARANCE AND ODOR: Off-white sheet or gaskets - slight odor.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable. FLAMMABLE LIMITS: Not Applicable.
EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.
SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke produced and possible release of asbestos fibers when binder is burned.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some fumes and possibly some free asbestos fibers when burned.

Colt Industries



Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522-9355
315/597-4811

October 20, 1986

Dear Customer:

In complying with the OSHA Hazard Communication Standard 29 CFR 1910.1200, please find enclosed a material safety data sheet covering the Garlock, Inc. style(s) recently requested or shipped to you. Please communicate this information to those end users or individual employees in accordance with the provisions set forth in the Standard.

If further information or clarification is required, please call me using extension 3271.

Sincerely,

Kurt Salomon
Supervisor, Safety/Security/Medical

Enclosure(s)

KS:at

Compressed Asbestos Sheet
Prepared by H. Hughes

MSDS 10/6/86
Styles 900, 900 T, 7005, 7006,
7735, 7735 S-1 & 9532
Compressed Asbestos Sheet
Prepared by H. Hughes

Exhibit 1
Hughes Deposition
3/22/95

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

N/A to the product.

EFFECTS OF OVEREXPOSURE

N/A to the product.

EMERGENCY AND FIRST AID PROCEDURES

N/A to the product. If overcome by smoke and fumes from a fire, remove to fresh air. If victim is unconscious, exhibits breathing difficulty or if recovery is not prompt, contact a physician for treatment.

SECTION VI - REACTIVITY DATA

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

X

Direct flame may ignite product.

INCOMPATIBILITY (Materials to avoid)

Avoid storage with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS In a fire: Carbon monoxide under certain circumstances. There may be others unknown to us.

HAZARDOUS
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

X

None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

No special action.

WASTE DISPOSAL METHOD

Normal landfill. Comply with any local disposal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

No special requirement under normal conditions of use.

VENTILATION

LOCAL EXHAUST No special requirement under normal conditions of use.

SPECIAL None.

MECHANICAL (General) No special requirements under normal conditions of use.

OTHER None.

PROTECTIVE GLOVES

Not required.

EYE PROTECTION As generally good practice, safety glasses should be worn.

OTHER PROTECTIVE EQUIPMENT

Not required.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in clean, dry place away from strong oxidizing agents.

OTHER PRECAUTIONS

Normal wash up after handling is recommended.

PAGE (2)
GPO 1975-100

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

Form OSHA
Rev. May 73

Prepared by: NR Hughes
Harold R. Hughes, Supvr., Chemist

5/5/86

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Garlock, Inc.	EMERGENCY TELEPHONE NO. (315)-597-4811
ADDRESS (Number, Street, City, State, and ZIP Code) 1666 Division Street, Palmyra, New York 14522	
CHEMICAL NAME AND SYNONYMS Natural Rubber Compound Impregnated Asbestos Fabric Pkg.	TRADE NAME AND SYNONYMS Style 7730
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		N/A	BASE METAL		N/A
CATALYST		N/A	ALLOYS		N/A
VEHICLE		N/A	METALLIC COATINGS		N/A
SOLVENTS		N/A	FILLER METAL PLUS COATING OR CORE FLUX		N/A
ADDITIVES		N/A	OTHERS		N/A
OTHERS		N/A			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains about 40% Chrysotile (white) asbestos. The asbestos fabric is impregnated with an elastomer compound which inhibits generation of free asbestos fiber or dust. Contains a red styrene-butadiene elastomer compound core.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	White elastomer compound impregnated rolled fabric over a red SBR core - Slight odor. Also available graphited.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	N/A	Let	Uet
EXTINGUISHING MEDIA	Water, foam, carbon dioxide, dry chemical.				
SPECIAL FIRE FIGHTING PROCEDURES	None. When fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke produced.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None. Produces considerable smoke when significant quantities are burned.				

MSDS 5/5/86
Style 7730
Asbestos Fabric Packing
Prepared by H. Hughes

MSDS 4/13/87
Samples 7228, 9053 & 9057
Compressed Asbestos Sheet
Prepared by H. Hughes

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Colt Industries



Garlock Inc
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315-597-4811

Prepared by H. Hughes

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURERS NAME: Garlock, Inc. EMERGENCY PHONE: (315)-597-4811

ADDRESS: 1666 Division Street, Palmyra, N.Y. 14522

TRADE NAME: Styles 7228, 9053 and 9057 Compressed Asbestos Sheets.

SYNONYMS: Polychloroprene (Neoprene) Bonded Compressed Asbestos Sheet.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	Z	TLV	CAS NUMBER
Chrysotile (White) Asbestos(1)	72-85	0.2 fibers longer than 5 micrometers per cc of air. (OSHA PEL)	12001-29-5
Ethylene Thiourea (2)	0.1-0.3	Suspected Carcinogen.	96-45-7
(1) The asbestos fiber is bound and encapsulated by vulcanized elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.			
(2) The amount shown is the quantity added during production. Most is believed consumed during the curing process. Any remaining is not free to become airborne.			

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable.

Specific Gravity: Not Applicable.

Vapor Pressure: Not Applicable.

Volatile by Volume: Not Applicable.

Solubility in water: Negligible.

APPEARANCE AND ODOR: Grey-black to black sheet or gaskets - Slight odor.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable.

FLAMMABLE LIMITS: Not Applicable.

EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke, hydrogen chloride fumes and possible presence of other chlorine bearing combustion products. Also, some asbestos fibers may be released when binder is burned.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some toxic fumes and possibly some free asbestos fibers when burned.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The asbestos sheets are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide under certain conditions, some hydrogen chloride fumes and possibly other chlorine bearing decomposition products. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wet waste.

Vacuum up any waste with HEPA filtered vacuum cleaner. Wear protective equipment and half face respirator with HEPA filters.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be wetted and vacuumed up with HEPA filtered vacuum cleaner, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved half face respirator with HEPA filters.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Not required under ordinary conditions of use.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos bonded by an elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal. As a precaution, a half face respirator with HEPA filters should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY: H.R. Hughes
H.R. Hughes, Supvr., Chemist

4-13-87

MSDS 4/13/87
Styles 8746 & 8748
Compressed Asbestos Sheet
Prepared by H. Hughes

Colt Industries



Garlock Inc
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315-597-4811

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURERS NAME: Garlock, Inc. **EMERGENCY PHONE:** (315)-597-4811
ADDRESS: 1666 Division Street, Palmyra, N.Y. 14522
TRADE NAME: Style 8746 and 8748 Compressed Asbestos Sheets.
SYNONYMS: Acrylonitrile-Butadiene Elastomer Bonded Compressed Asbestos Sheet.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	Z	TLV	CAS NUMBER
Chrysotile (White) Asbestos* *The asbestos fiber is bound and encapsulated by a vulcanized elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.	75-85	0.2 fibers longer than 5 micrometers per cubic centimeter of air. (OSHA PEL)	12001-29-5

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable. Specific Gravity: Not Applicable.
Vapor Pressure: Not Applicable. Volatile by Volume: Not Applicable.
Solubility in Water: Negligible.
APPEARANCE AND ODOR: Grey-black to black sheet or gaskets - Slight odor.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable. **FLAMMABLE LIMITS:** Not Applicable.
EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.
SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke and possible production of some acrylonitrile monomer fumes. Also, some asbestos fibers may be released when binder is burned.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some toxic fumes and possibly free asbestos fibers when burned.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The asbestos sheets are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide under certain circumstances and possibly some acrylonitrile monomer fumes. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wet waste.

vacuum up any waste with HEPA filtered vacuum cleaner. Wear protective equipment and half face respirator with HEPA filters.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be wetted and vacuumed up with HEPA filtered vacuum cleaner, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use.

If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved half face respirator with HEPA filters.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Not required under ordinary conditions of use.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos bonded by an elastomer compound, however, do not misuse by improper cutting or handling.
See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal. As a precaution, a half face respirator with HEPA filters should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY: H.R. Hughes
H.R. Hughes, Supvr., Chemist

4-13-87

MSDS 6/18/87
Style 1000
Compressed Asbestos Sheet
Prepared by H. Hughes

Colt Industries



Garlock Inc.
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315-597-4811

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURED BY: Garlock, Inc. **EMERGENCY PHONE:** (315)-597-4811

ADDRESS: 1666 Division St., Palmyra, N.Y. 14522

TRADE NAME: Style 1000 Compressed Asbestos Sheet (Wire Mesh Inserted)

SYNONYMS: Styrene-Butadiene Elastomer Bonded Compressed Asbestos Sheet.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	Z	TLV	CAS NUMBER
Chrysotile (White) Asbestos*	80-90	0.2 fibers longer than 5 micrometers per cubic centimeter of air. (OSHA PEL)	12001-29-5
*The asbestos fiber is bound and encapsulated by a vulcanized elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.			
NOTE: Style 1000 contains a steel wire mesh insert. Individuals handling the sheet should use care to avoid possible cuts of fingers and/or hands from wire ends protruding from edges of the sheet or gaskets.			

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable.

Specific Gravity: Not Applicable.

Vapor Pressure: Not Applicable.

Volatile by Volume: Not Applicable.

Solubility in Water: Negligible.

APPEARANCE AND ODOR: Black sheet or gaskets - slight odor. Ends of wire from the mesh insert are noticeable at the edges of sheet or gaskets.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable.

FLAMMABLE LIMITS: Not Applicable.

EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus should be used due to smoke produced and possible release of asbestos fibers when binder is burned.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some fumes and possibly some free asbestos fibers when burned.

Prepared by H. Hughes

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals. Possible cuts of fingers and/or hands from wire mesh insertion.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The asbestos sheets are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide under certain circumstances. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wet waste.

vacuum up any waste with HEPA filtered vacuum cleaner. Wear protective equipment and half face respirator with HEPA filters.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be wetted and vacuumed up with HEPA filtered vacuum cleaner, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use.

If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved half face respirator with HEPA filters.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Due to the wire mesh insert, individuals handling the product may wish to wear protective gloves.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Store in clean, dry place away from strong oxidizing agents. Individuals should handle the product carefully to avoid cuts of fingers and/or hands from the wire mesh insert. Normal wash-up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos bonded by an elastomer compound, however, do not misuse by improper cutting or handling.

See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal.

As a precaution, a half face respirator with HEPA filters should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY: H.R. Hughes
H.R. Hughes, Supvr., Chemist

6/18/87

MSDS 4/3/90
Styles 604, 605 & 612
Prepared by H. Hughes

Colt Industries



Garlock Inc.
Mechanical Packing Division
Industrial Packing
1666 Division Street
Palmyra, New York 14522
315-597-4811

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURERS NAME: Garlock, Inc. **EMERGENCY PHONE:** (315)-597-4811
ADDRESS: 1666 Division Street, Palmyra, N.Y. 14522
TRADE NAME: Styles 604 Folded Gaskets, 605 Gasket Sheeting and 612 Folded Tape.
SYNONYMS: Natural Rubber Compound Impregnated Asbestos Fabric.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	Z	TLV	CAS NUMBER
Chrysotile (White) Asbestos		0.2 fibers longer than 5 micrometers per cm ³ of air (OSHA PEL)	12001-29-5
Petroleum Oil (only if misted)		5 mg/M ³ (OSHA) 5mg/M ³ (ACGIH)	64742-53-6 and 64742-52-5
* Zinc Oxide (only if airborne)		10 mg/M ³ (OSHA PEL) 10 mg/M ³ (ACGIH)	1314-13-2
Ingredients marked * are reportable under SARA Title III Section 313 requirements.			
The asbestos fiber in this product is bound and encapsulated by an elastomer matrix. The fibers do not present a hazard as long as the matrix remains intact.			

SECTION III - PHYSICAL DATA

Melting Point, °F: Not Applicable. Specific Gravity: Not Applicable.
Vapor Pressure: Not Applicable. Volatile by Volume: Not Applicable.
Solubility in Water: Negligible.
APPEARANCE AND ODOR: White natural rubber compound on brass wire inserted asbestos fabric. Slight odor. Also available without wire and with surface graphite.

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLASH POINT, °F: Not Applicable. **FLAMMABLE LIMITS:** Not Applicable.
EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.
SPECIAL FIRE FIGHTING PROCEDURES: If fire involves substantial quantities of product, self contained breathing apparatus could be used due to smoke produced and possible release of asbestos fibers when binder is burned.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Produces smoke, some fumes and possibly some free asbestos fibers when burned.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF EXPOSURE:

These products do not pose a health hazard under ordinary conditions of use. A hazard would arise only if the products were subjected to mechanical actions that would cause the asbestos fibers to be released from the elastomer compound matrix.

Inhalation of such airborne fibers can cause the well-known long term effects of Asbestosis, lung cancer and mesothelioma.

Ingestion: Free asbestos fibers may be a factor in cancers of the GI tract and larynx. Such cancers are believed to be smoking related.

Skin and Eye Contact: Simple irritation in sensitive individuals.

Medical Conditions Prone to Aggravation by Exposure:

Inhaling free asbestos fibers may aggravate any lung conditions and respiratory tract irritations.

EMERGENCY FIRST AID PROCEDURES:

Inhalation (Of Fiber): Remove victim from contaminated area
Report exposure to medical personnel.

Ingestion (of fiber): No specific action. Report exposure to medical personnel.

Skin: Wash area of contact thoroughly with soap and water.
Contact a physician if irritation persists.

Eye Contact: If particles get in the eyes irrigate well with water.
Contact a physician as a precaution.

SECTION VI - REACTIVITY DATA

STABILITY: The products are stable under normal conditions of storage and use.

INCOMPATIBILITY: Avoid storage with strong oxidizing agents. Direct flame will ignite binder.

HAZARDOUS DECOMPOSITION PRODUCTS: In a fire: Smoke, possibly carbon monoxide under certain circumstances. Some asbestos fibers may be released once binder has burned. There may be other products unknown to us.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wet waste.

vacuum up any waste with HEPA filtered vacuum cleaner. Wear protective equipment and half face respirator with HEPA filters.

WASTE DISPOSAL METHOD: Since the asbestos in the product is secured with a binder and is not friable or loose, the product can be disposed of with other inert materials in a normal landfill.

Grinding or machining of the product should be avoided since these, or similar operations may generate asbestos dust. Any such dust should be wetted and vacuumed up with HEPA filtered vacuum cleaner, sealed in a plastic bag and disposed of in accordance with instructions from a disposal company. The user is responsible for complying with any local, state or federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not required under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, use a NIOSH approved half face respirator with HEPA filters.

VENTILATION REQUIREMENTS: No special requirement under normal conditions of use. If any operations are performed on the product that may release asbestos fibers, sufficient ventilation should be provided to keep fiber level below 0.2 fibers per cc.

EYE PROTECTION: Wear safety glasses.

PROTECTIVE GLOVES AND CLOTHING: Not required under ordinary conditions of use.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in clean, dry place away from strong oxidizing agents. Normal wash up after handling is recommended.

SPECIAL PRECAUTIONS: Asbestos bonded by an elastomer compound, however, do not misuse by improper cutting or handling. See OSHA Regulations 29CFR 1910.1001.

When removing used gaskets, avoid excessive mechanical actions and place the asbestos containing residues in a plastic bag for disposal. As a precaution, a half face respirator with HEPA filters should be worn by individuals when engaged in removal of used gaskets.

NOTE: The information provided herein is accurate to the best of our knowledge, but no warranty, express or implied is made.

PREPARED BY: H.R. Hughes 4/3/90

H.R. Hughes, Supvr., Chemist

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334771	A & M BEARINGS & SUPPLY INC 4935 SHARPE DALLAS TX 75247	PHONE #214-630-7681 FAX # 214-630-4049	1RS 2X	12/31/97	*		
335703	A & M BEARINGS & SUPPLY INC 3548 MILLER PK DRIVE GARLAND TX 75042	PHONE #214-284-2532 FAX # 214-276-0696	1RS 2X	12/31/97	*		
*739920	A C DE BUVOY INC 2634 E WASHINGTON BLVD COMMERCE CA 90040	PHONE #213-721-8808 FAX # 213-721-4892	1X 2X	12/31/97	*		
*384695	A F M INC 11563 SM TIEDEMAN AVE TIGARD OR 97223	PHONE #503-230-2929 FAX # 503-639-0196	1X 2X	12/31/97	*		
*360354	A-I LEATHER CUP & GASKET CO 2103 BRENNAN CIRCLE FORT WORTH TX 76106	PHONE #817-626-3664 FAX # 817-626-6230	OX 1X 2X 3G 3X 4X 9X	12/31/97	*		
*348060	ACADIANA BEARING CO 400 JEFFERSON BLVD PO BOX 92246 LAFAYETTE LA 70509	PHONE #318-241-0101 FAX # 318-235-7800	1RS 2X	12/31/97	*		
*378349	ACS SYSTEMS & ENGINEERING INC 504 VIKING DRIVE VIRGINIA BEACH VA 23452	PHONE #757-631-0174 FAX # 757-631-2087	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	*		
*369041	ADAMS ELEVATOR EQUIPMENT CO 6310 HOWARD STREET MILES IL 60714-3480	PHONE #847-581-2900 FAX # 847-965-9114	1X 2X	12/31/97	*		
261917	AIR DRAULICS CO 8325 WASHINGTON STREET NE ALBUQUERQUE NM 87113	PHONE #505-821-2899 FAX # 505-821-3348	1X 2X	12/31/97	*		
230268	AIR-DRAULICS CO 3744 W MEADE AVE LAS VEGAS NV 89102	PHONE #702-873-7130 FAX # 702-873-0165	OX 1X	12/31/97	*		
*340018	AKRON BEARING CO P O BOX 7158 1962 S. ARLINGTON ROAD AKRON OH 44308	PHONE #330-773-6855 FAX # 330-773-0126	1RS 2X	12/31/97	*		
*801217	AKRON GASKET CO 1244 HOME AVE AKRON OH 44310	PHONE #330-633-3742 FAX # 330-633-3442	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*		
276121	ALLEGHENY YORK CO 515 ALLEGHENY YORK CORP 8942 N GEORGE ST EXT D MANCHESTER PA 17345	PHONE #717-266-6617 FAX # 717-266-6371	1X 2X	12/31/97	*		
338269	ALLIANCE INDUSTRIAL PRODUCTS DBA ABILENE BEARING 1733 S TREADAWAY ABILENE TX 79602	PHONE #915-674-1916 FAX # 915-673-1713	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	*		
369681	ALLIED BEARING & SUPPLY INC 8931 BUZZEE DRIVE BATON ROUGE LA 70817	PHONE #504-784-2200 FAX # 504-784-2225	1RS 2X	12/31/97	*		

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*341206	ALLIED BEARING & SUPPLY INC 5605 JENSEN STREET HARAHAN LA 70123	PHONE #504-733-8000 FAX # 504-734-0344	1RS 2X	12/31/97	*		
*341693	ALLIED BEARINGS & SUPPLY 932 8TH AVE SOUTH NASHVILLE TN 37203	PHONE #615-255-1264 FAX # 615-256-8099	1RS 2X	12/31/97	*		
347740	ALLIED BEARINGS SUPPLY CO 2601 CROSSROADS DRIVE ARDMORE OK 73401	PHONE #405-223-9381 FAX # 405-223-9303	1RS 2X	12/31/97	*		
336511	ALLIED BEARINGS SUPPLY CO INC 2215 S 28TH ST FORT SMITH AR 72901	PHONE #501-644-0133 FAX # 501-644-8035	1RS 2X	12/31/97	*		
336461	ALLIED BEARINGS SUPPLY CO INC 2140 E SHAMNEE ST P O BOX 1944 MUSKOGEE OK 74402	PHONE #918-683-1848 FAX # 918-683-1973	1RS 2X	12/31/97	*		
336438	ALLIED BEARINGS SUPPLY CO INC 4119 WILL ROGERS PKWY OKLAHOMA CITY OK 73108	PHONE #405-947-1770 FAX # 405-949-5481	1RS 2X	12/31/97	*		
336479	ALLIED BEARINGS SUPPLY CO INC 711 SOUTH 1ST PONCA CITY OK 74601	PHONE #405-762-6659 FAX # 405-763-9614	1RS 2X	12/31/97	*		
336444	ALLIED BEARINGS SUPPLY CO INC MID-AMERICA PARK BOX 722 PRYOR OK 74362	PHONE #918-825-1437 FAX # 918-825-1500	1RS 2X	12/31/97	*		
335828	ALLIED BEARINGS SUPPLY CO INC 616 S UTICA TULSA OK 74104	PHONE #918-583-0164 FAX # 918-584-2107	1RS 2X	12/31/97	*		
*024489	ALLIED PACKING & RUBBER INC 1332 WEST 11TH ST LONG BEACH CA 90813	PHONE #310-435-2411 FAX # 310-436-2140	OX 1X 2EX 2X 3G 3GY 3M 3X 4X	12/31/97	*		
*051912	ALLIED PACKING & SUPPLY CO INC 2303 ADELINE ST OAKLAND CA 94608-3193	PHONE #510-454-3274 FAX # 510-454-8190	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*		
*371120	ALLIED RUBBER & GASKET 2442 HWY 70 WEST PO BOX 944 MAVERLY TN 37185	PHONE #615-296-4223 FAX # 615-296-4224	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*		
*365325	ALLIED SEALS INC 137 DONALD LANE JOHNSTOWN PA 15904	PHONE #814-262-3664 FAX # 814-262-3341	1X 2X	12/31/97	*		
*176263	AM-DYN-IC FLUID POWER INC 25340 TERRA INDUSTRIAL DRIVE CHESTERFIELD MI 48051-5403	PHONE #810-949-6860	OX 1X	12/31/97	*		
322870	AMARILLO BEARING CORP 411 N 7TH ST AMARILLO TX 79101	PHONE #806-372-2300 FAX # 806-372-2271	1RS 2X	12/31/97	*		

EXHIBIT G.



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343558	AMERICAN BEARING & SUPPLY INC 4211 JEFFERSON HWY JEFFERSON LA 70121	PHONE #504-837-9900 FAX # 504-837-9532	1RS 2X	12/31/97
326389	AMERICAN BEARING AND POWER TRANSMISSION INC 1406 LESTIE AVE ALEXANDRIA VA 22301	PHONE #703-548-4938 FAX # 703-684-3669	1X 2X	12/31/97
139360	AMERICAN BEARING AND POWER TRANSMISSION INC 15 GLENN BRIDGE RD. #C ARDEN NC 28704-9490	PHONE #704-252-1586 FAX # 704-254-4890	1RS 2X	12/31/97
366831	AMERICAN BEARING AND POWER GOLDEN RING EXECUTIVE PARK 21 FONTANA LANE SUITE 109 BALTIMORE MD 21237	PHONE #410-780-9214 FAX # 410-780-7027	1RS 2X	12/31/97
026152	AMERICAN BEARING AND POWER TRANSMISSION INC 1700 THIRD AVE S BIRMINGHAM AL 35233	PHONE #205-322-7105 FAX # 205-322-2042	1RS 2X	12/31/97
280818	AMERICAN BEARING AND POWER HIGHWAY 31 SOUTH BRENTON AL 36426	PHONE #205-847-7723 FAX # 205-847-5751	1RS 2X	12/31/97
351312	AMERICAN BEARING AND POWER TRANSMISSION INC 3907 HARTSDALE DR STE 702 CAMP HILL PA 17011	PHONE #717-731-8888 FAX # 717-731-0628	1RS 2X	12/31/97
066753	AMERICAN BEARING AND POWER TRANSMISSION INC 1034 DAVIS STREET CARROLLTON GA 30117	PHONE #404-834-4426 FAX # 404-830-8134	1RS 2X	12/31/97
339838	AMERICAN BEARING AND POWER TRANSMISSION INC 6600 N PARK BLVD CHARLOTTE NC 28216	PHONE #704-598-6486 FAX # 704-598-6218	1RS 2X	12/31/97
200626	AMERICAN BEARING AND POWER TRANSMISSION INC 4000 NORTH PARK BLVD CHARLOTTE NC 28216	PHONE #704-523-4000 FAX # 704-527-0919	1X 2X 2EX 2X 4PM 2X	12/31/97
268938	AMERICAN BEARING AND POWER TRANSMISSION INC 4125 S CREEK ROAD CHATTANOOGA TN 37406-1022	PHONE #615-523-7710 FAX # 615-523-7714	1RS 2X	12/31/97
288258	AMERICAN BEARING AND POWER TRANSMISSION INC 2511 SCHUSTER DR CHEVERLY MD 20781	PHONE #301-772-3200 FAX # 301-322-1414	1RS 2X	12/31/97
364889	AMERICAN BEARING AND POWER TRANSMISSION INC HIGHWAY 84 WEST CLATSOPNE AL 36470	PHONE #205-375-8000 FAX # 205-375-5003	1RS 2X	12/31/97

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628958	AMERICAN BEARING AND POWER 2553 ROUTE 130 CAMPUS 130 CRANBURY NJ 08512	PHONE #609-455-8024 FAX # 609-455-8028	1RS 2X	12/31/97
072839	AMERICAN BEARING AND POWER TRANSMISSION INC 100 MINEOM ST CUMBERLAND MD 21502	PHONE #301-722-1420 FAX # 301-722-8442	1RS 2X	12/31/97
063477	AMERICAN BEARING AND POWER TRANSMISSION INC DECATUR 1102 8TH AVENUE NE DECATUR AL 35601	PHONE #205-355-3335 FAX # 205-355-2390	1RS 2X	12/31/97
276881	AMERICAN BEARING AND POWER 1865 E MAIN STREET BAY 2 DUNCAN SC 29326	PHONE #864-433-6860 FAX # 864-574-1092	1RS 2EX 2X	12/31/97
618512	AMERICAN BEARING AND POWER TRANSMISSION INC 1180 EVERETT RD EAST PETERSBURG VA 22420	PHONE #717-569-3291 FAX # 717-569-0832	1RS 2X	12/31/97
741165	AMERICAN BEARING AND POWER TRANSMISSION INC 228 MOUNTAIN DRIVE FAYETTEVILLE NC 28306	PHONE #919-323-0508 FAX # 919-323-8722	1RS 2X	12/31/97
329762	AMERICAN BEARING AND POWER TRANSMISSION INC 2887 JAMESTOWN ROAD FERNANDINA BEACH FL 32034	PHONE #904-261-2232 FAX # 904-261-3922	1RS 2X	12/31/97
307512	AMERICAN BEARING AND POWER TRANSMISSION INC 5915-A URBANA PIKE FREDERICK MD 21701	PHONE #301-443-4420 FAX # 301-494-3026	1RS 2X 4X	12/31/97
334508	AMERICAN BEARING AND POWER 213 FREEDOM COURT FREDERICKSBURG VA 22408	PHONE #703-898-4900 FAX # 703-898-8184	1X 2X	12/31/97
667774	AMERICAN BEARING AND POWER TRANSMISSION INC 2025 NW 10TH ST FT LAUDERDALE FL 33304	PHONE #305-974-8000 FAX # 305-974-7966	1RS 2X	12/31/97
200584	AMERICAN BEARING AND POWER TRANSMISSION INC 324 EDWARDS DRIVE GREENSBORO NC 27419	PHONE #919-224-2510 FAX # 919-224-2754	1RS 2X	12/31/97
016774	AMERICAN BEARING AND POWER TRANSMISSION INC 273 WOODRUFF RD. STE G GREENVILLE SC 29607-3353	PHONE #864-288-5173 FAX # 864-237-4251	1RS 2X	12/31/97
061994	AMERICAN BEARING AND POWER TRANSMISSION INC 431-A SHERREY DRIVE HAGERSTOWN MD 21740	PHONE #301-723-6800 FAX # 301-723-2472	1RS 2EX 2X	12/31/97
172526	AMERICAN BEARING AND POWER TRANSMISSION INC 400 COPELAND DR HAMPTON VA 23661	PHONE #804-826-1220 FAX # 804-827-8231	1X 2X	12/31/97

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321885	AMERICAN BEARING AND POWER 785 PLEASANT VALLEY ROAD HARRISONBURG VA 22801	PHONE #840-434-5348 FAX # 703-432-1403	1X 2X	12/31/97
040287	AMERICAN BEARING AND POWER TRANSMISSION INC 200 SOUTH 15TH AVE MOOREHEAD VA 23860	PHONE #804-458-6306 FAX # 804-458-8219	1X 2EX 2X	12/31/97
288241	AMERICAN BEARING AND POWER 114 LAKEFRONT DRIVE MOUNT VALLEY MD 21030	PHONE #410-584-1071	1RS 2X	12/31/97
036509	AMERICAN BEARING AND POWER 5352 HIGHWAY AVE JACKSONVILLE FL 32205	PHONE #904-783-0220 FAX # 904-695-0399	1RS 2X	12/31/97
196477	AMERICAN BEARING AND POWER 19178 BROOKSIDE LANE KINGSFORD IN 47662	PHONE #423-247-9171 FAX # 423-247-3021	1RS 2EX 2X	12/31/97
061697	AMERICAN BEARING AND POWER TRANSMISSION INC 403 BERNARD & LEE ST KNOXVILLE TN 37917	PHONE #423-546-7611 FAX # 423-946-9316	1RS 2X	12/31/97
039131	AMERICAN BEARING AND POWER TRANSMISSION INC 2080 DETMILER RD KULPSVILLE PA 19443	PHONE #215-256-6663 FAX # 215-256-1116	1RS 2EX 2X	12/31/97
209007	AMERICAN BEARING AND POWER TRANSMISSION INC 256 S 16TH AVE LAUREL MS 39440	PHONE #601-642-6112 FAX # 601-428-1342	1RS 2X	12/31/97
229690	AMERICAN BEARING AND POWER TRANSMISSION INC 105 BRADLEY DRIVE LYNCHBURG VA 24501	PHONE #804-528-8892 FAX # 804-528-0010	1X 2EX 2X	12/31/97
363184	AMERICAN BEARING AND POWER TRANSMISSION INC 640 NANCE LANE NASHVILLE TN 37210	PHONE #615-254-4825 FAX # 615-259-4237	1RS 2X	12/31/97
362145	AMERICAN BEARING AND POWER TRANSMISSION INC 1780 CORPORATE DR. SUITE 425 MORCROSS GA 30093	PHONE #770-717-0864 FAX # 404-922-6812	1RS 2X	12/31/97
038976	AMERICAN BEARING AND POWER TRANSMISSION INC 2304 ALABAMA AVE NORFOLK VA 23513	PHONE #804-855-3041 FAX # 804-852-7823	1X 2X	12/31/97
014244	AMERICAN BEARING AND POWER TRANSMISSION INC 7633 CURRENCY DRIVE ORLANDO FL 32809	PHONE #407-851-3411 FAX # 407-851-5773	1RS 2X	12/31/97
200600	AMERICAN BEARING AND POWER TRANSMISSION INC 12285 MC MULTY RD SUITE 101 PHILADELPHIA PA 19124	PHONE #215-671-7770 FAX # 215-671-7775	1RS 2EX 2X	12/31/97

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106641	AMERICAN BEARING AND POWER TRANSMISSION INC 2419 WESTWOOD AVENUE RICHMOND VA 23230	PHONE #804-353-6407 FAX # 804-358-1811	1X 2EX 2X	12/31/97
189712	AMERICAN BEARING AND POWER TRANSMISSION INC 2242 PETERS CREEK RD. NW ROANOKE VA 24017	PHONE #703-562-2120 FAX # 703-562-2108	1X 2X	12/31/97
277392	AMERICAN BEARING AND POWER TRANSMISSION INC 10 TAP CT ROCKVILLE MD 20850	PHONE #301-424-1520 FAX # 301-424-6308	1RS 2X	12/31/97
363911	AMERICAN BEARING AND POWER TRANSMISSION INC 1691 S MESSEYAN BLVD ROCKY MOUNT NC 27803	PHONE #919-442-6111 FAX # 919-442-5668	1RS 2X	12/31/97
715557	AMERICAN BEARING AND POWER TRANSMISSION INC 124 E NINETH AVE RUNNEMEDE NJ 08078	PHONE #609-939-1285 FAX # 609-939-1314	1RS 2EX 2X	12/31/97
057885	AMERICAN BEARING AND POWER TRANSMISSION INC 1108 SINGLETON DR SELMA AL 36701	PHONE #205-872-7415 FAX # 205-875-1588	1RS 2X	12/31/97
004366	AMERICAN BEARING AND POWER TRANSMISSION INC 1517 NORTH FALKENBURG ROAD TAMPA FL 33619	PHONE #813-621-1899 FAX # 813-628-0245	1RS 2X	12/31/97
364091	AMERICAN BEARING AND POWER TRANSMISSION INC 209 1ND PK BLVD PO BOX 1428 TULLAHOMA TN 37388	PHONE #615-455-6990 FAX # 615-455-9039	1RS 2X	12/31/97
307702	AMERICAN BEARING AND POWER TRANSMISSION INC 154 MARATHON DRIVE MINCHESTER VA 22602	PHONE #703-863-7409 FAX # 703-862-0062	1X 2X	12/31/97
0002816	AMERICAN GASKET CO 6125 N FLINT RD GLENDALE MI 53209	PHONE #414-228-7734 FAX # 414-228-1671	OX 3G 3GV 3X	12/31/97
376608	AMERICAN PKG & GASKET CO 6039 ARMOUR DR HOUSTON TX 77020	PHONE #713-475-2771 FAX # 713-475-2730	OX 3M	12/31/97
366716	AMERICAN SUPPLY CO 2110 HWY 80 EAST PO BOX 54168 JACKSON MS 39208	PHONE #601-932-4534 FAX # 601-932-4703	OX 3G 3GV 3X 9X	12/31/97
369629	ANCHOR INDUSTRIAL SALES INC 1295 SOUTH PARK DRIVE KERNERSVILLE NC 27284	PHONE #910-996-7271 FAX # 910-996-7916	OX 1X 2EX 2X 3G 3GV 3M 3X 4X 7X 9X	12/31/97

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*369728	ANCHOR SEAL'S INC 270 VISTA PARK DRIVE PITTSBURGH PA 15205	PHONE #412-788-6444 FAX # 412-788-6290 1X 2X 3G 3GV 3X 4X 9X	12/31/97	
376913	ANDERSON-CRANE 4340 15TH AVE NW FARGO ND 58102	PHONE #701-282-5242 FAX # 701-282-5442 2EX 2X	12/31/97	
376954	ANDERSON-CRANE 2508 FIRST AVE MISSING MN 55746	PHONE #218-263-7541 FAX # 218-263-7541 2EX 2X	12/31/97	
376947	ANDERSON-CRANE 339 HESTER AVE MANKATO MN 56003	PHONE #507-387-4411 FAX # 507-387-5176 2EX 2X	12/31/97	
*376897	ANDERSON-CRANE 1213-19 HARMON PLACE MINNEAPOLIS MN 55403-1993	PHONE #612-332-0331 FAX # 612-332-0384 2EX 2X	12/31/97	
376905	ANDERSON-CRANE 2900 SENCORE DR STE 110 SIOUX FALLS SD 57107	PHONE #605-332-1884 FAX # 605-332-6268 2EX 2X	12/31/97	
376921	ANDERSON-CRANE 2865 BLUEBERRY ROAD ST CLOUD MN 56301	PHONE #320-656-0055 FAX # 320-656-0054 2EX 2X	12/31/97	
376939	ANDERSON-CRANE 266 EAST LAFAYETTE ST PAUL MN 55107	PHONE #612-222-7101 FAX # 612-222-4334 2EX 2X	12/31/97	
*474563	APEX PACKING & RUBBER CO INC 180 NEW HIGHWAY FARMINGDALE NY 11735	PHONE #516-430-8150 FAX # 516-756-9639 0X 1X	12/31/97	
073825	APPLIED INDUSTRIAL TECH 621 MIAMI ST AKRON OH 44311	PHONE #330-535-4153 FAX # 330-535-4150 1RS 2X	12/31/97	
107326	APPLIED INDUSTRIAL TECH 1212 COMMERCE STREET PO BOX 164 ABERDEEN MA 01520	PHONE #206-532-8923 FAX # 206-532-6146 1RS 2X	12/31/97	
045401	APPLIED INDUSTRIAL TECH 6 ENTERPRISE DRIVE ALBANY NY 12204	PHONE #518-437-5800 FAX # 518-437-6314 1RS 2X	12/31/97	
633222	APPLIED INDUSTRIAL TECH 211 MOUTRIE RD ALBANY GA 31705	PHONE #912-435-3063 FAX # 912-436-3927 1RS 2X	12/31/97	
374223	APPLIED INDUSTRIAL TECH 6306 C GRAVEL AVENUE ALEXANDRIA VA 22310	PHONE #703-971-8500 FAX # 703-971-8568 1RS 2X	12/31/97	
320234	APPLIED INDUSTRIAL TECH P O BOX 8027 3505 LEE STREET ALEXANDRIA LA 71301	PHONE #518-443-0447 FAX # 518-473-2347 1RS 2X	12/31/97	

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074292	APPLIED INDUSTRIAL TECH 884 MARCON BLVD ALLENTOWN PA 18103	PHONE #610-266-1131 FAX # 610-266-1157 1RS 2EX 2X	12/31/97	
309237	APPLIED INDUSTRIAL TECH COTTINGHAM DIV BRANCH 051 2411 RIDGEMERE AMARILLO TX 79107	PHONE #806-372-5586 FAX # 806-372-5801 1RS 2EX 2X	12/31/97	
289298	APPLIED INDUSTRIAL TECH 2886 BLUE STAR ST AMARILLO CA 92806	PHONE #714-646-8623 FAX # 714-646-8730 1RS 2X	12/31/97	
184999	APPLIED INDUSTRIAL TECH 215 MCCOY ROAD ANDERSON SC 29621	PHONE #864-225-3791 FAX # 864-224-7193 1RS 2X	12/31/97	
014421	APPLIED INDUSTRIAL TECH 1701 HILLIER ROBINSON IND PKWY P O BOX 1727 ANNISTON AL 36202	PHONE #205-831-0393 FAX # 205-831-7529 1X 2EX 2X	12/31/97	
041327	APPLIED INDUSTRIAL TECH 801 SUNSET DRIVE ANTIOCH CA 94509	PHONE #910-757-4680 FAX # 910-754-7817 1RS 2X	12/31/97	
254391	APPLIED INDUSTRIAL TECH 21 BRIAN BLVD ARDEN NC 28704	PHONE #704-687-2400 FAX # 704-687-2406 1RS 2X	12/31/97	
345934	APPLIED INDUSTRIAL TECH 3434 DALNORTH ST ARLINGTON TX 76011	PHONE #817-649-2094 FAX # 817-632-7649 1RS 2X	12/31/97	
264325	APPLIED INDUSTRIAL TECH 1302 COMMERCE ROAD ATMENS GA 30607	PHONE #404-353-0305 FAX # 404-344-0812 1RS 2X	12/31/97	
255695	APPLIED INDUSTRIAL TECH 4523 FULTON INDUSTRIAL BLVD P O BOX 43924 ATLANTA GA 30334	PHONE #404-691-7340 FAX # 404-691-2612 1RS 2X	12/31/97	
251967	APPLIED INDUSTRIAL TECH 1719 HARVIN GRIPPIN RD AUGUSTA GA 30904	PHONE #706-728-4339 FAX # 706-798-2164 1RS 2X	12/31/97	
309245	APPLIED INDUSTRIAL TECH COTTINGHAM DIV BRANCH 040 4603 COMMERCIAL PARK DR AUSTIN TX 78724	PHONE #512-323-8833 FAX # 512-323-8727 1RS 2X	12/31/97	
322545	APPLIED INDUSTRIAL TECH 33 MALES AVE AVON MA 02322	PHONE #508-884-9200 FAX # 508-888-1274 1RS 2X	12/31/97	
144478	APPLIED INDUSTRIAL TECH SUITE 3 2920 LINDCO DRIVE BAKERSFIELD CA 93308	PHONE #805-323-7081 FAX # 805-323-2435 1RS 2EX 2X	12/31/97	

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108209	APPLIED INDUSTRIAL TECH BRANDON WOODS INDUSTRIAL PARK 7509 RESOURCE COURT BALTIMORE MD 21226-1762	PHONE #410-437-8400 FAX # 410-437-8833	1RS 2X	12/31/97	
352070	APPLIED INDUSTRIAL TECH 1425 A PARAMOUNT PARKWAY BATAVIA IL 60510	PHONE #708-879-8650 FAX # 708-879-8657	1RS 2X	12/31/97	
242651	APPLIED INDUSTRIAL TECH 11627 INDUSTRIPLEX BLVD BATON ROUGE LA 70805	PHONE #504-755-7960 FAX # 604-755-6894	1RS 2X	12/31/97	
579623	APPLIED INDUSTRIAL TECH HIGHWAY 180 M PO DRAHER BAYARD NM 88023	PHONE #505-537-3348 FAX # 505-537-5717	1RS 2X	12/31/97	
149120	APPLIED INDUSTRIAL TECH HARPER IND PARK PO DRAHER AV 300 GEORGE STREET BECKLEY WV 25802	PHONE #304-255-0566 FAX # 304-255-6489	1RS 2X	12/31/97	
073924	APPLIED INDUSTRIAL TECH P O BOX 45430 21308 FORBES AVENUE BEDFORD OH 44014	PHONE #216-232-4800 FAX # 216-232-8402	1RS 2X	12/31/97	
626507	APPLIED INDUSTRIAL TECH 201 TOMA STREET BELLINGHAM MA 019225	PHONE #360-733-3580 FAX # 360-733-3082	1RS 2EX 2X	12/31/97	
361071	APPLIED INDUSTRIAL TECH 924 SE WILSON AVE BEND OR 97702-1412	PHONE #501-389-2554 FAX # 501-389-2480	1RS 2X	12/31/97	
211904	APPLIED INDUSTRIAL TECH P O BOX 140 608 DANIEL ZENKER DRIVE BIG FLATS NY 14814	PHONE #607-542-8965 FAX # 607-542-8993	1RS 2X	12/31/97	
187740	APPLIED INDUSTRIAL TECH 916 3RD AVE NORTH BILLINGS MT 59101-2503	PHONE #406-248-1343 FAX # 406-248-9225	1RS 2X	12/31/97	
242636	APPLIED INDUSTRIAL TECH 1028 35TH ST N BIRMINGHAM AL 35234	PHONE #205-328-1532 FAX # 205-322-9089	1X 2EX 2X	12/31/97	
074054	APPLIED INDUSTRIAL TECH 700 BLUEFIELD AVE P O BOX 1639 BLUEFIELD WV 26001	PHONE #304-325-3684 FAX # 304-327-9490	1RS 2X	12/31/97	
016857	APPLIED INDUSTRIAL TECH 135 DISHAM LANE BOWLING GREEN KY 42101	PHONE #502-781-7262 FAX # 502-781-9637	1RS 2X	12/31/97	
374926	APPLIED INDUSTRIAL TECH 265 INDUSTRIAL DR BRADLEY IL 60915-1261	PHONE #815-933-9310 FAX # 815-933-0180	0X 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	

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309294	APPLIED INDUSTRIAL TECH P O BOX 1683 3007 BRADY HIGHWAY BROWNSBORO TX 76801	PHONE #915-646-8536 FAX # 915-646-4577	1RS 2X	12/31/97	
756478	APPLIED INDUSTRIAL TECH 154 NEWMAN DRIVE BRUNSWICK GA 31520	PHONE #912-264-4930 FAX # 912-265-1737	1RS 2X	12/31/97	
659623	APPLIED INDUSTRIAL TECH 204 W LANE BURLINGTON MA 02733	PHONE #206-757-6036 FAX # 206-757-7609	1X 2X	12/31/97	
341180	APPLIED INDUSTRIAL TECH 281 S FRONTAGE ROAD BURR RIDGE IL 60521-4244	PHONE #630-325-7575 FAX # 630-325-7579	1RS 2X	12/31/97	
023937	APPLIED INDUSTRIAL TECH P O BOX 1564 ONE PULLMAN CENTER BUTLER PA 16001-1634	PHONE #412-283-2434 FAX # 412-283-6414	2EX 2X	12/31/97	
720144	APPLIED INDUSTRIAL TECH 1015 E 2ND STREET BUTTE MT 59701	PHONE #406-723-6524 FAX # 406-723-8322	0X 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
348961	APPLIED INDUSTRIAL TECH 331 VAN BUREN ST NE CAMDEN AR 71701	PHONE #501-834-8683 FAX # 501-837-2514	1RS 2X	12/31/97	
073718	APPLIED INDUSTRIAL TECH 4754 FAIRCREST STREET S M CANTON OH 44706	PHONE #330-484-1999 FAX # 330-484-8211	1RS 2EX 2X	12/31/97	
351791	APPLIED INDUSTRIAL TECH J R CUNIN DISTRIBUTION CENTER 1103 CLAREMONT ROAD CARLISLE PA 17013	PHONE #717-249-0061 FAX # 717-249-0110	1RS 2X	12/31/97	
378703	APPLIED INDUSTRIAL TECH 39 LADDER LANE CARROLLTON KY 41008-8059	PHONE #502-732-2355 FAX # 502-732-9350	1RS 2X	12/31/97	
045664	APPLIED INDUSTRIAL TECH P O BOX 1930 327 SOUTH ERWIN STREET CARTERSVILLE GA 30120	PHONE #770-386-8026 FAX # 770-387-0232	1RS 2X	12/31/97	
362269	APPLIED INDUSTRIAL TECH 112 GILA BEND HIGHWAY CASA GRANDE AZ 85222	PHONE #928-836-2084 FAX # 928-836-1997	1RS 2X	12/31/97	
760625	APPLIED INDUSTRIAL TECH 530 N PEARL STREET CENTRALIA MA 01831	PHONE #360-734-7323 FAX # 360-734-7323	1RS 2X	12/31/97	
331413	APPLIED INDUSTRIAL TECH 130 EAST COMSTOCK CHANDLER AZ 85225	PHONE #602-926-2500 FAX # 602-926-2759	1RS 2X	12/31/97	
073767	APPLIED INDUSTRIAL TECH 1916 KANAWHA BLVD CHARLESTON WV 25312	PHONE #304-344-0641	1RS 2X	12/31/97	

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771113	APPLIED INDUSTRIAL TECH 2242 WREN DRIVE CHARLESTON SC 29418	PHONE #803-553-9548 FAX # 803-569-7046	1RS 1X 2X	12/31/97	
251983	APPLIED INDUSTRIAL TECH 2177 DISTRIBUTION CENTER DR CHARLOTTE NC 28269	PHONE #704-596-0898 FAX # 704-596-4261	1RS 2EX 2X	12/31/97	
242693	APPLIED INDUSTRIAL TECH 2423 S BROAD ST CHATTANOOGA TN 37408	PHONE #615-267-9526 FAX # 615-265-0570	1RS 2X	12/31/97	
302844	APPLIED INDUSTRIAL TECH 117 MEADOW STREET #5A CHICOPEE MA 01013-2243	PHONE #413-532-2221 FAX # 413-532-3444	1RS 2X	12/31/97	
353730	APPLIED INDUSTRIAL TECH 1615 NORTH BRIDGE ST CHILLICOTHE OH 45601	PHONE #614-775-7255 FAX # 614-775-7252	1RS 2EX 2X	12/31/97	
773739	APPLIED INDUSTRIAL TECH SUITE 104 630 BAY BLVD CHULA VISTA CA 91910-5201	PHONE #619-425-2005 FAX # 619-425-2015	1RS 2X	12/31/97	
102954	APPLIED INDUSTRIAL TECH 1741 TENNESSEE AVE CINCINNATI OH 45229	PHONE #513-242-1600 FAX # 513-242-1719	1X 2EX 2X	12/31/97	
299156	APPLIED INDUSTRIAL TECH 2739 E WASHINGTON BLVD CITY OF COMMERCE CA 90040	PHONE #213-724-5111 FAX # 213-725-1927	1RS 2X	12/31/97	
247064	APPLIED INDUSTRIAL TECH 13324 E VALLEY BLVD CITY OF INDUSTRY CA 91744	PHONE #818-330-2456 FAX # 818-349-1044	1RS 2X	12/31/97	
364323	APPLIED INDUSTRIAL TECH 14597 S E 82ND DRIVE CLACKAMAS OR 97015	PHONE #503-652-2253 FAX # 503-652-3198	1RS 2X	12/31/97	
074112	APPLIED INDUSTRIAL TECH P O BOX 35197 15204 INDUSTRIAL PARK CLEVELAND OH 44135	PHONE #216-267-2400 FAX # 216-267-3216	1RS 2X	12/31/97	
703090	APPLIED INDUSTRIAL TECH 2800 EUCALID AVE CLEVELAND OH 44115	PHONE #216-881-7700 FAX # 216-881-2837	1RS 2X	12/31/97	
311605	APPLIED INDUSTRIAL TECH PORTLAND MM SIK PO BOX 6925 CLEVELAND OH 44101	PHONE #216-881-2838	1RS 2X	12/31/97	
311642	APPLIED INDUSTRIAL TECH CLEVELAND DIST CMT PO BOX 93803 CLEVELAND OH 44101-5803	PHONE #216-881-2838	1RS 2X	12/31/97	
332098	APPLIED INDUSTRIAL TECH 3634 EUCALID AVE CLEVELAND OH 44115	PHONE #216-881-2838 FAX # 216-881-2837	1RS 2X	12/31/97	

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311563	APPLIED INDUSTRIAL TECH 11 E HAMERS DIST PO BOX 6925 CLEVELAND OH 44101	PHONE #216-881-2838	1RS 2X	12/31/97	
374876	APPLIED INDUSTRIAL TECH 315 COMMERCE PO BOX 1135 CLUTE TX 77531	PHONE #409-265-0875 FAX # 409-265-0879	1X 2X	12/31/97	
229120	APPLIED INDUSTRIAL TECH 1044 LEES MILL RD COLLEGE PARK GA 30349	PHONE #770-297-2680 FAX # 770-294-3833	1RS 2X	12/31/97	
264796	APPLIED INDUSTRIAL TECH 2283 LA CROSSE AVE #402 COLTON CA 92324-4409	PHONE #909-825-4342 FAX # 909-822-0430	1RS 2X	12/31/97	
242669	APPLIED INDUSTRIAL TECH 220 BUSINESS PARK BOULEVARD COLUMBIA SC 29223	PHONE #803-736-6290 FAX # 803-736-6292	1RS 2X	12/31/97	
073726	APPLIED INDUSTRIAL TECH 3858 BUSINESS PARK DRIVE COLUMBUS OH 43204	PHONE #614-272-8700 FAX # 614-272-8864	1RS 2EX 2X	12/31/97	
341750	APPLIED INDUSTRIAL TECH 1720 STATE STREET COLUMBUS IN 47201	PHONE #812-376-4110 FAX # 812-378-4475	1RS 2X	12/31/97	
340810	APPLIED INDUSTRIAL TECH 1013 HWY 69 SOUTH COLUMBUS MS 39702	PHONE #601-327-0631 FAX # 601-328-4401	1RS 2EX 2X	12/31/97	
242727	APPLIED INDUSTRIAL TECH 810 SOUTH OAKVIEW COLUMBUS GA 31901	PHONE #770-324-4411 FAX # 770-324-1679	1RS 2X	12/31/97	
344513	APPLIED INDUSTRIAL TECH 600 HILBIG ROAD CONROE TX 77381	PHONE #409-756-5444 FAX # 409-756-3728	1RS 2X	12/31/97	
040428	APPLIED INDUSTRIAL TECH SUITE 100 501 EYLAN RD NW CONVERS GA 30207-1311	PHONE #770-922-2700 FAX # 770-388-7847	1RS 2X	12/31/97	
051185	APPLIED INDUSTRIAL TECH 222 E 180 740 S 2ND ST COGS BAY OR 97420	PHONE #503-265-2220 FAX # 503-265-2067	1RS 2X	12/31/97	
197408	APPLIED INDUSTRIAL TECH 605 WEST CUMBERLAND GAP CORBIN KY 40701	PHONE #606-523-0883 FAX # 606-528-3963	1RS 2X	12/31/97	
237032	APPLIED INDUSTRIAL TECH 402 S CASS STREET P O BOX 2349 CORBIN MS 38824	PHONE #601-287-3152 FAX # 601-287-4929	1RS 2X	12/31/97	

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360594	APPLIED INDUSTRIAL TECH 205 S MAPLE STREET CORONA CA 91720	PHONE #909-371-2550 FAX # 909-735-9514	IRS 2X	12/31/97	
374397	APPLIED INDUSTRIAL TECH 4175 SUNBELT DRIVE PO BOX 9111 CORPUS CHRISTI TX 78462	PHONE #512-289-8231 FAX # 512-289-8235	IRS 2X	12/31/97	
367920	APPLIED INDUSTRIAL TECH 175 NORTH MAPLE AVENUE COVINGTON VA 24426	PHONE #703-965-3422 FAX # 703-965-3426	IRS 2X	12/31/97	
376095	APPLIED INDUSTRIAL TECH 2001 EASTPARK BLVD CRANBURY NJ 08512	PHONE #609-860-2700 FAX # 609-860-2620	IRS 2X	12/31/97	
342170	APPLIED INDUSTRIAL TECH 4643 N 138TH STREET CRESTMOOD IL 60445	PHONE #708-396-1400 FAX # 708-396-0735	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
061689	APPLIED INDUSTRIAL TECH P O BOX 596 108 S HWY 133 N CROSSETT AR 71635	PHONE #501-364-5735 FAX # 501-364-3188	IRS 2X	12/31/97	
309336	APPLIED INDUSTRIAL TECH COTTINGHAM DIV. BRANCH 011 2641 IRVING BLVD DALLAS TX 75207	PHONE #214-631-3270 FAX # 214-905-7113	IRS 2X	12/31/97	
083501	APPLIED INDUSTRIAL TECH P O BOX 2220 DANVILLE VA 24540	PHONE #804-799-2610 FAX # 804-791-3136	1X 2EX 2X	12/31/97	
075833	APPLIED INDUSTRIAL TECH 2760 THUNDERBOLT COURT DAYTON OH 45414-3445	PHONE #513-898-8512 FAX # 513-898-8982	IRS 2EX 2X	12/31/97	
335869	APPLIED INDUSTRIAL TECH 1322 HWY 70 M PO BOX 881 DE QUEEN AR 71832	PHONE #501-243-4444 FAX # 501-642-2594	IRS 2X	12/31/97	
242844	APPLIED INDUSTRIAL TECH 919 CHURCH STREET N E DECATUR AL 35601	PHONE #205-359-1115 FAX # 205-350-4802	IRS 2EX 2X	12/31/97	
335802	APPLIED INDUSTRIAL TECH P O BOX 1357 2801 EAST PARKWAY DRIVE DECATUR IL 62526	PHONE #217-429-0386 FAX # 217-429-9026	IRS 2X	12/31/97	
318667	APPLIED INDUSTRIAL TECH P O BOX 489 802 S 13TH DEER PARK TX 77536	PHONE #713-476-9800 FAX # 713-476-9614	IRS 2EX 2X	12/31/97	
249656	APPLIED INDUSTRIAL TECH P O BOX 326 100 S 1ST DEMOPOLIS AL 36732	PHONE #205-289-4320 FAX # 205-289-6428	IRS 2X	12/31/97	

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791459	APPLIED INDUSTRIAL TECH 3664 OAKCLIFF RD DORAVILLE GA 30340	PHONE #770-449-4323 FAX # 770-840-1023	IRS 2X	12/31/97	
250803	APPLIED INDUSTRIAL TECH PO BOX 6224 1107 NORTH PARK AVE DOTHAN AL 36302	PHONE #205-793-3384 FAX # 205-793-2588	IRS 2X	12/31/97	
270033	APPLIED INDUSTRIAL TECH 1 INDUSTRIAL PARK DRIVE DOVER NH 03820-4332	PHONE #603-749-2121 FAX # 603-749-6936	IRS 2X	12/31/97	
350207	APPLIED INDUSTRIAL TECH RTE 9 HWY 441 SOUTH DUBLIN GA 31021	PHONE #912-275-1890 FAX # 912-275-7165	IRS 2X	12/31/97	
233643	APPLIED INDUSTRIAL TECH RD 3 BOX 341 3300 ROUTE 22 WEST DUNCANVILLE TX 76839	PHONE #814-696-2571 FAX # 814-696-9621	IRS 2X	12/31/97	
252304	APPLIED INDUSTRIAL TECH 1625 COOPER ST DURHAM NC 27703	PHONE #919-596-0665 FAX # 919-598-1005	IRS 2EX 2X	12/31/97	
348276	APPLIED INDUSTRIAL TECH 1507 E MAIN EAGLE LAKE TX 77434	PHONE #409-234-2585 FAX # 409-234-3837	IRS 2X	12/31/97	
352419	APPLIED INDUSTRIAL TECH 2 INDUSTRIAL DRIVE EAST HILLINGCROFT ME 04438	PHONE #207-746-5711 FAX # 207-746-5724	IRS 2X	12/31/97	
301713	APPLIED INDUSTRIAL TECH 1190 DOGWOOD ROAD EL CENTRO CA 92243	PHONE #619-353-1910 FAX # 619-353-6358	IRS 2X	12/31/97	
369876	APPLIED INDUSTRIAL TECH 15000 E HIGGINS ROAD ELK GROVE VILLAGE IL 60007	PHONE #847-952-9590 FAX # 847-952-9597	IRS 2X	12/31/97	
103445	APPLIED INDUSTRIAL TECH 145 KEEP COURT ELYRIA OH 44035	PHONE #216-324-4555 FAX # 216-324-3837	OX IRS 2EX 2X 3G 9X	12/31/97	
073783	APPLIED INDUSTRIAL TECH P O BOX 8426 1404 INDUSTRIAL DR ERIE PA 16505	PHONE #814-838-7714	IRS 2EX 2X	12/31/97	
073387	APPLIED INDUSTRIAL TECH P O BOX 1674 2150 WEST FIFTH AVENUE EUGENE OR 97402	PHONE #541-485-0022	IRS 2X	12/31/97	
264523	APPLIED INDUSTRIAL TECH 332 JACOBS AVE EUREKA CA 95501	PHONE #707-443-5727 FAX # 707-443-8696	IRS 2X	12/31/97	
372561	APPLIED INDUSTRIAL TECH 1401 N ROYAL AVE EVANSVILLE IN 47715	PHONE #812-473-7744 FAX # 812-473-5675	1X 2EX 2X	12/31/97	

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073619	APPLIED INDUSTRIAL TECH 2922 W MARINE VIEW EVERETT MA 98201	PHONE # FAX #	IRS 2X	12/31/97	
240275	APPLIED INDUSTRIAL TECH 780 CHADBORNE RD SUITE C FAIRFIELD CA 94533	PHONE #707-421-2400 FAX # 707-421-2423	IRS 2X	12/31/97	
750885	APPLIED INDUSTRIAL TECH P O BOX 327 OLD RTE 73 AT I79 FAIRMONT WY 26254	PHONE #304-366-7610 FAX # 304-363-8317	IRS 2X	12/31/97	
289660	APPLIED INDUSTRIAL TECH 1990 ALLEN ST EXT FALCONER NY 14733	PHONE #716-665-3412 FAX # 716-665-5262	IRS 2X	12/31/97	
371831	APPLIED INDUSTRIAL TECH 1935 SAN JUAN BLVD FARMINGTON NH 87401	PHONE #505-325-5500 FAX # 505-325-5511	IRS 2X	12/31/97	
769257	APPLIED INDUSTRIAL TECH 209 N BROAD ST FAYETTEVILLE NC 28301	PHONE #910-323-0045 FAX # 910-323-5267	1X 2EX 2X	12/31/97	
201848	APPLIED INDUSTRIAL TECH P O BOX 765 302 ADMINISTER DRIVE FENTON MO 63026	PHONE #314-343-6220 FAX # 314-343-3002	IRS 2X	12/31/97	
244889	APPLIED INDUSTRIAL TECH 1355 E BUTLER ROAD FLAGSTAFF AZ 86001	PHONE #520-779-3676 FAX # 520-774-7766	IRS 2X	12/31/97	
020586	APPLIED INDUSTRIAL TECH 1907 HALL STREET FLORENCE SC 29501	PHONE #803-669-5154 FAX # 803-678-9734	IRS 2EX 2X	12/31/97	
367912	APPLIED INDUSTRIAL TECH HIGHEST DISTRIBUTION CENTER 7575 THOROUGHSHED DR FLORENCE KY 41042	PHONE #606-282-8013 FAX # 606-282-1404	IRS 2X	12/31/97	
150409	APPLIED INDUSTRIAL TECH 1005 SOUTH A STREET FORT SMITH AR 72901	PHONE #501-782-9128 FAX # 501-783-1834	IRS 2X	12/31/97	
073882	APPLIED INDUSTRIAL TECH 330 W JEFFERSON BLVD FORT WAYNE IN 46802	PHONE #219-423-1632	IRS 2X	12/31/97	
267706	APPLIED INDUSTRIAL TECH 4375 DIPLOMACY ROAD FORT WORTH TX 76155	PHONE #817-685-0366 FAX # 817-571-2309	IRS 2X	12/31/97	
120964	APPLIED INDUSTRIAL TECH 41203 ALBAE STREET FREMONT CA 94538	PHONE #510-770-1525 FAX # 510-770-1360	IRS 2X	12/31/97	
108449	APPLIED INDUSTRIAL TECH 3190 E GARRETT ST FRESNO CA 93706	PHONE #209-485-7660 FAX # 209-486-3266	IRS 2X	12/31/97	

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207613	APPLIED INDUSTRIAL TECH 2001 NORTH FREEMAN FT WORTH TX 76106	PHONE #817-624-1010 FAX # 817-624-2622	IRS 2X	12/31/97	
251959	APPLIED INDUSTRIAL TECH P O DRAWER 0 109 SOUTH 26TH STREET GADSDEN AL 35904	PHONE #205-547-6987 FAX # 205-549-1622	1X 2EX 2X	12/31/97	
204410	APPLIED INDUSTRIAL TECH 1560 MONROE DR SE GAINESVILLE GA 30601	PHONE #770-532-3161 FAX # 770-532-0126	IRS 2X	12/31/97	
350215	APPLIED INDUSTRIAL TECH 15432 S BROADWAY GARDENA CA 90247	PHONE #310-515-5882 FAX # 310-515-0402	IRS 2X	12/31/97	
332924	APPLIED INDUSTRIAL TECH 2154 S JUPITER RD GARLAND TX 75041	PHONE #214-340-1578 FAX # 214-378-3078	IRS 2X	12/31/97	
181628	APPLIED INDUSTRIAL TECH 2501 N CHESTER ST GASTONIA NC 28052	PHONE #704-864-3111 FAX # 704-864-3112	IRS 2X	12/31/97	
328005	APPLIED INDUSTRIAL TECH 6473 CHESTNUT ST SUITE 3A GILROY CA 95020	PHONE #408-847-1272 FAX # 408-847-3364	IRS 2X	12/31/97	
608935	APPLIED INDUSTRIAL TECH P O BOX 818 2525 ROCK ROAD GRANITE CITY IL 62040	PHONE #618-451-0164 FAX # 618-451-0268	IRS 2X	12/31/97	
250522	APPLIED INDUSTRIAL TECH P O BOX 870 20 COMMERCE AVE GREENCASTLE PA 17225	PHONE #717-527-2400 FAX # 717-527-7288	IRS 2X	12/31/97	
252536	APPLIED INDUSTRIAL TECH 120 INDUSTRIAL AVE GREENSBORO NC 27406	PHONE #919-274-4686 FAX # 919-274-1833	IRS 2EX 2X	12/31/97	
251931	APPLIED INDUSTRIAL TECH 19 AIRVIEW DRIVE GREENVILLE SC 29607	PHONE #864-288-2081 FAX # 864-288-0663	IRS 2EX 2X	12/31/97	
242578	APPLIED INDUSTRIAL TECH P O BOX 1277 257 S HALL ST GREENVILLE MS 38701	PHONE #601-332-1536 FAX # 601-378-3140	IRS 2EX 2X	12/31/97	
613181	APPLIED INDUSTRIAL TECH 2061 LAURENS HWY GREENWOOD SC 29646	PHONE #803-229-6284 FAX # 803-229-1690	IRS 2X	12/31/97	
343515	APPLIED INDUSTRIAL TECH 1495 SOUTH STREET PO BOX 399 GRENADA MS 38901	PHONE #601-226-2034 FAX # 601-226-9961	IRS 2EX 2X	12/31/97	

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106526	APPLIED INDUSTRIAL TECH 160 HANCOCK AVE P O BOX 657 HAMILTON OH 45011	PHONE #513-863-5880 FAX # 513-863-4170	1RS 2EX 2X	12/31/97	
172239	APPLIED INDUSTRIAL TECH 2100 WINGEE DRIVE HAMPTON VA 23661	PHONE #804-838-4390 FAX # 804-838-8517	1X 2EX 2X	12/31/97	
074500	APPLIED INDUSTRIAL TECH P O BOX 4277 6299 GRAYSON ROAD HARRISBURG PA 17111	PHONE #717-564-8780 FAX # 717-564-1922	1RS 2X	12/31/97	
326496	APPLIED INDUSTRIAL TECH 1517 NORTH MAIN ST HARRISBURG PA 17101	PHONE #601-545-1792 FAX # 601-545-9929	1RS 2EX 2X	12/31/97	
377259	APPLIED INDUSTRIAL TECH 545 MADISON ST P O BOX 309 HAMESVILLE KY 42348-0309	PHONE #502-927-9487 FAX # 502-927-9491	1RS 2EX 2X	12/31/97	
261461	APPLIED INDUSTRIAL TECH 5 LIBERTY DRIVE HERMON ME 04401	PHONE #207-848-7532 FAX # 207-848-2418	1RS 2X	12/31/97	
242768	APPLIED INDUSTRIAL TECH 305 FIRST AVENUE S W HICKORY NC 28602	PHONE #704-328-2566 FAX # 704-328-9125	1RS 2X	12/31/97	
363978	APPLIED INDUSTRIAL TECH 2104 HIGHWAY 70 EAST HOT SPRINGS AR 71901	PHONE #501-624-1432 FAX # 501-624-7229	1RS 2X	12/31/97	
313890	APPLIED INDUSTRIAL TECH 4301 DACOMA STREET HOUSTON TX 77092	PHONE #713-688-4701 FAX # 713-688-4529	1RS 2X	12/31/97	
363242	APPLIED INDUSTRIAL TECH 7840 ROCKVILLE ROAD INDIANAPOLIS IN 46214	PHONE #317-271-0265 FAX # 317-271-0184	1RS 2X	12/31/97	
363879	APPLIED INDUSTRIAL TECH 4380 SELLERS ST P O BOX 26587 INDIANAPOLIS IN 46226-6587	PHONE #317-247-1017 FAX # 317-247-0137	1RS 2X	12/31/97	
014683	APPLIED INDUSTRIAL TECH 1680 S GALLATIN JACKSON MS 39202	PHONE #601-352-7741 FAX # 601-352-4823	1RS 2EX 2X	12/31/97	
797217	APPLIED INDUSTRIAL TECH P O BOX 2287 50 N COMALCO DR JACKSON IN 46201	PHONE #901-424-4243 FAX # 901-424-8025	1X 2X	12/31/97	
253302	APPLIED INDUSTRIAL TECH P O BOX 3705 1408 MAINES ST JACKSONVILLE FL 32206	PHONE #904-353-9681 FAX # 904-353-7658	1RS 2X	12/31/97	

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040406	APPLIED INDUSTRIAL TECH 718 WEISINGER ROAD JEFFERSON CITY MO 65109	PHONE #314-432-7971 FAX # 314-432-4344	1RS 2X	12/31/97	
073908	APPLIED INDUSTRIAL TECH 521 NAPOLEON ST JOHNSTOWN PA 15901	PHONE #814-539-7631 FAX # 814-539-5933	1RS 2X	12/31/97	
370312	APPLIED INDUSTRIAL TECH 2402 W MCDONOUGH STREET JOLIET IL 60435	PHONE #815-725-1424 FAX # 815-725-1408	OX 1X 2EX 2X 3G 3GV 3M 3X 4X 5X	12/31/97	*
287417	APPLIED INDUSTRIAL TECH 2628 COMMERCE DRIVE JONESBORO AR 72401	PHONE #501-972-8282 FAX # 501-972-8384	1X 2X	12/31/97	
776458	APPLIED INDUSTRIAL TECH 2547 HWY 2 EAST KALISPELL MT 59901	PHONE #406-752-4191 FAX # 406-752-4183	OX 1X 2EX 2X 3G 3GV 3M 3X 4X 5X	12/31/97	
372813	APPLIED INDUSTRIAL TECH 3201 MC CORMICK ROAD KANSAS CITY KS 66115	PHONE #913-321-8500 FAX # 913-321-3056	1RS 2EX 2X	12/31/97	
083766	APPLIED INDUSTRIAL TECH 2110 S 84TH AVE SO KENT WA 98031	PHONE #206-872-8398 FAX # 206-872-8366	1RS 2X	12/31/97	
074605	APPLIED INDUSTRIAL TECH 310 HANSEN ACCESS ROAD KING OF PRUSSIA PA 19406-2450	PHONE #610-768-4960 FAX # 610-768-9494	1RS 2X	12/31/97	
251538	APPLIED INDUSTRIAL TECH 385 REVERE ST KINGSPORT TN 37660	PHONE #423-247-3167 FAX # 423-245-1628	1RS 2EX 2X	12/31/97	
254417	APPLIED INDUSTRIAL TECH 3200 DRESSER ROAD KNOXVILLE TN 37920	PHONE #423-273-0022 FAX # 423-273-2421	OX 1X 2EX 2X 4PM	12/31/97	*
074676	APPLIED INDUSTRIAL TECH 1200 EAST BOULEVARD ST KOKOMO IN 46902	PHONE #317-457-8367 FAX # 317-457-9228	1RS 2X	12/31/97	
252221	APPLIED INDUSTRIAL TECH 1653 LUKKEN IND OR WEST LA GRANGE GA 30240	PHONE #706-844-3593 FAX # 706-844-1602	1RS 2X	12/31/97	
796771	APPLIED INDUSTRIAL TECH P O BOX 4217 310 FARABEE DR LAFAYETTE IN 47905	PHONE #317-447-8362 FAX # 317-447-8362	1RS 2X	12/31/97	
200972	APPLIED INDUSTRIAL TECH 2755 US 92 E LAKELAND FL 33801	PHONE #813-665-6921 FAX # 813-667-0176	1RS 2X	12/31/97	
074021	APPLIED INDUSTRIAL TECH 401 SERVICE ROAD LANCASTER PA 17601	PHONE #717-393-9431 FAX # 717-397-9133	1RS 2X	12/31/97	

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017442	APPLIED INDUSTRIAL TECH 2010 3RD AVE N LEWISTON ID 83501	PHONE #208-744-2386 FAX # 208-744-1767	0X 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
097790	APPLIED INDUSTRIAL TECH 881 NEWTOWN PIKE LEXINGTON KY 40511	PHONE #606-252-8426 FAX # 606-231-0429	1RS 2X	12/31/97	
073742	APPLIED INDUSTRIAL TECH 205 E PEARL ST LIMA OH 45801	PHONE #419-229-2060 FAX # 419-229-0782	1RS 2EX 2X	12/31/97	
311571	APPLIED INDUSTRIAL TECH J L LAMMERS DIST CENTER 1515 DISTRIBUTION COURT LITHIA SPRINGS GA 30057-4115	PHONE #770-941-9498 FAX # 770-745-2611	1RS 2X	12/31/97	
787184	APPLIED INDUSTRIAL TECH P O BOX 3798 1000 RINGO ST LITTLE ROCK AR 72203	PHONE #501-374-6383 FAX # 501-376-8242	1RS 2X	12/31/97	
327320	APPLIED INDUSTRIAL TECH 38 DEPOT STREET LIVERMORE FALLS ME 04254	PHONE #207-897-2941 FAX # 207-897-2942	1RS 2X	12/31/97	
244921	APPLIED INDUSTRIAL TECH 701 N ANAHEIM ST LONG BEACH CA 90813	PHONE #310-437-2201 FAX # 310-435-2880	1RS 2X	12/31/97	
307322	APPLIED INDUSTRIAL TECH 300 ST MALEY STREET LONGVIEW TX 75604	PHONE #903-758-9440 FAX # 903-758-9729	1RS 2X 4X 9X	12/31/97	S
208983	APPLIED INDUSTRIAL TECH 800 INDUSTRIAL HWY 10 BOX 280 LONGVIEW WA 98632	PHONE #360-577-1450 FAX # 360-425-8824	1RS 2EX 2X	12/31/97	
309285	APPLIED INDUSTRIAL TECH COTTINGHAM DIV BRANCH 021 1202 N MARSHALL ST LONGVIEW TX 75604	PHONE #903-758-8218 FAX # 903-753-6028	1RS 2X	12/31/97	
265819	APPLIED INDUSTRIAL TECH 5735 E WASHINGTON BLVD LOS ANGELES CA 90040-3396	PHONE #213-802-1641 FAX # 213-802-9646	1RS 2X	12/31/97	
251116	APPLIED INDUSTRIAL TECH 5799 FERN VALLEY ROAD LOUISVILLE KY 40228	PHONE #502-943-4424 FAX # 502-948-2027	1RS 2EX 2X	12/31/97	
309401	APPLIED INDUSTRIAL TECH 4000 ELLEN TROUT DRIVE LUFKIN TX 75901	PHONE #409-634-5501 FAX # 409-634-5503	1RS 2X	12/31/97	
004820	APPLIED INDUSTRIAL TECH P O BOX 4331 9604 EDGEWOOD AVE LYNCHBURG VA 24502	PHONE #804-239-0305 FAX # 804-239-9639	1X 2EX 2X	12/31/97	

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CUST #	COMPANY / CONTRACT ADDRESS	PHONE	PRODUCT LINES	EXP. DATE	PAPER RCVD.
242778	APPLIED INDUSTRIAL TECH 4330 MEAD RD MACON GA 31206	PHONE #912-784-7165 FAX # 912-784-7505	1RS 2X	12/31/97	
332544	APPLIED INDUSTRIAL TECH 220 ALMOND AVE MADERA CA 93637	PHONE #209-643-7863 FAX # 209-641-5303	1RS 2X	12/31/97	
319657	APPLIED INDUSTRIAL TECH 649 E INDUSTRIAL DRIVE MANCHESTER NH 03103	PHONE #603-623-8897 FAX # 603-623-8763	1RS 2X	12/31/97	
111096	APPLIED INDUSTRIAL TECH 137 W 6TH ST MANSFIELD OH 44902	PHONE #419-524-5171 FAX # 419-524-5550	1RS 2EX 2X	12/31/97	
263483	APPLIED INDUSTRIAL TECH PO BOX 898 618 E FOURTH ST MARION IN 46952	PHONE #317-464-7351 FAX # 317-662-1479	1RS 2X	12/31/97	
062026	APPLIED INDUSTRIAL TECH P O BOX 516 285 CENTER ST MARIETTA OH 43062	PHONE #614-382-1123 FAX # 614-382-2732	1RS 2X	12/31/97	
053611	APPLIED INDUSTRIAL TECH 2000 CARDINAL AVE MEDFORD OH 47504	PHONE #541-775-8613 FAX # 541-775-8629	1RS 2X	12/31/97	
372425	APPLIED INDUSTRIAL TECH 1929 CORNELL AVE MELROSE PARK IL 60168-1801	PHONE #708-345-9411 FAX # 708-345-9420	1RS 2EX 2X	12/31/97	
242677	APPLIED INDUSTRIAL TECH 7 E CRUMP BLVD MEMPHIS TN 38106	PHONE #901-948-4515 FAX # 901-942-4420	1X 2EX 2X	12/31/97	
366609	APPLIED INDUSTRIAL TECH 2000 LAMAR AVENUE MEMPHIS TN 38118	PHONE #901-794-3999 FAX # 901-794-6177	1RS 2X	12/31/97	
001420	APPLIED INDUSTRIAL TECH 1430 18TH STREET MERCED CA 95340	PHONE #209-722-0441 FAX # 209-722-3629	1RS 2X	12/31/97	
074088	APPLIED INDUSTRIAL TECH 1310 SOUTH UNIVERSITY MIDDLETOWN OH 43044	PHONE #513-424-1845 FAX # 513-424-3123	1X 2EX 2X 9X	12/31/97	
487876	APPLIED INDUSTRIAL TECH 802 OLD SALEM ROAD SE PO BOX 1026 MILLERSBURG OR 97321	PHONE #541-926-9481 FAX # 541-926-4737	1RS 2X	12/31/97	
656165	APPLIED INDUSTRIAL TECH 203 TRADE ST MISSOULA MT 59802	PHONE #406-542-6165 FAX # 406-542-2830	0X 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
242628	APPLIED INDUSTRIAL TECH 1201 HUYSON DRIVE MOBILE AL 36609	PHONE #334-344-2551 FAX # 334-344-2583	1RS 2EX 2X	12/31/97	

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CUST #	COMPANY / CONTRACT ADDRESS	PRODUCT LINES	EXP. DATE	PAPER RCVD.
108423	APPLIED INDUSTRIAL TECH 2133 YOSEMITE BLVD MODESTO CA 95354	PHONE #209-529-2880 FAX # 209-522-3088	OX 1X 2X 3G 3GV 3X 4X 5X	12/31/97
134049	APPLIED INDUSTRIAL TECH 1000 DONNER AVE MONESSEN PA 15062	PHONE #412-684-7120 FAX # 412-684-9037	1RS 2X	12/31/97
365155	APPLIED INDUSTRIAL TECH 1717 WILLIAMS ROAD MONROE NC 28110	PHONE #704-289-4887 FAX # 704-289-5193	1RS 2X	12/31/97
242743	APPLIED INDUSTRIAL TECH 134 AIR BASE BLVD MONTGOMERY AL 36108	PHONE #205-834-8324 FAX # 205-834-8328	1RS 2EX 2X	12/31/97
329185	APPLIED INDUSTRIAL TECH REDUCTION HKS GATE PO BOX 970 MORENCI AZ 85540	PHONE #520-865-4115 FAX # 520-865-4610	1RS 2X	12/31/97
081927	APPLIED INDUSTRIAL TECH 990 N RENGSTORFF MOUNTAIN VIEW CA 94043	PHONE #415-968-8316 FAX # 415-967-3214	1RS 2X	12/31/97
657411	APPLIED INDUSTRIAL TECH WESTMORLAND TECHNOLOGY PARK 301 WESTEDG DR. PO. BOX 1206 MT PLEASANT PA 15666-3206	PHONE #412-696-3099 FAX # 412-696-3199	1RS 2X	12/31/97
242735	APPLIED INDUSTRIAL TECH P O BOX 375 HIGHWAY 37 SOUTH MULBERRY FL 33860	PHONE #813-425-1161 FAX # 813-425-5170	1RS 2X	12/31/97
106302	APPLIED INDUSTRIAL TECH P O BOX 2506 401 N MILLARD MUNCIE IN 47302	PHONE #317-284-1425 FAX # 317-284-8162	1RS 2X	12/31/97
316083	APPLIED INDUSTRIAL TECH 1585 OLD FORT PARKWAY MURFREESBORO TN 37129	PHONE #615-894-8871 FAX # 615-895-4309	1RS 2X	12/31/97
242701	APPLIED INDUSTRIAL TECH P O BOX 1009 1240 POLK AVENUE NASHVILLE TN 37210	PHONE #615-244-4443 FAX # 615-255-4349	1RS 2X	12/31/97
309252	APPLIED INDUSTRIAL TECH COTTINGHAM DIV BRANCH 032 1520 INDUSTRIAL PARK NEDERLAND TX 77427	PHONE #409-722-4258 FAX # 409-727-4252	1RS 2EX 2X	12/31/97
105510	APPLIED INDUSTRIAL TECH #1 MC CULLOUGH DRIVE NEW CASTLE DE 19720	PHONE #302-328-9557 FAX # 302-328-1042	1RS 2X	12/31/97
242685	APPLIED INDUSTRIAL TECH ELMWOOD INDUSTRIAL PARK 5516 POWELL STREET NEW ORLEANS LA 70123	PHONE #504-733-7140 FAX # 504-733-7149	1RS 2X	12/31/97

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288381	APPLIED INDUSTRIAL TECH 851 COMMERCIAL AVE SE PO BOX 1021 NEW PHILADELPHIA OH 44663-5123	PHONE #216-339-1800 FAX # 216-339-3320	1RS 2X	12/31/97
074062	APPLIED INDUSTRIAL TECH P O BOX 1069 116 27TH ST. S NEBARK OH 43095	PHONE #614-344-9416 FAX # 614-344-4978	1RS 2X	12/31/97
424069	APPLIED INDUSTRIAL TECH 1220 BALLENTINE BLVD NORFOLK VA 23504	PHONE #804-623-6744 FAX # 804-624-2222	1X 2EX 2X	12/31/97
287953	APPLIED INDUSTRIAL TECH 6908 TULUNGA AVENUE NORTH HOLLYWOOD CA 91605	PHONE #818-766-8115 FAX # 818-766-0232	1RS 2X	12/31/97
145532	APPLIED INDUSTRIAL TECH 7302-A EDGEMASTER DRIVE OAKLAND CA 94621	PHONE #510-568-6690 FAX # 510-632-8362	1RS 2X	12/31/97
309443	APPLIED INDUSTRIAL TECH COTTINGHAM DIV BRANCH 044 1400 W 2ND ST ODESSA TX 79763	PHONE #915-332-6417 FAX # 915-332-1268	1RS 2X	12/31/97
309450	APPLIED INDUSTRIAL TECH COTTINGHAM DIV BRANCH 033 1623 S E 23RD ST OKLAHOMA CITY OK 73129	PHONE #405-677-5719 FAX # 405-672-7587	1RS 2X 3X 4X 5X	12/31/97
249193	APPLIED INDUSTRIAL TECH MONTANAN INDUSTRIAL PARK 2747 R M JOHNSON PARK OLYMPIA WA 98502	PHONE #206-754-4363 FAX # 206-357-7598	1RS 2X	12/31/97
256982	APPLIED INDUSTRIAL TECH 4189 A SANTA ANA STREET ONTARIO CA 91761	PHONE #909-988-7401 FAX # 909-391-3068	1RS 2X	12/31/97
242719	APPLIED INDUSTRIAL TECH 301 M GRANT STREET ORLANDO FL 32806	PHONE #407-841-2566 FAX # 407-841-3560	1RS 2X	12/31/97
149450	APPLIED INDUSTRIAL TECH P O BOX 3159 4037 CLARKS RIVER ROAD PADUCAH KY 42061	PHONE #502-442-6331 FAX # 502-442-4547	1RS 2X	12/31/97
073809	APPLIED INDUSTRIAL TECH P O BOX 257 2098 NORTH RIDGE ROAD PAINESVILLE OH 44077	PHONE #216-352-3191 FAX # 216-352-3193	1RS 2EX 2X	12/31/97
369546	APPLIED INDUSTRIAL TECH 607 REID STREET PALATKA FL 32177	PHONE #904-328-3311 FAX # 904-325-8666	1RS 2X	12/31/97
348235	APPLIED INDUSTRIAL TECH 1131 N LOOP 286 PARIS TX 75460	PHONE #903-284-1761 FAX # 903-785-8063	1RS 2X	12/31/97

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104018	APPLIED INDUSTRIAL TECH 400 A RAYON DRIVE PARKERSBURG WV 26101	PHONE #304-422-5478 FAX # 304-485-3631	1X 2X	12/31/97	S
379024	APPLIED INDUSTRIAL TECH 5615 TELEPHONE RD PASCAGOULA MS 39567-1126	PHONE #601-749-8838 FAX # 601-749-8885	1RS 2X	12/31/97	
108803	APPLIED INDUSTRIAL TECH PO BOX 874 1320 WEST A ST PASCO WA 99301	PHONE #509-547-2421 FAX # 509-547-5764	0X 1X 2EX 2X 3G 3GV 3M 3X 4X 9X	12/31/97	
371849	APPLIED INDUSTRIAL TECH 2901 NORTH PEORIA ST SUITE 2 PERU IL 61354	PHONE #815-223-5010 FAX # 815-223-4947	1RS 2X	12/31/97	
073916	APPLIED INDUSTRIAL TECH H & CAYUGA ST PHILADELPHIA PA 19124	PHONE #215-744-6330 FAX # 215-288-9184	1RS 2EX 2X	12/31/97	
352062	APPLIED INDUSTRIAL TECH 4221 N ADAMS STREET SUITE 2 PHOENIX AZ 85009	PHONE #602-272-9002 FAX # 602-272-9516	1RS 2X	12/31/97	
335190	APPLIED INDUSTRIAL TECH 3732 E UNIVERSITY DRIVE PHOENIX AZ 85034	PHONE #602-470-1444 FAX # 602-437-3684	1RS 2X	12/31/97	
335083	APPLIED INDUSTRIAL TECH P O BOX 8828 841 E 10TH STREET PINE BLUFF AR 71611	PHONE #501-535-8071 FAX # 501-535-6586	1RS 2X	12/31/97	
073775	APPLIED INDUSTRIAL TECH 5236 FAIRM BLVD PITTSBURGH PA 15232	PHONE #412-681-4900 FAX # 412-681-2572	1RS 2X	12/31/97	
374231	APPLIED INDUSTRIAL TECH FRANKLIN BUILDING 500 E 10TH AVE SUITE 1100 PLATTSBURGH NY 12901	PHONE #518-652-2600 FAX # 518-652-2622	1RS 2X	12/31/97	
378315	APPLIED INDUSTRIAL TECH C70 ALCOA STATE HWY 35 PO BOX 738 POINT COMFORT TX 77978-0738	PHONE #512-387-4540 FAX # 512-387-6105	1RS 2EX 2X	12/31/97	
034447	APPLIED INDUSTRIAL TECH 3245 S.W. 15TH STREET POMPANO BEACH FL 33069	PHONE #304-944-1373 FAX # 305-978-9176	1RS 2X	12/31/97	
343822	APPLIED INDUSTRIAL TECH 6636 MELTON ROAD PORTAGE IN 46368	PHONE #219-742-8524 FAX # 219-742-7288	0X 1X 2EX 2X 3G 3GV 3M 3X 4X 9X	12/31/97	
311813	APPLIED INDUSTRIAL TECH 2720 NW 29TH STREET PORTLAND OR 97210	PHONE #503-244-1704 FAX # 503-248-0506	1RS 2X	12/31/97	
377176	APPLIED INDUSTRIAL TECH STATE ROUTE 2 PROCTOR MV 21655-0202	PHONE #304-455-5933 FAX # 304-455-5937	1RS 2X	12/31/97	

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363416	APPLIED INDUSTRIAL TECH 260 QUEENSBURY AVE PO BOX 4787 QUEENSBURY NY 12804	PHONE #518-741-1911 FAX # 518-745-1928	1RS 2X	12/31/97	
256289	APPLIED INDUSTRIAL TECH 1301 CORPORATION PARKWAY RALEIGH NC 27610	PHONE #919-231-6030 FAX # 919-231-8140	1RS 2EX 2X	12/31/97	
073858	APPLIED INDUSTRIAL TECH 835 WILLIAM LANE READING PA 19604	PHONE #215-929-8444 FAX # 215-929-8476	1RS 2X	12/31/97	
262188	APPLIED INDUSTRIAL TECH 2110 CATERPILLAR ROAD REDDING CA 96002	PHONE #916-244-4050 FAX # 916-241-8946	1RS 2X	12/31/97	
370361	APPLIED INDUSTRIAL TECH 411 N M F STREET PO BOX 1543 RICHMOND IN 47374	PHONE #317-925-7733 FAX # 317-966-2163	1RS 2X	12/31/97	
256297	APPLIED INDUSTRIAL TECH 2604 EASTPORT BLVD PO BOX 7699 RICHMOND VA 23231	PHONE #804-222-2300 FAX # 804-222-2322	1X 2EX 2X 4PM	12/31/97	S
256032	APPLIED INDUSTRIAL TECH 3025 MENTHORTH AVE N ROANOKE VA 24012	PHONE #703-362-3741 FAX # 703-362-9692	1RS 2EX 2X	12/31/97	
073973	APPLIED INDUSTRIAL TECH 215 PENNSYLVANIA AVE PO BOX 270 ROCHESTER PA 15074	PHONE #412-775-1420 FAX # 412-775-6492	1RS 2EX 2X	12/31/97	
790592	APPLIED INDUSTRIAL TECH PO BOX 4079 600 COLFAX ST ROCHESTER NY 14606	PHONE #716-284-1430 FAX # 716-284-0146	1RS 2X	12/31/97	
361089	APPLIED INDUSTRIAL TECH HIGHWAY 79 WEST AT FM1786 PO BOX 44 ROCKDALE TX 76867	PHONE #512-444-6844 FAX # 512-444-7434	0X 1X 2EX 2X 3G 3GV 3X 4X 9X	12/31/97	
072983	APPLIED INDUSTRIAL TECH 1437 NE DEE STREET PO BOX 1087 ROSEBURG OR 97470	PHONE #541-672-2601 FAX # 541-672-0322	1RS 2X	12/31/97	
370429	APPLIED INDUSTRIAL TECH 103 WALKER DRIVE RUSSELLVILLE KY 42276	PHONE #502-724-4818 FAX # 502-726-4825	1RS 2EX 2X	12/31/97	
338301	APPLIED INDUSTRIAL TECH 124 PARK STREET RUTLAND VT 05701	PHONE #802-775-3520 FAX # 802-775-7042	1RS 2X	12/31/97	
270785	APPLIED INDUSTRIAL TECH 2050 MCGILCHRIST SE SALEM OR 97302	PHONE #503-371-2322 FAX # 503-371-0113	1RS 2X	12/31/97	

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178673	APPLIED INDUSTRIAL TECH 1081 MARKINS RD SALINAS CA 93901	PHONE #408-757-6171 FAX # 408-757-9761	IRS 2X	12/31/97	
278010	APPLIED INDUSTRIAL TECH 119 NAYLOR HILL ROAD NORTH GATE BUSINESS PARK SALISBURY MD 21801	PHONE #410-546-9401 FAX # 410-546-0063	IRS 2X	12/31/97	
376491	APPLIED INDUSTRIAL TECH 11823 STARCREST SAN ANTONIO TX 78247-4108	PHONE #210-490-2210 FAX # 210-490-2210	1X 2X	12/31/97	
338772	APPLIED INDUSTRIAL TECH 255 E BROKAM RD SAN JOSE CA 95112	PHONE #408-436-5444 FAX # 408-436-0791	IRS 2X	12/31/97	
289280	APPLIED INDUSTRIAL TECH 1215 LINDA VISTA SUITE A SAN MARCOS CA 92069	PHONE #619-744-7422 FAX # 619-471-8625	IRS 2X	12/31/97	
237594	APPLIED INDUSTRIAL TECH P O BOX 895 1850 SUPERIOR STREET SANDUSKY OH 44870	PHONE #419-626-9381 FAX # 419-626-0829	IRS 2X	12/31/97	
034041	APPLIED INDUSTRIAL TECH 1717 GRAND AVENUE SANTA ANA CA 92705	PHONE #714-258-8931 FAX # 714-258-3073	IRS 2X	12/31/97	
328054	APPLIED INDUSTRIAL TECH 1010 N BETTERAVIA SANTA MARIA CA 93455	PHONE #805-928-1863 FAX # 805-922-2907	IRS 2X	12/31/97	
270058	APPLIED INDUSTRIAL TECH 7640 MATOAKA UNIT B SARASOTA FL 34243-3301	PHONE #941-358-9222 FAX # 941-358-9221	IRS 2X	12/31/97	
242123	APPLIED INDUSTRIAL TECH 1050 N LATHROP AVE SAVANNAH GA 31401	PHONE #912-234-1371 FAX # 912-234-8379	IRS 2X	12/31/97	
786665	APPLIED INDUSTRIAL TECH 2408 E WILLOW ST SCOTTSBORO AL 35768	PHONE #205-259-1445 FAX # 205-259-2185	IRS 2EX 2X	12/31/97	
053561	APPLIED INDUSTRIAL TECH 4021 6TH AVE S SEATTLE WA 98108	PHONE #206-223-5255 FAX # 206-682-6912	IRS 2X	12/31/97	
324459	APPLIED INDUSTRIAL TECH DIV OF KING BEARING 310 W HOUSTON ST SHERMAN TX 75090	PHONE #903-893-7746 FAX # 903-893-8529	IRS 2X	12/31/97	
323147	APPLIED INDUSTRIAL TECH 1816 W MARKET STREET SHREVEPORT LA 71107	PHONE #318-221-4188 FAX # 318-424-3941	IRS 2X	12/31/97	
242800	APPLIED INDUSTRIAL TECH P O BOX 4398 2030 COMMERCE DRIVE SIDNEY OH 45365-4398	PHONE #513-492-8180 FAX # 513-498-4958	IRS 2EX 2X	12/31/97	

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104729	APPLIED INDUSTRIAL TECH NEW 22 AT SOLIDA ROAD SOUTH POINT OH 45680-8953	PHONE #614-377-3383 FAX # 614-377-3384	IRS 2EX 2X	12/31/97	
784728	APPLIED INDUSTRIAL TECH 187 UTAH AVE SOUTH SAN FRANCISCO CA 94080	PHONE #415-873-6137 FAX # 415-873-4259	IRS 2X	12/31/97	
687830	APPLIED INDUSTRIAL TECH 1811 S 7TH ST SUITE C SOUTH SAN JOSE CA 95125	PHONE #408-438-8444 FAX # 408-298-1621	IRS 2X	12/31/97	
300061	APPLIED INDUSTRIAL TECH 290 BURNHAM STREET SOUTH WINDSOR CT 06074	PHONE #860-374-3777 FAX # 860-328-3773	IRS 2X	12/31/97	
248872	APPLIED INDUSTRIAL TECH 790 EAST GLENDALE AVE SPARKS NV 89431	PHONE #702-331-1224 FAX # 702-331-3909	IRS 2X	12/31/97	
242610	APPLIED INDUSTRIAL TECH 620 BUFFINGTON ROAD SPARTANBURG SC 29303-4716	PHONE #864-283-1583 FAX # 864-283-4161	IRS 2EX 2X	12/31/97	
046557	APPLIED INDUSTRIAL TECH NORTH 301 FANCHER ROAD SPOKANE WA 99212	PHONE #509-538-2555 FAX # 509-534-1250	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 5X	12/31/97	
073981	APPLIED INDUSTRIAL TECH 1800 WEST MAIN STREET SPRINGFIELD OH 45504	PHONE #513-325-7373 FAX # 513-325-5081	IRS 2EX 2X	12/31/97	
623538	APPLIED INDUSTRIAL TECH 3525 RIDER TRAIL SOUTH ST LOUIS MO 63045	PHONE #314-739-7391 FAX # 314-739-7392	IRS 2X	12/31/97	
340091	APPLIED INDUSTRIAL TECH 4007-B GREENBRIAR DR SUITE B STAFFORD TX 77477	PHONE #713-240-1240 FAX # 713-240-3309	IRS 2EX 2X	12/31/97	
040154	APPLIED INDUSTRIAL TECH P O BOX 318 316 NORTH 4TH ST STUBENYILLE OH 43952	PHONE #614-283-3744 FAX # 614-283-3832	IRS 2EX 2X	12/31/97	
991547	APPLIED INDUSTRIAL TECH SUITE 100 201 W DERYIN PARKWAY STOCKTON CA 95206	PHONE #209-983-4740 FAX # 209-983-4744	1X 2X	12/31/97	
366815	APPLIED INDUSTRIAL TECH 2101 E 2ND STREET STUYVESANT AR 72160	PHONE #501-673-7473 FAX # 501-673-7468	IRS 2X	12/31/97	
317826	APPLIED INDUSTRIAL TECH 211 E GLIS PARKWAY SULPHUR LA 70663	PHONE #318-583-4576 FAX # 318-525-3833	IRS 2X	12/31/97	
371039	APPLIED INDUSTRIAL TECH 1215 E BROADWAY SWEETWATER TX 79556	PHONE #915-225-1192 FAX # 915-225-1067	IRS 2X	12/31/97	

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772699	APPLIED INDUSTRIAL TECH P O BOX 1179 525 ERIE BLVD WEST SYRACUSE NY 13201	PHONE #315-472-0900 FAX # 315-472-6210		1RS 2X	12/31/97	
073510	APPLIED INDUSTRIAL TECH 1701 PORTLAND AVE TACOMA WA 98421	PHONE #206-383-5363 FAX # 206-271-4339		1RS 2X	12/31/97	
673137	APPLIED INDUSTRIAL TECH 1252 CHANNELSIDE DRIVE TAMPA FL 33602	PHONE #813-228-7702 FAX # 813-228-7224		1RS 2X	12/31/97	
309518	APPLIED INDUSTRIAL TECH COTTINGHAM DIV BRANC 042 2613 BEARING LANE TEMPLE TX 76501	PHONE #817-778-5535 FAX # 817-771-3443		OX 1X 2X 3G 3GV 3X 4X 9X	12/31/97	
073346	APPLIED INDUSTRIAL TECH P O BOX 238 200 POPLAR ST TERRE HAUTE IN 47807	PHONE #812-238-1611 FAX # 812-234-3402		1RS 2X	12/31/97	
316026	APPLIED INDUSTRIAL TECH P O BOX 7049 3231 MACO ST SEAROKANA TX 75501	PHONE #903-832-7565 FAX # 903-838-5796		1RS 2EX 2X	12/31/97	
313577	APPLIED INDUSTRIAL TECH 3102 5TH AVE S TEXAS CITY TX 77590	PHONE #409-948-6130 FAX # 409-948-0223		1RS 2EX 2X	12/31/97	
312421	APPLIED INDUSTRIAL TECH 1031 W JACKSON ST THOMASVILLE GA 31792	PHONE #912-228-8203 FAX # 912-228-5249		1RS 2X	12/31/97	
073817	APPLIED INDUSTRIAL TECH 1669 ALEXIS RD WEST TOLEDO OH 43612	PHONE #419-476-4414 FAX # 419-476-4470		1RS 2X	12/31/97	
104492	APPLIED INDUSTRIAL TECH 579 SHERIDAN DR TONAWANDA NY 14150	PHONE #716-874-2400 FAX # 716-874-2407		1RS 2X	12/31/97	
244033	APPLIED INDUSTRIAL TECH P O BOX 149 TATOMA NJ 07511	PHONE #201-785-2200 FAX # 201-785-1293		1RS 2EX 2X	12/31/97	
336388	APPLIED INDUSTRIAL TECH 13200 MAIN STREET TROMA CA 92562-0334	PHONE #619-372-5465 FAX # 619-372-4108		1RS 2X	12/31/97	
211052	APPLIED INDUSTRIAL TECH 10801 S M AVERY STREET TUALATIN OR 97062	PHONE #503-691-2130 FAX # 503-692-4474		1RS 2X	12/31/97	
329912	APPLIED INDUSTRIAL TECH 4351 S SANTA RITA AVE TUCSON AZ 85714	PHONE #520-394-5292 FAX # 520-744-3412		1RS 2X	12/31/97	

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044030	APPLIED INDUSTRIAL TECH 976 SOUTH BLACKSTONE TULARE CA 93274	PHONE #209-288-2881 FAX # 209-648-8523		1RS 2X	12/31/97	
309834	APPLIED INDUSTRIAL TECH COTTINGHAM DIV BRANCH 034 159 E 46TH ST TULSA OK 74145	PHONE #918-622-9192 FAX # 918-622-4246		1RS 2EX 2X	12/31/97	
012690	APPLIED INDUSTRIAL TECH P O BOX 73 855 HITCHELL RD EXT TUPELO MS 38801	PHONE #601-844-3440 FAX # 601-841-3144		1X 2X	12/31/97	
309542	APPLIED INDUSTRIAL TECH 1027 LOOP 323 EAST ME TYLER TX 75708	PHONE #903-593-1791 FAX # 903-593-6120		1RS 2X	12/31/97	
741108	APPLIED INDUSTRIAL TECH P O BOX 1634 1409 JAMES P RODGENS BLVD VALDOSTA GA 31601	PHONE #912-244-3600 FAX # 912-244-3612		1RS 2X	12/31/97	
044247	APPLIED INDUSTRIAL TECH 2910 KAUFMAN AVENUE VANCOUVER WA 98460	PHONE #206-625-3328 FAX # 206-693-0329		1RS 2X	12/31/97	
246223	APPLIED INDUSTRIAL TECH P O BOX 90 U S HIGHWAY 440 VANSANT VA 24656	PHONE #703-325-1515 FAX # 703-325-1257		1RS 2X	12/31/97	
306480	APPLIED INDUSTRIAL TECH 5107 WALKER ST VENTURA CA 93003	PHONE #805-244-8941 FAX # 805-642-9467		1RS 2X	12/31/97	
335315	APPLIED INDUSTRIAL TECH 409 COMMERCE ROAD VESTAL NY 13850	PHONE #607-725-3193 FAX # 607-798-0383		1RS 2X	12/31/97	
332650	APPLIED INDUSTRIAL TECH 8511 TAMARACK ROAD VICTORVILLE CA 92392	PHONE #619-241-7238 FAX # 619-241-1363		1RS 2X	12/31/97	
313726	APPLIED INDUSTRIAL TECH 300 TEXAS CENTRAL PARKWAY MACO TX 76712	PHONE #817-776-5622 FAX # 817-776-9666		1RS 2X	12/31/97	
307785	APPLIED INDUSTRIAL TECH P O BOX 190 10787 DIXIE HWY MALTON KY 41024	PHONE #606-371-8622 FAX # 606-371-9589		1RS 2X	12/31/97	
668467	APPLIED INDUSTRIAL TECH 421 S PARK AVE MABREN OH 44443	PHONE #330-394-1527 FAX # 330-393-9532		1X 2EX 2X	12/31/97	
317529	APPLIED INDUSTRIAL TECH UNIT C 380 JEFFERSON BLVD MANNICK NY 02886	PHONE #401-732-2600 FAX # 401-738-3590		1RS 2X	12/31/97	

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000356	APPLIED INDUSTRIAL TECH PO BOX 250 320 PLYMOUTH ST WASHINGTON NC 27889	PHONE #919-944-1931 FAX # 919-944-5123	1RS 2EX 2X	12/31/97		
259507	APPLIED INDUSTRIAL TECH 141 WASHINGTON AVE HATFIELD CT 06708	PHONE #203-755-3151 FAX # 203-573-0934	1RS 2X 4L	12/31/97		S
344366	APPLIED INDUSTRIAL TECH 57 HANGAR WAY SUITE C HATSONVILLE CA 95076	PHONE #408-722-0243 FAX # 408-724-1748	1RS 2X	12/31/97		
363994	APPLIED INDUSTRIAL TECH 3480 INTERSTATE HWY 35 E S MAXAHACHIE TX 75165	PHONE #972-937-0993 FAX # 972-937-4162	1RS 2X	12/31/97		
321075	APPLIED INDUSTRIAL TECH P O BOX 790 1850 ROSSER AVE MAYNESSBORO VA 22980	PHONE #703-943-9299 FAX # 703-943-8381	1X 2X	12/31/97		
321356	APPLIED INDUSTRIAL TECH 2111 CYPRESS ST PO BOX 455 WEST MONROE LA 71291	PHONE #318-325-3886 FAX # 318-323-5203	1RS 2X	12/31/97		
770768	APPLIED INDUSTRIAL TECH 3450 INDUSTRIAL BLVD WEST SACRAMENTO CA 95695	PHONE #916-372-0790 FAX # 916-372-5553	1RS 2X	12/31/97		
073965	APPLIED INDUSTRIAL TECH PO BOX 332 303 LAIRD ST MILKES BARRE PA 18703	PHONE #717-823-2142 FAX # 717-823-3330	1RS 2X	12/31/97		
074013	APPLIED INDUSTRIAL TECH 2900 REACH RD P O BOX 3397 MILLIAMSPORT PA 17701	PHONE #717-323-3721 FAX # 717-327-9347	1RS 2X	12/31/97		
321661	APPLIED INDUSTRIAL TECH 240 BALLARDVALE STREET HILKINGTON MA 01887-1032	PHONE #508-988-0600 FAX # 508-988-0607	1RS 2X	12/31/97		
093880	APPLIED INDUSTRIAL TECH 3323 MERCHANT COURT HILKINGTON NC 28405	PHONE #910-799-1191 FAX # 910-799-5656	1RS 2EX 2X	12/31/97		
242602	APPLIED INDUSTRIAL TECH 8151 N POINT BLVD MINISTON SALEM NC 27105	PHONE #919-759-0075 FAX # 919-759-0290	1RS 2X	12/31/97		
262360	APPLIED INDUSTRIAL TECH 2 PULMAN ST WORCESTER MA 01606	PHONE #508-852-1050 FAX # 508-852-2914	1RS 2X	12/31/97		
305177	APPLIED INDUSTRIAL TECH 217 N FIRST STREET YAKIMA WA 98901	PHONE #509-457-1600 FAX # 509-453-8895	1RS 2X	12/31/97		

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073841	APPLIED INDUSTRIAL TECH 1727 WHITEFORD RD YORK PA 17402	PHONE #717-755-1982 FAX # 717-755-7634	1RS 2X	12/31/97		
104372	APPLIED INDUSTRIAL TECH 2801 SALT SPRINGS ROAD YOUNGSTOWN OH 44509	PHONE #330-799-8790 FAX # 330-799-6485	1RS 2EX 2X	12/31/97		
328229	APPLIED INDUSTRIAL TECH 3076 COLUSA HWY YUBA CITY CA 95993	PHONE #916-471-0700 FAX # 916-671-2187	1RS 2X	12/31/97		
073755	APPLIED INDUSTRIAL TECH P O BOX 2809 1672 LINDEN AVE ZANESVILLE OH 43701	PHONE #614-452-8437 FAX # 614-452-2817	1RS 2X	12/31/97		
*707695	AREA MGR - DAVE WILLIAMS 107 W 350 PARK VIEW DR HUBBARD OH 44325	PHONE #330-534-0829	1X 2EX 3G 3GY 3X 4X 9X	12/31/97		
*368670	ARMSTRONG MACHINE CO INC 302 N M 13TH STREET POCAHONTAS IA 50574	PHONE #712-335-4131	1X 2X 3G 4X	12/31/97		
345819	ASSOCIATED BEARINGS CO 3907 EAST 20TH ST JOPLIN MO 64801	PHONE #417-623-2877 FAX # 417-623-1418	1RS 2X	12/31/97		
338673	ASSOCIATED BEARINGS CO 2022 WYANDOTTE KANSAS CITY MO 64108	PHONE #816-421-0407 FAX # 816-283-3287	1RS 2X	12/31/97		
338566	ASSOCIATED BEARINGS CO 624 S 7TH STREET ST JOSEPH MO 64501	PHONE #816-233-6961 FAX # 816-233-7210	1RS 2X	12/31/97		
338152	ASSOCIATED BEARINGS CO 119 NO JACKSON TOPEKA KS 66603	PHONE #913-232-5508 FAX # 913-232-3826	1RS 2X	12/31/97		
369421	ASSOCIATED BEARINGS CO 400 S LULL WICHITA KS 67211	PHONE #316-264-1110 FAX # 316-264-2801	1X 2X	12/31/97		
806620	ATLANTECH DISTRIBUTION INC 11520 GRANITE ST CHARLOTTE NC 28273	PHONE #704-588-3850 FAX # 704-588-3855	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*	
051391	ATLANTECH DISTRIBUTION INC 68 BRUNSWICK AVE EDISON NJ 08817	PHONE #908-287-9200 FAX # 908-287-9081	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
*180919	ATLANTECH DISTRIBUTION INC 10 LOCKWOOD DRIVE HAMPTON VA 23061	PHONE #804-757-9222 FAX # 804-757-2443	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*	
*339051	ATLANTECH DISTRIBUTION INC 7476 NEM BRIDGE ROAD P O BOX 679 HANOVER MD 21076	PHONE #410-859-8460 FAX # 410-859-8280	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97		

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*151563	ATLANTECH DISTRIBUTION INC 2912 DAMN RD JACKSONVILLE FL 32207	PHONE #904-730-2505 FAX # 904-730-2518		OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97					
*363044	ATLANTECH DISTRIBUTION INC 3919 EAST 7TH AVENUE TAMPA FL 33605	PHONE #813-248-1777 FAX # 813-248-3025		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97					
*361113	B & C INDUSTRIAL & MARINE SALE SUITE C 2980 EHALU ST LINCOLN MI 48666	PHONE #808-245-7899 FAX # 808-245-7939		OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97					
*340232	B & C INDUSTRIAL & MARINE SALE 94-099 LEOKANE STREET HAIRAHU HI 96797	PHONE #808-676-9130 FAX # 808-676-7396		OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97					
*337105	B A FISCHER SALES CO 2178 CENTURION PLACE BOISE ID 83709	PHONE #208-375-1411 FAX # 208-375-8022		OX 3G 3GY 3X 4PM	12/31/97	S				
*377457	B A S F CORPORATION 36 RIVERSIDE AVE RENSSELAER NY 12144	PHONE #518-465-4511 FAX # 518-472-8245	3A		12/31/97	S				
*667600	B G PECK CO 50 SHEPARD ST LAWRENCE MA 01843	PHONE #508-686-4181 FAX # 508-685-4321		OX 3G 3GY 3X	12/31/97	S				
*364828	B P C INDUSTRIES INC 624 NORTH ROCKFORD TULSA OK 74106-5624	PHONE #918-584-4848 FAX # 918-583-1139		OX 3G 3GY 3X 4PM 9X	12/31/97	S				
289249	B P C SUPPLY CO INC 1020 CHUKAR LANE 116-12 BATTLIE MOUNTAIN NY 89829	PHONE #702-635-5481 FAX # 702-635-5879		1X 2X	12/31/97					
364133	B P C SUPPLY CO INC 2753 SOUTH MIDLAND DRIVE OGDEN UT 84407	PHONE #801-399-5564 FAX # 801-399-0035		1X 2EX 2X	12/31/97					
364141	B P C SUPPLY CO INC 1598 WEST CENTER STREET OREM UT 84057	PHONE #801-224-9400 FAX # 801-224-9273		1X 2EX 2X	12/31/97					
*289231	B P C SUPPLY CO INC 1275 W 2100 SOUTH SALT LAKE CITY UT 84119	PHONE #801-972-1100 FAX # 801-977-9926		1X 2EX 2X	12/31/97					
320127	B R C BEARING CO INC 121 N BROADWAY SALINA KS 67401	PHONE #913-825-6743 FAX # 913-825-4938		1RS 2X	12/31/97					
*000448	B R C BEARING CO INC 720 N WASHINGTON ST WICHITA KS 67201-0477	PHONE #316-265-0648 FAX # 316-264-6558		1RS 2X	12/31/97					
339176	BADGER BEARING CO 2178 WEST PIONEER ROAD FOND DU LAC WI 54935	PHONE #414-921-8816 FAX # 414-921-1928		1RS 2X	12/31/97					

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068522	BADGER BEARING CO 732-A BORVAN AVE GREEN BAY MI 54304	PHONE #414-497-0777 FAX # 414-497-3202		1RS 2X	12/31/97	
*299257	BADGER BEARING CO 2835 S 171ST STREET P O BOX 511007 MEM. BERLIN MI 52151	PHONE #414-784-5510 FAX # 414-784-9601		1X 2EX 2X 4X	12/31/97	
*081851	BAKER MANUFACTURING CO FARM ROAD 1069 PO BOX 1164 INGLESIDE TX 78362	PHONE #512-776-7585 FAX # 512-776-2273		1RS 2X	12/31/97	
070250	BAKER-BONNERT RUBBER CO 1311 BERNHEIM LANE LOUISVILLE KY 40210	PHONE #502-634-3661 FAX # 502-634-1020		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*376319	BAKERSFIELD MACHINE CO INC 5405 NO. CHESTER AVE. EXT BAKERSFIELD CA 93308	PHONE #805-393-8441 FAX # 805-393-1014		2EX 2X	12/31/97	
*372870	BALTIMORE RUBBER & GASKET 2220 GERRIG LANE WAREHOUSE C-P COLUMBIA MD 21046	PHONE #410-290-8844 FAX # 410-290-7014		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 7X 9X	12/31/97	
333401	BARRETT-BROWN INC 4307 DALLAS CHERRYVILLE HWY BESSEMER CITY NC 28016	PHONE #704-322-3220 FAX # 704-322-3118		1RS 2X	12/31/97	
364349	BATES BEARING & TRANSMISSION 10 CENTRAL INDUSTRIAL DR #8 GRANITE CITY IL 62040	PHONE #618-452-1115 FAX # 618-452-1117		1RS 2X	12/31/97	
332734	BATES BEARING & TRANSMISSION 4705 PARIS GRAVEL ROAD HANNIBAL MO 63401	PHONE #573-408-0100 FAX # 573-408-8117		1RS 2X	12/31/97	
332725	BATES BEARING & TRANSMISSION HWY 84 EAST MEXICO MO 65265	PHONE #800-841-0628 FAX # 314-381-2622		1RS 2X	12/31/97	
332726	BATES BEARING & TRANSMISSION 134 AIRPORT INDUSTRIAL DRIVE SIKESTON MO 63801	PHONE #314-472-0622 FAX # 314-472-0723		1RS 2X	12/31/97	
332742	BATES BEARING & TRANSMISSION 2347 E. EAST KEARNEY SPRINGFIELD MO 65803	PHONE #417-869-5622 FAX # 417-869-3721		1RS 2X	12/31/97	
344481	BATES SALES COMPANY 2016 MAIN STREET JOPLIN MO 64804	PHONE #417-623-0877 FAX # 417-623-0817		1RS 2X	12/31/97	
*332239	BATES SALES COMPANY 5211 NORTHRUP ST LOUIS MO 63110	PHONE #314-865-5211 FAX # 314-771-2001		1RS 2X	12/31/97	
361048	BATESVILLE BEARING & SUPPLY HWY 694 PO BOX 2321 BATESVILLE AR 72501	PHONE #501-698-1431 FAX # 501-698-1393		2X	12/31/97	

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005256	BATTEY MACHINERY CO 126565 2960 NEH CALHOUN HWY GA 30161 ROME	PHONE #770-291-4141 FAX # 770-291-4141	OX 1X 3G 3GV 3M 3X 4X 9X	12/31/97	*
668194	BAYOU GASKET & HOSE INC 1950 E CARDINAL DRIVE BEAUMONT TX 77705	PHONE #409-832-3461 FAX # 409-832-2430	OX 1X 2EX 2X 3G 3GV 3M 3X 4X 9X	12/31/97	
348177	BAYOU GASKET & HOSE OF LA 804 COLUMBIA SOUTHERN RD - C WESTLAKE LA 70669	PHONE #318-882-0428 FAX # 318-882-0301	OX 1X 3G 3GV 3M 3X 4X 9X	12/31/97	*
*371237	BEARING & BEARING COMPANY 1728 N POST OAK RD STE 110 HOUSTON TX 77055	PHONE #713-688-0691 FAX # 713-688-0715	2X 3G 3X	12/31/97	S
*343806	BEARING & TRANSMISSION SPLY CO 1211 E HIGHLAND BLVD PO BOX 185 MACEDONIA OH 44026	PHONE #216-425-1546 FAX # 216-425-1646	1RS 2X	12/31/97	
364653	BEARING BELT CHAIN CO INC 3501 ALDEBARAN STREET LAS VEGAS NV 89102	PHONE #702-876-4225 FAX # 702-864-0842	1RS 2EX 2X	12/31/97	
333567	BEARING DISTRIBUTORS & DRIVES 1623 1ST AVE S W HICKORY NC 28602	PHONE #704-324-9460 FAX # 704-322-1840	1RS 2X	12/31/97	
073361	BEARING DISTRIBUTORS INC 140 E SOUTH ST AKRON OH 44311-2034	PHONE #330-253-3138 FAX # 330-253-3838	1RS 2X	12/31/97	
153429	BEARING DISTRIBUTORS INC 140 E 1ST AVE BENSENVILLE IL 60106-1126	PHONE #708-595-9034 FAX # 708-595-4631	1RS 2X	12/31/97	
050211	BEARING DISTRIBUTORS INC 1728 MAYARRE RD SW CANTON OH 44706-6358	PHONE #330-454-2777 FAX # 330-454-2657	1X 2EX 2X	12/31/97	S
327601	BEARING DISTRIBUTORS INC 1728 WEST ROOSEVELT ROAD CHICAGO IL 60644	PHONE #773-378-7200 FAX # 773-378-5017	1RS 2EX 2X	12/31/97	
073288	BEARING DISTRIBUTORS INC 180 SUMMIT RD CINCINNATI OH 45237-3725	PHONE #513-761-0866 FAX # 513-761-9989	1RS 2EX 2X	12/31/97	
*340695	BEARING DISTRIBUTORS INC SUB OF FORGE INDUSTRIES INC 8000 HUB PARKWAY CLEVELAND OH 44125	PHONE #216-642-2299 FAX # 216-642-2291	1RS 2X	12/31/97	
073353	BEARING DISTRIBUTORS INC 2233 N 137TH ST CLEVELAND OH 44142-1894	PHONE #216-676-5211 FAX # 216-676-2364	1RS 2X	12/31/97	
345801	BEARING DISTRIBUTORS INC 1171 GOODALE BLVD COLUMBUS OH 43212-3730	PHONE #614-224-4291 FAX # 614-224-1022	1RS 2X	12/31/97	

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350454	BEARING DISTRIBUTORS INC 1301 E VORHEES STREET DANVILLE IL 61832-2115	PHONE #217-443-2480 FAX # 217-443-8269	1RS 2X	12/31/97	
343731	BEARING DISTRIBUTORS INC 2571 CAREY AVENUE DAVENPORT IA 52807	PHONE #319-346-4159 FAX # 309-787-8104	1RS 2X	12/31/97	
802769	BEARING DISTRIBUTORS INC 436 CINCINNATI STREET DAYTON OH 45408	PHONE #513-224-1937 FAX # 513-224-5668	1RS 2X	12/31/97	
360875	BEARING DISTRIBUTORS INC 104 S LOCUST STREET OSCEOLA IL 62521	PHONE #217-422-9922 FAX # 217-422-9926	1RS 2X	12/31/97	
169607	BEARING DISTRIBUTORS INC 123 16TH ST P O BOX 368 DUNBAR WV 25044-2540	PHONE #304-768-9785 FAX # 304-768-9788	1RS 2EX 2X	12/31/97	
153452	BEARING DISTRIBUTORS INC 4016 MAIN STREET P O BOX 3490 EAST CHICAGO IN 46312	PHONE #219-398-3300 FAX # 219-398-3277	1RS 2EX 2X	12/31/97	
363887	BEARING DISTRIBUTORS INC 1104 MEINZ DRIVE UNIT 8 EAST DUNDEE IL 60118-2400	PHONE #708-428-3501 FAX # 708-428-1520	1RS 2X	12/31/97	
023481	BEARING DISTRIBUTORS INC 23540 ST CLAIR AVE EUCLEID OH 44117-2529	PHONE #216-481-8844 FAX # 216-481-2577	1RS 2EX 2X	12/31/97	
236240	BEARING DISTRIBUTORS INC 1090 S BLOOM RD PO BOX 936 FREMONT OH 43420-3951	PHONE #419-334-8948 FAX # 419-334-4374	1RS 2EX 2X	12/31/97	
378331	BEARING DISTRIBUTORS INC 2711 OLD WOODRUFF ROAD GREER SC 29615	PHONE #864-879-4222 FAX # 864-879-7221	1RS 2EX 2X	12/31/97	
362343	BEARING DISTRIBUTORS INC 266 BRIDGE ST UNIT 12 PO BOX 237 GROTON CT 06340-0997	PHONE #860-448-1731 FAX # 860-446-0697	1RS 2X	12/31/97	
052985	BEARING DISTRIBUTORS INC 70 ELLIOTT STREET PO BOX 4180 HARTFORD CT 06114-1517	PHONE #860-296-6147 FAX # 860-242-7172	1RS 2X	12/31/97	
360882	BEARING DISTRIBUTORS INC 115 HURST DRIVE INDIANAPOLIS IN 46241-4716	PHONE #317-247-6060 FAX # 317-243-0927	1RS 2X	12/31/97	
236142	BEARING DISTRIBUTORS INC 1111 SOUTH 86TH STREET UNIT 1 JUSTICE IL 60458	PHONE #708-426-0425 FAX # 708-426-0928	1RS 2X	12/31/97	
783951	BEARING DISTRIBUTORS INC 1921 MAIN ST KANSAS CITY MO 64108-1874	PHONE #816-471-0666 FAX # 816-471-2656	1RS 2X	12/31/97	

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CUST #	COMPANY / CONTRACT ADDRESS	PRODUCT LINES				EXP. DATE	PAPER RCVD.
363960	BEARING DISTRIBUTORS INC 2025 LEESTOWN ROAD UNIT K LEXINGTON KY 40511-1049	PHONE #606-253-1787 FAX # 606-253-0275	1RS	2X		12/31/97	
375352	BEARING DISTRIBUTORS INC 1 INDUSTRY AVENUE COURT PO BOX 1292 LIMA OH 45802	PHONE #419-225-6186 FAX # 419-225-6444	1RS	2X		12/31/97	
073395	BEARING DISTRIBUTORS INC 2324 E 28TH ST PO BOX 1280 LORAIN OH 44055	PHONE #216-277-1211 FAX # 216-277-4235	1RS	2X		12/31/97	
336867	BEARING DISTRIBUTORS INC 315 OXFORD AVE PO BOX 2687 MANSFIELD OH 44906-1958	PHONE #419-529-8077 FAX # 419-529-6636	1RS	2X		12/31/97	
378992	BEARING DISTRIBUTORS INC 110 W 10TH STREET MOUNT VERNON IN 47620	PHONE #812-838-4451 FAX # 812-838-4473	1RS	2X		12/31/97	
778266	BEARING DISTRIBUTORS INC 595 GRAND AVENUE PO BOX 2595 NEW HAVEN CT 06535-0595	PHONE #203-787-6731 FAX # 203-495-7007	1RS	2X		12/31/97	
331652	BEARING DISTRIBUTORS INC 120 10TH STREET PO BOX 824 PARKERSBURG WV 26101-2517	PHONE #304-422-7770 FAX # 304-483-2443	1RS	2X		12/31/97	
346718	BEARING DISTRIBUTORS INC 1223 W. ADAMS STREET PEORIA IL 61603-4003	PHONE #309-673-3666 FAX # 309-673-0046	1RS	2X		12/31/97	
103051	BEARING DISTRIBUTORS INC 120 PUTNAM ST PITTSBURGH PA 15206-4190	PHONE #412-362-6612 FAX # 412-362-7349	1RS	2X		12/31/97	
153445	BEARING DISTRIBUTORS INC 25 S SIXTH ST. P.O. BOX 537 PRINCETON IL 61356-0537	PHONE #815-875-3386 FAX # 815-875-0500	1RS	2X		12/31/97	
339481	BEARING DISTRIBUTORS INC 6920 FOREST HILLS ROAD ROCKFORD IL 61111-4369	PHONE #815-633-3266 FAX # 815-633-7335	1RS	2X		12/31/97	
320010	BEARING DISTRIBUTORS INC 3905A HARPER ROAD SOLON OH 44139-1834	PHONE #216-249-2626 FAX # 216-249-2629	1RS	2X		12/31/97	
052993	BEARING DISTRIBUTORS INC 180 STAGGS STREET PO BOX 804 STRATFORD CT 06497-6720	PHONE #203-278-2669 FAX # 203-278-8402	1RS	2X		12/31/97	
371286	BEARING DISTRIBUTORS INC 1875 RING AVENUE TROY NY 12180	PHONE #518-274-2550 FAX # 518-274-2099	1RS	2X		12/31/97	
073320	BEARING DISTRIBUTORS INC 6450 ARK AVE PO BOX 444 HARRIS OH 44482-0648	PHONE #330-394-2551 FAX # 330-392-8025	1RS	2X		12/31/97	

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362335	BEARING DISTRIBUTORS INC 315 WESSNER DRIVE WHEELING IL 60090	PHONE #708-541-5533 FAX # 708-541-9683	1RS	2X		12/31/97	
019265	BEARING DISTRIBUTORS INC 312 WASHINGTON MICHITA KS 67202	PHONE #316-265-1307 FAX # 316-265-4399	1RS	2X		12/31/97	
367441	BEARING DISTRIBUTORS INC 304 FORT COLLIER RD UNIT 30 MINCHESTER VA 22603	PHONE #703-662-5600 FAX # 703-662-5651	1X	2BX	2X	12/31/97	
073676	BEARING DISTRIBUTORS INC 430 WOODS AVE YOUNGSTOWN OH 44505	PHONE #330-744-2116 FAX # 330-744-3514	1RS	2EX	2X	12/31/97	
248583	BEARING DISTRIBUTORS INCORP 1247 GORDON HWY AUGUSTA GA 30901	PHONE #706-722-3120 FAX # 706-722-3094	1RS	2X		12/31/97	
660738	BEARING DISTRIBUTORS INCORP 2035 MEETING STREET PO BOX 71527 CHARLESTON HEIGHTS SC 29405	PHONE #803-747-8473 FAX # 803-744-8401	1RS	2X		12/31/97	
306951	BEARING DISTRIBUTORS INCORP 1036 ATAMDO AVE PO BOX 32716 CHARLOTTE NC 28233	PHONE #704-375-0061 FAX # 704-343-1973	OX	1RS	2EX 2X	12/31/97	S
*031542	BEARING DISTRIBUTORS INCORP 230 S STADIUM RD PO BOX 2347 COLUMBIA SC 29202	PHONE #803-799-0834 FAX # 803-256-3824	1RS	2X		12/31/97	
302145	BEARING DISTRIBUTORS INCORP S W INDUSTRIAL PARK BLDG 14 PO BOX 487 FAIRFOREST SC 29336	PHONE #803-576-3000 FAX # 803-576-1429	1RS	2X		12/31/97	
230730	BEARING DISTRIBUTORS INCORP 1814 TRADE STREET FLORENCE SC 29501	PHONE #803-645-1500 FAX # 803-644-9363	1RS	2X		12/31/97	
188920	BEARING DISTRIBUTORS INCORP 111 CREEKBRIDGE ROAD PO BOX 1636 GREENSBORO NC 27406	PHONE #919-274-8401 FAX # 910-274-8431	1RS	2X		12/31/97	
374462	BEARING DISTRIBUTORS INCORP 2432 B HWY 72 EAST GREENHOD SC 29666	PHONE #864-229-4045 FAX # 864-229-1113	1RS	2X		12/31/97	
329284	BEARING DISTRIBUTORS INCORP 626 RUSSELL STREET SE ORANGEBURG SC 29116-1745	PHONE #803-534-0233 FAX # 803-533-1508	1RS	2X		12/31/97	
371096	BEARING DISTRIBUTORS INCORP 1327 EAST BLACK STREET ROCK HILL SC 29730	PHONE #803-325-2330 FAX # 803-325-2248	1RS	2EX	2X	12/31/97	

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257634	BEARING ENTERPRISES INC 440 CAMBRIDGE STREET P.O. BOX 99 BOSTON, MA. 02134	PHONE #617-782-1155 FAX # 617-782-0535	1RS 2X	12/31/97	
343673	BEARING HEADQUARTERS CO 3010 S 24TH STREET KANSAS CITY, KS. 66106	PHONE #	2X	12/31/97	
605030	BEARING HEADQUARTERS CO 12007 SO. CICERO AVENUE ALSTP. IL 60658	PHONE #708-388-4700 FAX # 708-388-9063	1RS 2X	12/31/97	
517771	BEARING HEADQUARTERS CO 3689 E BROADWAY ALTON, IL 62002	PHONE #618-462-0063 FAX # 618-462-0220	1RS 2X	12/31/97	
367789	BEARING HEADQUARTERS CO 612 WEST ASH STREET P.O. BOX 2124 SLYTHEVILLE, AR 72316-0388	PHONE #501-762-1121 FAX # 501-762-5867	1RS 2EX 2X	12/31/97	
378018	BEARING HEADQUARTERS CO 2515 HIGHLAND AVE CARROLLTON, KY 41008	PHONE #502-732-0404	1RS 2X	12/31/97	
734475	BEARING HEADQUARTERS CO 2076 NORTH ELSIOM AVE CHICAGO, IL 60614	PHONE #312-862-4070 FAX # 312-862-1597	1RS 2X	12/31/97	
203745	BEARING HEADQUARTERS CO P.O. BOX 430 1005 AVE B CLOQUET, MN 55720	PHONE #218-879-3336 FAX # 218-879-6809	1RS 2X	12/31/97	
093872	BEARING HEADQUARTERS CO 2216 EAST LOGAN PO BOX 3008 DECATUR, IL 62524	PHONE #217-422-9566 FAX # 217-429-4747	1RS 2X	12/31/97	
106508	BEARING HEADQUARTERS CO 1454 N EAST BROADWAY DES MOINES, IA 50313	PHONE #515-262-6363 FAX # 515-262-1642	1RS 2X	12/31/97	
033597	BEARING HEADQUARTERS CO 922 EAST CHICAGO AVE PO BOX 520 EAST CHICAGO, IN 46312	PHONE #219-397-8020 FAX # 219-397-7619	OX 1X 2EX 2X 3G 3GV 3W 3X 4X 9X	12/31/97	
256883	BEARING HEADQUARTERS CO 2445 MORRINGSIDE DR EAM CLAIR, HI 54701	PHONE #715-839-7155 FAX # 715-839-0118	1RS 2X	12/31/97	
347294	BEARING HEADQUARTERS CO 1041 MITCHELL JELLISON DR ELKHART, IN 46516	PHONE #219-522-5211 FAX # 219-522-3815	1RS 2X	12/31/97	
250654	BEARING HEADQUARTERS CO P.O. BOX 6146 1820 N FRANKLIN ST. EVANSVILLE, IN 47712	PHONE #812-423-5615 FAX # 812-423-5648	1RS 2X	12/31/97	

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378026	BEARING HEADQUARTERS CO 948 PARKVIEW ROAD BLOC C GREEN BAY, WI 54304	PHONE #414-983-9643 FAX # 414-983-9643	1RS 2EX 2X	12/31/97	
369173	BEARING HEADQUARTERS CO 3199 NORTH SHADELAND PO BOX 26188 INDIANAPOLIS, IN 46226	PHONE #317-549-2411 FAX # 317-549-4228	OX 1X 2EX 2X 3G 3GV 3W 3X 4X 9X	12/31/97	
208785	BEARING HEADQUARTERS CO 1622 FABRICAN AVE JEFFERSONVILLE, IN 47130	PHONE #812-282-6911 FAX # 812-283-0679	1RS 2X	12/31/97	
108043	BEARING HEADQUARTERS CO 1622 FABRICAN AVE JOLIET, IL 60432-6585	PHONE #815-729-4016 FAX # 815-729-4026	1RS 2X	12/31/97	
093518	BEARING HEADQUARTERS CO 2400 W 20TH STREET JOELIN, MO 64802	PHONE #417-624-1400 FAX # 417-624-8817	1RS 2X	12/31/97	
691113	BEARING HEADQUARTERS CO 3010 S 24TH STREET KANSAS CITY, KS 66106	PHONE #913-831-1444 FAX # 913-831-9311	1RS 2X	12/31/97	
338491	BEARING HEADQUARTERS CO 2666 KINDUSTRY PARK ROAD P.O. BOX 910 KEOKUK, IA 52632	PHONE #319-524-1665 FAX # 319-524-2583	1RS 2X	12/31/97	
360800	BEARING HEADQUARTERS CO P.O. BOX 304 HIGHWAY 54 LIBERAL, KS 67901	PHONE #316-624-7223 FAX # 316-624-7228	1RS 2X	12/31/97	
202556	BEARING HEADQUARTERS CO 13321 STARK ROAD LIVONIA, MI 48150	PHONE #313-361-1130 FAX # 313-361-1192	1RS 2X	12/31/97	
268043	BEARING HEADQUARTERS CO 1950 SOUTH STOUGHTON ROAD MADISON, WI 53716	PHONE #608-223-2140 FAX # 608-223-9143	1RS 2X	12/31/97	
734533	BEARING HEADQUARTERS CO 6040 N GARTON ST MORTON GROVE, IL 60053	PHONE #708-364-7775 FAX # 708-364-5484	1RS 2X	12/31/97	
213520	BEARING HEADQUARTERS CO 329 S 9TH ST MT VERNON, IL 62864	PHONE #618-242-7424 FAX # 618-242-7483	1RS 2X	12/31/97	
056184	BEARING HEADQUARTERS CO 2979 SO MOORLAND RD NEW BERLIN, WI 53151	PHONE #414-827-3200 FAX # 414-827-0950	1RS 2X	12/31/97	
023432	BEARING HEADQUARTERS CO 3707 F STREET OMAHA, NE 68117	PHONE #402-341-4413 FAX # 402-341-3781	1RS 2X	12/31/97	
734459	BEARING HEADQUARTERS CO P.O. BOX 123 HENZEL ROAD & ROUTE 51 PERU, IL 61354	PHONE #815-223-7625 FAX # 815-223-4908	1RS 2X	12/31/97	

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144345	BEARING HEADQUARTERS CO PO BOX 5146 1919 HARRISON AVE ROCKFORD, IL 61125	PHONE #815-398-1125 FAX # 815-398-6912	IRS 2X		12/31/97	
734483	BEARING HEADQUARTERS CO 1625 COMMERCE DR SOUTH BEND, IN 46628	PHONE #219-288-4471 FAX # 219-288-8938	IRS 2EX 2X		12/31/97	
250845	BEARING HEADQUARTERS CO 1802 LOWELL RD SPRINGDALE, AR 72744	PHONE #501-751-7121 FAX # 501-751-9598	IRS 2X		12/31/97	
230136	BEARING HEADQUARTERS CO 451 S UNION ST SPRINGFIELD, MO 65802	PHONE #417-865-8771 FAX # 417-865-0606	IRS 2X		12/31/97	
181467	BEARING HEADQUARTERS CO 2515 PRODUCTION AVE ST. CHARLES, IL 60174	PHONE #708-584-5701 FAX # 708-584-6212	IRS 2EX 2X		12/31/97	
351700	BEARING HEADQUARTERS CO 700 ST BERNARDS LANE PO BOX 5199 ST LOUIS, MO 63110	PHONE #314-534-2220 FAX # 314-534-2224	IRS 2X		12/31/97	
726620	BEARING HEADQUARTERS CO 1304 ASHBY ROAD ST LOUIS, MO 63132	PHONE #314-432-0700 FAX # 314-432-7416	IRS 2X		12/31/97	
376475	BEARING HEADQUARTERS CO 2600 NORTHLINE RD TAYLOR, MI 48180	PHONE #313-944-1871 FAX # 313-944-6443	IRS 2X		12/31/97	
372367	BEARING HEADQUARTERS CO 995 NORTH LAKE STREET MANSAM, IN 46580	PHONE #219-268-2993 FAX # 219-268-2344	IRS 2X		12/31/97	
746750	BEARING HEADQUARTERS CO 215 GREENWOOD AVE MAUKEGAN, IL 60085	PHONE #708-623-5212 FAX # 708-623-5211	IRS 2X		12/31/97	
329565	BEARING HEADQUARTERS CO 4110 PLOVER RD WISCONSIN RAPIDS, WI 54494	PHONE #715-424-2800 FAX # 715-424-2101	IRS 2X		12/31/97	
239004	BEARING HEADQUARTERS CO 1371 N MOOD DALE ROAD MOOD DALE, IL 60151-1061	PHONE #708-595-5450 FAX # 708-595-6359	IRS 2X		12/31/97	
4692822	BEARING HEADQUARTERS CO-13096 2211 AVE AT 16TH STREET PO BOX 267 BROADVIEW, IL 60153	PHONE #708-681-4400 FAX # 708-681-4442	IRS 2X		12/31/97	
4774822	BEARING SALES INC 4774 VENUE SOUTH GREAT FALLS, MT 59405	PHONE #406-761-8215 FAX # 406-452-5815	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97	
337758	BEARING SERVICE & SUPPLY INC P O BOX 1912 1912 ALONZO STREET COUSHATTA, LA 71019	PHONE #318-332-3484 FAX # 318-332-3976	IRS 2X 4PM		12/31/97	

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337766	BEARING SERVICE & SUPPLY INC 2129 PETERS ROAD HARVEY, LA 70058	PHONE #504-848-4245 FAX # 504-346-4136	IRS 2X		12/31/97	
336651	BEARING SERVICE & SUPPLY INC 1109 N MARSHALL LONGVIEW, TX 75601	PHONE #214-793-5585 FAX # 214-793-5584	IRS 2X 4PM		12/31/97	
337774	BEARING SERVICE & SUPPLY INC P O BOX 344 410 WEST GRAND MARSHALL, TX 75670	PHONE #214-938-4777 FAX # 214-938-3123	IRS 2X 4PM		12/31/97	
313429	BEARING SERVICE & SUPPLY INC 1327 N. MARKET SHREVEPORT, LA 71107	PHONE #318-424-1447 FAX # 318-424-4737	IRS 2X 4PM 9X		12/31/97	
073577	BEARING SERVICE CO INC DIV OF BEARING DISTRIBUTORS 3223 J. STREET S.W. POB 1312 CEDAR RAPIDS, IA 52404-1312	PHONE #319-346-8436 FAX # 319-346-1444	IRS 2X		12/31/97	
245779	BEARING SERVICE CO INC DIV OF BEARING DISTRIBUTORS 2118 5TH AVE S POB 1650 FORT DODGE, IA 50501-1650	PHONE #515-255-7202 FAX # 515-275-2462	IRS 2X		12/31/97	
253716	BEARING SERVICE CO INC DIV OF BEARING DISTRIBUTORS 150 BUCHNER PLACE POB 844 LACROSSE, WI 54602-0839	PHONE #608-783-4747 FAX # 608-783-7578	IRS 2X		12/31/97	
026439	BEARING SERVICE CO INC 1826 BLACK HAWK STREET WATERLOO, IA 50702	PHONE #319-222-4415 FAX # 319-222-7329	IRS 2X		12/31/97	
107706	BEARING SERVICE CO OF PA 8800 SWEET VALLEY DRIVE CLEVELAND, OH 44125	PHONE #216-644-4923 FAX # 216-644-7260	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97	
372300	BEARING SERVICE CO OF PA 2160 CLOVERLEAF STREET EAST COLUMBUS, OH 43222	PHONE #614-864-3311 FAX # 614-864-3338	1X 2EX 2X		12/31/97	
378265	BEARING SERVICE CO OF PA 1317 COMMERCE DR NW DECATUR, AL 35603	PHONE #205-350-4140 FAX # 205-350-4320	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97	
240713	BEARING SERVICE CO OF PA P O BOX 269 1951 NORTH GRIFFITH BLVD GRIFFITH, IN 46319	PHONE #317-474-2030 FAX # 773-734-3314	IRS 2EX 2X		12/31/97	
372144	BEARING SERVICE CO OF PA 2999 E 350TH ROAD BLDG C P O BOX 1293 LASALLE, IL 61301	PHONE #815-224-3099	IRS 2EX 2X		12/31/97	
349654	BEARING SERVICE CO OF PA 4120 KEVIN STREET M.H NORTH CANTON, OH 44720	PHONE #330-499-5505 FAX # 330-499-3316	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97	

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241323	BEARING SERVICE CO OF PA 500 DARGAN ST PITTSBURGH PA 15224	PHONE #412-621-7300 FAX # 412-621-7125	IRS 2EX 2X	12/31/97
363788	BEARING SERVICE CO OF PA 121 WALNUT COURT S E WARREN OH 44483	PHONE #330-394-2448 FAX # 330-399-1332	OX 1X 2EX 2X 3G 3GV 3M 3X 4X 9X	12/31/97
798660	BEARING SERVICE INC 13640 W CHICAGO DETROIT MI 48228	PHONE #313-834-1500 FAX # 313-834-5730	IRS 2X	12/31/97
364489	BEARING SERVICE INC 3422 E CORK ST KALAMAZOO MI 49001	PHONE #616-342-0400 FAX # 616-345-0622	IRS 2X	12/31/97
319749	BEARING SERVICE INC 13400 NEMBURG RD LIVONIA MI 48150	PHONE #313-591-0400 FAX # 313-591-1688	IRS 2X	12/31/97
361816	BEARING SERVICE INC 19350 ALLEN ROAD TRENTON MI 48183	PHONE #313-479-1500 FAX # 313-479-4290	IRS 2X	12/31/97
336131	BEARING SERVICE INC 2219 E NINE MILE ROAD WARREN MI 48091	PHONE #810-759-0500 FAX # 810-759-0315	IRS 2X	12/31/97
073593	BEARING SPY CO OF ABILENE INC 941 S. TREADWAY ABILENE TX 79602	PHONE #915-677-2255 FAX # 915-677-2258	IRS 2X	12/31/97
188664	BEARING SPY CO OF ABILENE INC ALICE BRANCH 1703 S 281 BOX 344 ALICE TX 78332	PHONE #512-668-8187 FAX # 512-688-8189	IRS 2X	12/31/97
299008	BEARING SUPPLY OF ODESSA INC LAREDO BRANCH 2613 CORTIZ LAREDO TX 78040	PHONE #512-723-5561 FAX # 512-723-5563	IRS 2X	12/31/97
079145	BEARING SUPPLY OF ODESSA INC 3511 M. COUNTY ROAD ODESSA TX 79764	PHONE #915-364-8855 FAX # 915-364-8742	IRS 2X	12/31/97
330324	BEARING SUPPLY OF ODESSA INC VICTORIA BRANCH 102 JOHN STOCKBAUEN VICTORIA TX 77901	PHONE #512-578-4208 FAX # 512-578-4231	IRS 2X	12/31/97
372162	BEARINGS & DRIVES 1020 WEST MAIN STREET PACOLET SC 29372	PHONE #864-474-0680 FAX # 864-474-0770	IRS 2X	12/31/97
340728	BEARINGS & DRIVES INC 2216 TOLEDO DRIVE PO BOX 50008 ALBANY GA 31705	PHONE #912-432-5128 FAX # 912-432-7192	IRS 2X	12/31/97
345918	BEARINGS & DRIVES INC 606 RIVERSIDE DRIVE PO BOX 2395 ASHEVILLE NC 28902	PHONE #704-252-9781 FAX # 704-252-1533	IRS 2X	12/31/97

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345876	BEARINGS & DRIVES INC 387 OLD COMMERCE RD PO BOX 1842 ATHENS GA 30601	PHONE #404-544-8440 FAX # 404-544-8482	2X	12/31/97
345280	BEARINGS & DRIVES INC 668 11TH STREET PO BOX 33447 HARTECH STA ATLANTA GA 30377	PHONE #404-875-9305 FAX # 404-892-1948	IRS 2X	12/31/97
323196	BEARINGS & DRIVES INC 1804 CARMICHAEL RD PO BOX 1544 AUGUSTA GA 30906	PHONE #404-790-5554 FAX # 404-798-8427	IRS 2X	12/31/97
344846	BEARINGS & DRIVES INC Hwy 29 PO BOX 98 DUBLIN GA 31021	PHONE #912-272-3113 FAX # 912-272-3115	IRS 2X	12/31/97
345452	BEARINGS & DRIVES INC 2540 NW 13TH PLACE PO BOX 4130 GAINESVILLE FL 32606	PHONE #904-375-5928 FAX # 904-377-5432	IRS 2X	12/31/97
345884	BEARINGS & DRIVES INC 536 MYRTLE ST SW GAINESVILLE GA 30601	PHONE #770-532-0431 FAX # 770-532-2940	IRS 2X	12/31/97
210997	BEARINGS & DRIVES INC 3367 STEWARD AVE PO BOX 82392 MAPEVILLE GA 30354	PHONE #404-764-1605 FAX # 404-765-0813	IRS 2X	12/31/97
345926	BEARINGS & DRIVES INC 1000 CORB INTERNATIONAL BLVD SUITE 1000 KENNESAH GA 30144	PHONE #404-423-4816 FAX # 404-423-4819	IRS 2X	12/31/97
211003	BEARINGS & DRIVES INC 607 COWEN POPLAR PO BOX 4325 MACON GA 31213	PHONE #912-743-6711 FAX # 912-743-6430	IRS 2X	12/31/97
363127	BEARINGS & DRIVES INC HIGHWAY 57 MCINTYRE GA 31054	PHONE #912-944-8978 FAX # 912-944-2010	IRS 2X	12/31/97
344853	BEARINGS & DRIVES INC 256 FARMER INDUSTRIAL BLVD NENNAH GA 30263	PHONE #404-251-1880 FAX # 404-251-0593	IRS 2X	12/31/97
345157	BEARINGS & DRIVES INC 6476 WARREN DRIVE PO BOX 214 MORCROSS GA 30092	PHONE #404-449-4750 FAX # 404-449-6721	IRS 2X	12/31/97
372201	BEARINGS & DRIVES INC 2323 EAST BROADWAY NORTH LITTLE ROCK AR 72116	PHONE #501-945-0397 FAX # 501-945-7048	2X	12/31/97

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353375	BEARINGS & DRIVES INC 4025 SH 33RD AVE OCALA FL 34474	PHONE #904-732-2166 FAX # 904-732-2179	1RS 2X	12/31/97
344135	BEARINGS & DRIVES INC 602 VALLEY DRIVE PERRY GA 31069	PHONE #912-987-5888 FAX # 912-987-0022	1RS 2X	12/31/97
345868	BEARINGS & DRIVES INC 10 S. HORTON IND BLVD PO BOX 1500 ROME GA 30161	PHONE #404-291-0861 FAX # 404-291-9146	1RS 2X	12/31/97
345843	BEARINGS & DRIVES INC 204 KAOLIN RD PO BOX 374 SANDERSVILLE GA 31082	PHONE #912-522-5174 FAX # 912-522-1801	1RS 2X	12/31/97
371567	BEARINGS & DRIVES INC 2811 WEST BAY STREET SAVANNAH GA 31407	PHONE #912-964-1927	1RS 2X	12/31/97
345900	BEARINGS & DRIVES INC 507 PALMETTO DR SIMPSONVILLE SC 29681	PHONE #803-963-8498 FAX # 803-967-8116	2EX 2X	12/31/97
338780	BEARINGS & DRIVES INC 820 SMITH AVE PO BOX 2019 THOMASVILLE GA 31792	PHONE #912-228-1640 FAX # 912-228-6275	1RS 2X	12/31/97
345820	BEARINGS & DRIVES INC HIGHWAY 41 SOUTH PO BOX 828 TIFTON GA 31792	PHONE #912-382-2125 FAX # 912-382-2090	1RS 2X	12/31/97
345574	BEARINGS & DRIVES INC 206 S. TOMMBS STREET PO BOX 1223 VALDOSTA GA 31601	PHONE #912-242-0214 FAX # 912-247-2918	1RS 2X	12/31/97
401878	BEARINGS & POWER TRANSMISSION 15224 FRANKLIN AVE FRANKLIN PARK IL 60131	PHONE #708-451-1320 FAX # 708-451-6160	1RS 2X	12/31/97
073957	BEARINGS SERVICE CO 1407 S. KENTUCKY AVE EVANSVILLE IN 47714	PHONE #812-423-7701 FAX # 812-423-3372	1RS 2EX 2X	12/31/97
074490	BEARINGS SERVICE CO P O BOX 744 378 N. NOEL AVE MADISONVILLE KY 42431	PHONE #502-821-6576 FAX # 502-821-0235	1RS 2X	12/31/97
022251	BEARINGS SERVICE CO P O BOX 758 NEW RT 13 E MARION IL 62959	PHONE #618-997-6565 FAX # 618-997-2507	1RS 2X	12/31/97
349822	BEARINGS SERVICE CO 1800 JIM NEU RD SUITE 2 PLYMOUTH IN 46563	PHONE #219-325-2222 FAX # 219-325-2222	1RS 2X	12/31/97

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104284	BEARINGS SERVICE CO 3901 S MAIN ST SOUTH BEND IN 44614-2523	PHONE #219-291-0770 FAX # 219-291-0990	1RS 2X	12/31/97
342063	BEARINGS SPECIALTY CO INC 4 TOMSEND M NASHUA NH 03063	PHONE #603-889-2222 FAX # 603-889-0320	1RS 2X	12/31/97
342832	BEARINGS SPECIALTY CO INC 125 JOHN ROBERTS ROAD S PORTLAND ME 04106	PHONE #207-773-2222 FAX # 207-773-0706	1RS 2X	12/31/97
376327	BEARINGS SPECIALTY CO INC 161 WAYSIDE AVE M SPRINGFIELD MA 01089	PHONE #413-734-2222 FAX # 413-731-9992	1RS 2X	12/31/97
341081	BEARINGS SPECIALTY CO INC 15 HALPER STREET WESTWOOD MA 02090	PHONE #617-329-2222 FAX # 617-329-3014	1RS 2X	12/31/97
344304	BEARINGS SPECIALTY CO INC 8 COMMERCE STREET PO BOX 972 MILLISMA VT 05492	PHONE #802-865-2222 FAX # 802-865-4781	1RS 2X	12/31/97
342055	BEARINGS SPECIALTY CO INC GOLD STAR INDUSTRIAL PARK 61 MILL ST WORCESTER MA 01606	PHONE #508-798-2222 FAX # 508-798-9301	1RS 2X	12/31/97
108415	BEARINGS SUPPLY CO 1123 AVE N BILLINGS MT 59101	PHONE #406-252-4441 FAX # 406-252-8348	1RS 2X	12/31/97
334029	BEARINGS SUPPLY CO P O BOX 604 1223 BASIN AVENUE BISMARCK ND 58502	PHONE #701-222-5901 FAX # 701-224-0019	1RS 2EX 2X	12/31/97
360824	BEARINGS SUPPLY CO 2520 PROSPECT AVE HELENA MT 59601	PHONE #406-442-6106 FAX # 406-442-8382	1RS 2X	12/31/97
264184	BERG EVANS CHAIN CO 110 SE MAIN ST PORTLAND OR 97214	PHONE #503-232-1188 FAX # 503-232-1137	1RS 2X	12/31/97
150383	BERG NELSON CO 1433 N 17TH ST LONG BEACH CA 90813	PHONE #310-432-3621 FAX # 310-437-2071	OX 3X 3GY 2M 3X	12/31/97
792556	BERRY BEARING CO 1790 COUNTRY COURT ADDISON IL 60101	PHONE #708-827-4602 FAX # 708-827-8232	1RS 2X	12/31/97
374970	BERRY BEARING CO 3414 6TH AVENUE ALTOONA PA 16602	PHONE #814-241-8330 FAX # 814-241-8340	1RS 2X	12/31/97
137729	BERRY BEARING CO 7008-YO GOLDEN RING ROAD BALTIMORE MD 21237	PHONE #410-887-2700 FAX # 410-887-3129	1RS 2X	12/31/97

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368597	BERRY BEARING CO 1327 MAIN STREET BERLIN NH 03570-3037	PHONE #603-752-3810 FAX # 603-752-2965	1RS 2X	12/31/97
079004	BERRY BEARING CO 811 LARRY POWERS ROAD BOURBONNAIS IL 60914	PHONE #815-939-4466 FAX # 815-939-7630	1RS 2X	12/31/97
107813	BERRY BEARING CO 1920 N. BEACH STREET BROADVIEW IL 60153	PHONE #708-344-4433 FAX # 708-344-4498	1RS 2X	12/31/97
349506	BERRY BEARING CO 355 SHADY SIDE ROAD BURNS HARBOR IN 46304	PHONE #219-787-8288 FAX # 219-787-8501	1RS 2EX 2X	12/31/97
375782	BERRY BEARING CO 901 FIRST AVENUE SW CEDAR RAPIDS IA 52405-4857	PHONE #319-362-9940 FAX # 319-362-9790	1RS 2X	12/31/97
196469	BERRY BEARING CO 41 E KENYON ROAD CHAMPAIGN IL 61820-2216	PHONE #217-328-3614 FAX # 217-328-7431	1RS 2X	12/31/97
078980	BERRY BEARING CO 3825 S. NORMAL AVE CHICAGO IL 60609	PHONE #312-624-5157 FAX # 312-624-4827	1RS 2X	12/31/97
362525	BERRY BEARING CO 3839 SOUTH NORMAL AVE CHICAGO IL 60609	PHONE #312-268-2100 FAX # 312-268-6216	1RS 2X	12/31/97
327924	BERRY BEARING CO 3900 S. CICERO AVE CHICAGO IL 60650	PHONE #708-780-6200 FAX # 708-780-6753	1RS 2X	12/31/97
237503	BERRY BEARING CO 1900 W. HUBBARD STREET CHICAGO IL 60622	PHONE #312-243-4723 FAX # 312-243-4782	1RS 2X	12/31/97
111609	BERRY BEARING CO 100 HALSTEAD ST CHICAGO HTS IL 60411	PHONE #708-754-6300 FAX # 708-754-6384	1RS 2X	12/31/97
354720	BERRY BEARING CO 1615 LINCOLNWAY CLINTON IA 52732	PHONE #319-243-6672 FAX # 319-243-4283	1RS 2EX 2X	12/31/97
145748	BERRY BEARING CO 5444 EAST AVENUE COUNTRYSIDE IL 60525	PHONE #708-354-5500 FAX # 708-354-5975	1RS 2X	12/31/97
348771	BERRY BEARING CO 1425 DANVILLE AVE CRANFORDSVILLE IN 47933	PHONE #317-362-7227 FAX # 317-364-9117	1RS 2X	12/31/97
006767	BERRY BEARING CO P O BOX 173 1250 N MICHIGAN AVE DANVILLE IL 61832	PHONE #217-442-8800 FAX # 217-442-1279	1RS 2X	12/31/97

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352872	BERRY BEARING CO 182 RIDGE ROAD SUITE E DAYTON NJ 08810	PHONE #908-274-1212 FAX # 908-274-8923	1RS 2X	12/31/97
336537	BERRY BEARING CO 1505 E. AURORA STREET DES MOINES IA 50313	PHONE #515-264-0470 FAX # 515-266-0048	1RS 2X	12/31/97
758888	BERRY BEARING CO 1380 E 12TH DUBUQUE IA 52001	PHONE #319-554-3822 FAX # 319-588-8089	1RS 2EX 2X	12/31/97
767673	BERRY BEARING CO 3009 W SUPERIOR DULUTH MN 55806	PHONE #218-628-2825 FAX # 218-624-5355	1RS 2X	12/31/97
376806	BERRY BEARING CO 7161 SHADY OAK RD EDEN PRAIRIE MN 55344	PHONE #612-828-0800 FAX # 612-828-0830	1RS 2X	12/31/97
108050	BERRY BEARING CO 786 CHURCH RD ELGIN IL 60123	PHONE #708-697-3100 FAX # 708-697-0908	1RS 2X	12/31/97
192833	BERRY BEARING CO 1345 LANDMEIER ROAD ELK GROVE IL 60007	PHONE #708-956-1114 FAX # 708-981-1939	1RS 2X	12/31/97
344148	BERRY BEARING CO 4709 WYLAND DRIVE ELKHART IN 46516	PHONE #219-293-1343 FAX # 219-294-2839	1RS 2X	12/31/97
377531	BERRY BEARING CO 1528 A STREET WEST FORT DODGE IA 50501-5611	PHONE #515-573-5753 FAX # 515-573-8195	1RS 2X	12/31/97
760686	BERRY BEARING CO 2330-263RD AVENUE FORT MADISON IA 52627-9528	PHONE #319-372-6611 FAX # 319-372-2166	1RS 2X	12/31/97
105445	BERRY BEARING CO P O BOX 2560 7401 E. MELTON ROAD GARY IN 46403	PHONE #219-938-6280 FAX # 219-938-9216	1RS 2EX 2X	12/31/97
107987	BERRY BEARING CO 3620 CALUMET AVE HAMMOND IN 46320	PHONE #219-931-3010 FAX # 219-931-3223	1RS 2X	12/31/97
332429	BERRY BEARING CO 3023 16TH PLACE HAMMOND IN 46322	PHONE #219-845-6291 FAX # 219-845-6077	1RS 2X	12/31/97
361998	BERRY BEARING CO 203 WITNER ROAD HOBBSHAM PA 19044	PHONE #215-442-1810 FAX # 215-442-1820	1RS 2X	12/31/97
107961	BERRY BEARING CO 1028 MOEN AVENUE JOLIET IL 60436	PHONE #815-723-3446 FAX # 815-723-6694	1RS 2X	12/31/97

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354316	BERRY BEARING CO 2154 PRODUCTION RD PO BOX 7 KENDALLVILLE IN 46755-0907	PHONE #219-347-4135 FAX # 219-347-5799	1RS 2X	12/31/97	
108068	BERRY BEARING CO 2402 N STATE RD 39 LA PORTE IN 46350	PHONE #219-362-8526 FAX # 219-324-5372	1RS 2EX 2X	12/31/97	
354753	BERRY BEARING CO 30 CREASY CT LAFALETTE IN 47905	PHONE #317-448-6600 FAX # 317-448-6758	1RS 2X	12/31/97	
*196741	BERRY BEARING CO 4242 S FIRST AVE LYONS IL 60534	PHONE #708-442-1200 FAX # 708-442-0147	1RS 2X	12/31/97	
372912	BERRY BEARING CO 9926 NORTH ALPINE ROAD MACHESNEY PARK IL 61115	PHONE #815-654-1154 FAX # 815-654-1219	1RS 2X	12/31/97	
368357	BERRY BEARING CO 1004 BELLE AVE. HANKAID MN 56001	PHONE #507-345-7856 FAX # 507-345-5376	1RS 2EX 2X	12/31/97	
708826	BERRY BEARING CO 1920 5TH AVE MOLINE IL 61265	PHONE #309-797-1111 FAX # 309-797-2397	1X 2EX 2X	12/31/97	S
360826	BERRY BEARING CO 610 BEATTY MOMRREVILLE PA 15144	PHONE #412-856-8034 FAX # 412-856-7921	1RS 2X 4PM	12/31/97	
107821	BERRY BEARING CO 1451 AUGUST ROAD MONTGOMERY IL 60538	PHONE #708-897-8652 FAX # 708-897-0806	1RS 2X	12/31/97	
331199	BERRY BEARING CO P O BOX 416 14 EHT BRIDGE DRIVE N MOUNTAIN IRON MN 55768	PHONE #218-749-6663 FAX # 218-749-1531	1RS 2EX 2X	12/31/97	
237669	BERRY BEARING CO 2011 GRANDVIEW AVENUE MUSCATINE IA 52761	PHONE #319-262-3452 FAX # 319-262-0907	1X 2EX 2X	12/31/97	
277111	BERRY BEARING CO NORTHGATE INDUSTRIAL PARK RD#3, BOX 18, SUITE A NEM CASTLE PA 16105	PHONE #412-654-6411 FAX # 412-654-7213	1RS 2X	12/31/97	
377549	BERRY BEARING CO 352 MAIN STREET PO BOX 254 NEM MARTINSVILLE WV 26155	PHONE #304-455-5679 FAX # 304-455-5694	1X 2X	12/31/97	S
107953	BERRY BEARING CO 6267 HOWARD ST MILES IL 60668	PHONE #708-674-6600 FAX # 708-674-6627	1RS 2X	12/31/97	

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340455	BERRY BEARING CO 5400 N 11TH STREET OAK LAWN IL 60453	PHONE #708-422-2717 FAX # 708-422-6328	1RS 2X	12/31/97	
344890	BERRY BEARING CO P O BOX 1316 802 SOUTH MADISON AVE OTTUMWA IA 52501	PHONE #515-483-5431 FAX # 515-682-1688	1RS 2X	12/31/97	
079012	BERRY BEARING CO P O BOX 443 2017 4TH STREET PERU IL 61354-0443	PHONE #815-222-7800 FAX # 815-222-8347	1RS 2X	12/31/97	
310813	BERRY BEARING CO 1106 PARKWAY VIEW DRIVE PITTSBURGH PA 15205	PHONE #412-787-1990 FAX # 412-787-9840	1RS 2X	12/31/97	
742502	BERRY BEARING CO P O BOX 166 311 STATE STREET QUINCY IL 62306	PHONE #217-222-6166 FAX # 217-222-9301	1RS 2X	12/31/97	
078228	BERRY BEARING CO PO BOX 5403 3483 LOMERGAN DR ROCKFORD IL 61125-0403	PHONE #815-874-2881 FAX # 815-874-2880	1RS 2X	12/31/97	
375048	BERRY BEARING CO 7256 3RD STREET SOUTH ST CLOUD MN 56301-8509	PHONE #612-456-1111 FAX # 612-456-1112	1RS 2EX 2X	12/31/97	
338203	BERRY BEARING CO 2580 N CLEVELAND AVE ST PAUL MN 55113	PHONE #612-431-2430 FAX # 612-431-0544	1RS 2EX 2X	12/31/97	
269969	BERRY BEARING CO P O DRAMER N 316 CONNELLSVILLE STREET UNIONTOWN PA 15401	PHONE #412-438-4841 FAX # 412-438-2647	1RS 2X	12/31/97	
345546	BERRY BEARING CO 397A CHARLES COURT M CHICAGO IL 60185	PHONE #708-231-4453 FAX # 708-231-4499	1RS 2X	12/31/97	
365353	BERRY BEARING CO 2120 A NO SHELBY HARSAH IN 46380	PHONE #219-268-0181 FAX # 219-268-2081	1RS 2X	12/31/97	
240861	BERRY BEARING CO 1512 FALLS AVENUE WATERLOO IA 50701	PHONE #319-235-7167 FAX # 319-235-0519	1RS 2X	12/31/97	
107979	BERRY BEARING CO 800 GLEN FLORA AVE MAUKEGAN IL 60085	PHONE #708-623-8770 FAX # 708-623-3780	1RS 2X	12/31/97	
082792	BERRY BEARING CO P O BOX 358 3734 WASHINGTON ST WEIRTON WV 26061	PHONE #304-797-7094 FAX # 304-797-8256	1X 2EX 2X	12/31/97	S

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368571	BERRY BEARING CO RTE 1 BOX 200 WESTERNPORT MD 21562	PHONE #301-786-7209 FAX # 301-786-7214		1RS 2X	12/31/97		
348714	BERRY BEARING CO 625 WHEELING ROAD WHEELING IL 60090	PHONE #708-459-7727 FAX # 708-459-9774		1RS 2X	12/31/97		
376798	BERRY BEARING CO 3420 BOARD RD YORK PA 17402	PHONE #717-767-9515 FAX # 717-767-9715		1RS 2X	12/31/97		
*000331	BERTSCH CO 1655 STEELE ST SM GRAND RAPIDS MI 49507	PHONE #616-452-3251 FAX # 616-452-8114		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97		
370064	BERTSCH CO 135 MANUFACTURERS DRIVE HOLLAND MI 49424	PHONE #616-786-9399 FAX # 616-786-0041		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97		
354290	BERTSCH CO 10 EAST STREET MANISTEE MI 49660	PHONE #616-723-2506 FAX # 616-723-7919		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97		
310565	BERTSCH CO 1108 56TH AVE MENOMINEE MI 49858	PHONE #906-863-5558 FAX # 906-863-5660		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97		
345272	BERTSCH CO 210 WEST SHERMAN BOULEVARD MUSKEGON HEIGHTS MI 49444	PHONE #616-739-3100 FAX # 616-739-6332		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97		
023796	BERTSCH CO 641 EVERETT ST P O BOX 604 NEGAUNEE MI 49864	PHONE #906-475-7881 FAX # 906-475-7131		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97		
374363	BERTSCH CO 28720 TRACY ROAD HALSBURG OH 43465	PHONE #419-666-6605 FAX # 419-666-3344		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97		
265801	BESCO INC 511 EAST INTERNATIONAL LIBERTY AK 99518	PHONE #907-563-3000 FAX # 907-563-1003		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
270934	BESCO INC 1100 HORN ROAD FAIRBANKS AK 99701	PHONE #907-452-4488 FAX # 907-456-8840		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
311290	BESCO INC 6100 11TH AVE SOUTH SEATTLE WA 98108	PHONE #206-762-3800 FAX # 206-762-3826		1RS 2X	12/31/97		
*083279	BLACK INDUSTRIAL SUPPLY CORP 200 92ND ST CHICAGO IL 60617	PHONE #312-768-1800 FAX # 312-768-2921		OX 1X 3G 3GY 3X 4X 9X	12/31/97		
334136	BLAIR BEARING 12150 SW 114 PLACE MIAMI FL 33176	PHONE #305-233-3020 FAX # 305-252-3820		1RS 2X	12/31/97		

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294610	BLUEMAYER RUBBER & GASKET 1119 BARROW STREET HOUMA LA 70361	PHONE #504-851-2200 FAX # 504-851-2808		OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
319111	BOBKER BEARING COMPANY INC 1710 NORTHAMPTON STREET EASTON PA 18042	PHONE #610-253-7131 FAX # 610-253-9019		1RS 2X	12/31/97		
*320242	BOBKER BEARING COMPANY INC 1871 WOODBRIDGE AVENUE CN-1905 EDISON NJ 08818	PHONE #908-985-8474 FAX # 908-985-8261		1RS 2X	12/31/97		
321802	BOBKER BEARING COMPANY INC UNIT 2 141 STAG AVE FAIRFIELD NJ 07004	PHONE #201-227-6112 FAX # 201-227-6673		1RS 2X	12/31/97		
343541	BOBKER BEARING INC 2507 GEORGETOWN ROAD SALYERS MD 21230	PHONE #301-945-1000 FAX # 301-242-6335		1RS 2X	12/31/97		
345108	BOBKER BEARING INC 730 WOOD AVE BRIDGEPORT CT 06605	PHONE #203-365-3468 FAX # 203-367-0184		1RS 2X	12/31/97		
*321794	BOBKER BEARING INC 329 14TH ST CARLSBAD NJ 07072	PHONE #201-935-6210 FAX # 201-935-3366		1RS 2EX 2X	12/31/97		
347757	BOBKER BEARING INC 56-18 26TH ST MADEIRA NY 11378	PHONE #718-341-1650 FAX # 718-392-6637		1RS 2X	12/31/97		
338137	BOBKER BEARING INC 150 PRODUCTION COURT NEW BRITAIN CT 06050	PHONE #860-229-2908 FAX # 860-229-3732		1RS 2X	12/31/97		
343855	BOBKER BEARING INC 280 LITTLE BRITAIN ROAD NEWBURGH NY 12550	PHONE #914-561-4330 FAX # 914-561-3882		1RS 2X	12/31/97		
346965	BOBKER BEARING INC 23 KERNAN COURT PLAINVILLE NY 11803	PHONE #516-293-4262 FAX # 516-293-2631		1RS 2X	12/31/97		
350702	BOBKER BEARING INC 430 GREENBRIDGE STREET SCRANTON PA 18504	PHONE #717-342-0255		1RS 2X	12/31/97		
337626	BOBKER BEARING INC 321 ALBANY STREET SPRINGFIELD MA 01105	PHONE #413-785-1673 FAX # 413-731-7178		1RS 2X	12/31/97		
*334441	BOHLS BEARING & POWER TRAN SRV 201 PROBANT SAN ANTONIO TX 78204	PHONE #210-222-9677 FAX # 210-222-9812		1RS 2X	12/31/97		
368522	BOWLING GREEN RUBBER & GASKET 2701 GRIFFIN DRIVE BOWLING GREEN KY 42101	PHONE #502-842-6105 FAX # 502-842-1624		OX 1X 3G 3GY 3X 4X 9X	12/31/97		

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251819	BRAKE SUPPLY CO INC 1300 WEST LLOYD EXPRESSWAY EVANSVILLE IN 47708	PHONE #812-467-1000 FAX # 812-429-9491	1X 2X	06/30/97		S	
*366294	BREHER MACHINE & GEAR CO PO BOX 14726 ST LOUIS MO 63178	PHONE #314-534-4021 FAX # 314-534-4026	1RS 2X	12/31/97			
376285	BROWN BEARING LLC 7562 PENN DRIVE ALLENTOWN PA 18106	PHONE #610-364-9034	1RS 2X	12/31/97			
376277	BROWN BEARING LLC 28 INDUSTRIAL DR UNIT B TRENTON NJ 08619	PHONE #609-588-0555	1RS 2X	12/31/97			
299701	BRYAN ROSE & GASKET CO HMY 21 W & QUALITY PARK LANE BRYAN TX 77803	PHONE #409-775-2828 FAX # 409-775-0452	0X 1X 2X 3G 3GY 3H 3X 4X 9X	12/31/97			
343483	C C R PRODUCTS INC U S 29 NORTH GREENSBORO NC 27405	PHONE #910-431-1588 FAX # 910-375-2324	0X 1X 2X 3G 3GY 3X 4L 4PH	12/31/97		S	
*213710	C M S PARTS COMPANY RURAL ROUTE 5 BOX 168 MORGANTOWN WV 26505-9308	PHONE #304-294-1732 FAX # 304-291-5602	1X 2X	12/31/97			
334292	C S BEARING & INDUSTRIAL SPLY 205 SOUTH OAK AVE MINERAL WELLS TX 76067	PHONE #817-328-1354 FAX # 817-328-1708	1X 2X	12/31/97			
*331918	C S BEARING & INDUSTRIAL SPLY 1403 SCOTT ST NICHITA FALLS TX 76301	PHONE #817-744-2887 FAX # 817-761-3605	1RS 2X 4PH	12/31/97		S	
*377929	CACTUS BOLT 410 S MADISON DRIVE #4 TEMPE AZ 85281	PHONE #602-848-1144 FAX # 602-829-7901	0X 3G 3GY 3X 9X	12/31/97			
*787796	CALWYCO INC 185 HARBOR WAY SOUTH SAN FRANCISCO CA 94080	PHONE #415-388-2241 FAX # 415-873-6952	0X 3G 3GY 3H 3X	12/31/97		S	
133405	CAPITAL RUBBER & SPECIALTY CO 4435 PLANK RD BATON ROUGE LA 70805	PHONE #504-354-2181 FAX # 504-355-0766	0X 1X 2EX 2X 3G 3GY 3H 3X 4X 9X	12/31/97			
342394	CAPITOL BEARING SERVICE INC 93 RED RIVER AUSTIN TX 78701	PHONE #512-477-1323 FAX # 512-472-3975	1RS 2EX 2X 3G 3GY 3X 4X 9X	12/31/97		S	
375444	CAPITOL BEARING SERVICE INC 315 SOUTH MAIN STREET BRYAN TX 77803	PHONE #409-775-2123 FAX # 409-775-0316	0X 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97			
342972	CAPITOL BEARING SERVICE INC 510 S SEGUNT STREET NEW BRAUNFELS TX 78130	PHONE #512-428-2288 FAX # 512-425-5761	0X 1X 2EX 2X 3G 3GY 3H 3X 4X 9X	12/31/97			
*373019	CAPITOL BEARING SERVICE INC 602 MC NEIL ROAD ROUND ROCK TX 78681	PHONE #512-344-2241 FAX # 512-344-2743	0X 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97			

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337493	CAPITOL BEARING SERVICE INC 500 E JOSEPHINE ST SAN ANTONIO TX 78215	PHONE #512-226-7251 FAX # 512-226-2628	0X 1X 2EX 2X 3G 3GY 3H 3X 4X 9X	12/31/97			
*375030	CAROLAST INC 8912 MILKINSON BLVD CHARLOTTE NC 28214	PHONE #704-394-4191 FAX # 704-394-2201	0X 1X 2EX 2X 3G 3GY 3H 3X 4X 9X	12/31/97			
*012997	CASCADE INDUSTRIAL SUPPLY 621 MARKET ST KLAMATH FALLS OR 97601	PHONE #503-884-7723 FAX # 503-884-7726	1X 2X	12/31/97		S	
144485	CASCADE RIGGING & SUPPLY 4900 WEST SIDE ROAD REDDING CA 96001	PHONE #516-241-1223 FAX # 516-241-3905	0X 1X 2X 3G 3GY 3X 4X 9X	12/31/97			
*377952	CHALKERS & KUNICK INC 120 COMMERCE DRIVE ASTON PA 19014	PHONE #610-494-4308 FAX # 610-489-7484	4X	12/31/97		S	
*344317	CHAMPION OF OKLAHOMA INC 1116 S E 25TH OKLAHOMA CITY OK 73129	PHONE #405-672-3301 FAX # 405-672-7769	0X 1X 2X 3G 3GY 3H 3X 4X 9X	12/31/97			
*371393	CHAPARRAL RUBBER & SEALS 1825 SIMPSON WAY - UNIT 1 ESCONDIDO CA 92029	PHONE #619-738-4033 FAX # 619-738-4035	3G 3GY 3X	12/31/97		S	
344267	CHARLESTON RUBBER & GASKET CO 5914 HOWARD STREET HANAHAN SC 29406	PHONE #803-747-9738 FAX # 803-744-2893	0X 1X 2EX 2X 3G 3GY 3H 3X 4X 9X	12/31/97			
371971	CHARLESTON RUBBER & GASKET CO 188 S STATE ROUTE 81 VENEDOCIA OH 45894	PHONE #419-467-1888 FAX # 419-467-5100	0X 1X 2X 3G 3GY 3X 4X 9X	12/31/97			
*741025	CHYKAGO GASKET CO 1285 WEST NORTH AVE CHICAGO IL 60622	PHONE #312-484-3840 FAX # 312-486-3784	3X	12/31/97		S	
*003368	CHYKAGO WILCOX MFG CO 6925 STIE ST PO BOX 126 S. HOLLAND IL 60473	PHONE #708-339-2000 FAX # 708-339-9076	0X 1X 2EX 3G 3GY 3H 3X 4X 9X	12/31/97			
333450	CHRISTOPHER SEALS INC 58 GRIMES EUGENE OR 97402	PHONE #503-343-0418 FAX # 503-343-9434	1X 2X	12/31/97		S	
*375212	CINCINNATI BELTING & TRANS 737 W SIXTH STREET CINCINNATI OH 45203	PHONE #513-621-9050 FAX # 513-621-0549	1RS 2EX 2X	12/31/97			
375220	CINCINNATI BELTING & TRANS 1331 TROY STREET DAYTON OH 45404	PHONE #513-223-0653 FAX # 513-223-0092	1RS 2EX 2X	12/31/97			
*195834	CINCINNATI GASKET PKG & MFG 40 ILLINOIS AVE CINCINNATI OH 45215	PHONE #513-761-2458 FAX # 513-761-2994	0X 1X 2X 3G 3GY 3X 4X 9X	12/31/97			

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*350801	COLDWELL & COMPANY INC 1227 MULBERRY PO BOX 835 TERRE HAUTE IN 47808	PHONE #812-232-0276 FAX # 812-235-2870	OX 1X 3G 3GY 3M 3X 4X 9X			12/31/97			
*346114	COLDWELL BEARING DIV OF COLDWELL & CO INC 1227 MULBERRY, P.O. BOX 835 TERRE HAUTE IN 47808	PHONE #812-232-0276 FAX # 812-235-2870	2X			12/31/97			
*344457	COLORADO BEARINGS & SUPPLY INC 3730 E. 48TH AVENUE DENVER CO 80216	PHONE #303-399-1500 FAX # 303-399-1900	1X 2X			12/31/97			
*169649	COLUMBIA RUBBER & GASKET 847 N. JAMES CAMPBELL BLVD COLUMBIA TN 38401	PHONE #615-381-5500 FAX # 615-381-7022	OX 1X 3G 3GY 3X 4X 9X			12/31/97			
*377143	CONTINENTAL SEAL & SUPPLY 8851 WEST FREEMAN STE 121 FT WORTH TX 76116	PHONE #817-244-5488 FAX # 817-244-5489	1X 2X 3M 4PM			12/31/97	*		
*299081	CONVIBER CO INC 301 NH STN AVENUE FT LAUDERDALE FL 33311	PHONE #305-524-9223 FAX # 305-524-9227	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97			
*364125	CORLEY GASKET CO 5555 MURNICUT ROAD DALLAS TX 75227	PHONE #214-388-7437 FAX # 214-388-0612	3X			12/31/97			
259127	CORPUS CHRISTI GSKT & FASTENER 341 HESICHERSTER DR CORPUS CHRISTI TX 78469	PHONE #512-884-6366 FAX # 512-884-0635	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			12/31/97			
033100	CORPUS CHRISTI RUBBER & SPEC 2728 S. PORT AVE P O BOX 5508 CORPUS CHRISTI TX 78465	PHONE #512-883-5451 FAX # 512-883-1542	OX 1X 3G 3GY 3M 3X 4X 9X			12/31/97			
*377721	CORTON GASKET 3320 STUART DRIVE FT WORTH TX 76110	PHONE #817-921-6501 FAX # 817-921-2782	3G 3GY 3X			12/31/97			
*263445	CROWN INDUSTRIES INC 14125 N.E. 189TH STREET PO BOX 111 HOOD RIVER WA 98072	PHONE #206-488-8929 FAX # 206-488-0442	1X 2X 7X			12/31/97			
*353888	CROWN PARTS & MACHINE INC 1723 N.W. 87 EAST BILLINGS MT 59101	PHONE #406-252-6682 FAX # 406-252-6625	1X 2X 3M			12/31/97			
134762	CROWN PRODUCTS INC 1200 N. ROAD 1845 LONGVIEW TX 75602	PHONE #903-753-0341 FAX # 903-238-9797	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	*		
*040014	CROWN PRODUCTS INC 912 W. SKELLY DRIVE P O BOX 9157 TULSA OK 74157	PHONE #918-444-4591 FAX # 918-444-4743	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97			

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169839	CROWN PRODUCTS INC 310 N. WABASH MICHIGAN KS 67216	PHONE #316-267-1081 FAX # 316-267-1010	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97			
370379	CUPPS INDUSTRIAL SUPPLY 6000 W. LCH #29 EL PASO TX 79905	PHONE #915-771-6051 FAX # 915-771-6053	OX 1X 2EX 2X 3G 3GY 3X 4X 9X			12/31/97			
*000075	CUPPS INDUSTRIAL SUPPLY 310 NORTH 33RD AVENUE PHOENIX AZ 85017-4805	PHONE #602-244-2301 FAX # 602-249-8153	OX 1X 2EX 2X 3G 3GY 3X 4X 9X			12/31/97			
207993	CUPPS INDUSTRIAL SUPPLY SUITE 402-B 1110 E PENNSYLVANIA TUCSON AZ 85714-1664	PHONE #602-244-1922 FAX # 602-244-8922	OX 1X 2EX 2X 3G 3GY 3X 4X 9X			12/31/97			
312108	CYLINDER CITY INC 1440 93RD LANE NE P O BOX 43220 MINNEAPOLIS MN 55449-0220	PHONE #612-780-2550 FAX # 612-780-2565	1X			12/31/97			
*247791	DADCO CORP 5550 CAREY AVE DAVENPORT IA 52807	PHONE #319-391-1736 FAX # 319-391-2423	OX 3G 3GY 3X 9X			12/31/97			
*005124	DALE L PRENTICE CO 26311 HARDING AVE OAK PARK MI 48237	PHONE #810-399-5500 FAX # 810-399-5529	9X			12/31/97			
*551507	DARCOLD CO INC 24 MIDLAND AVE HICKSVILLE NY 11801	PHONE #516-931-5900 FAX # 516-931-6112	OX 3GA 3M 4PM			12/31/97			
233015	DAVIS DYAR SUPPLY CO INC 410 COLUMBIA HIGHWAY DOTHAN AL 36301	PHONE #205-794-0793 FAX # 205-793-9168	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			12/31/97	*		
*132444	DAY EQUIPMENT CO 1402 E. MONROE GOSHEN IN 46526	PHONE #219-534-3491 FAX # 219-534-2048	OX 1X 3G 3GY 3X 4X 9X			12/31/97			
374967	DEACON IND SUPPLY CO INC 163 BORD BYNE ROAD KING OF PRUSSIA PA 19146	PHONE #215-245-5322 FAX # 215-245-6420	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			12/31/97			
*369494	DEACON IND SUPPLY CO INC 7 EAST COMMONS BLVD NEW CASTLE DE 19720	PHONE #302-222-5411 FAX # 302-222-3423	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			12/31/97			
*372490	DEGUSSA CORPORATION THEODORE INDUSTRIAL PARK P O BOX 606 THEODORE AL 36590	PHONE #334-443-4000	3A 3GA			12/31/97			
*375121	DEGUSSA CORPORATION KNOX HOUSE LANE WATERFORD NY 12188	PHONE #518-233-7090 FAX # 518-237-0478	3A			12/31/97			
229384	DETROIT BALL BEARING CO 1875 HAMILTON RD ALPENA MI 49707	PHONE #517-356-3589 FAX # 517-356-2209	1RS 2X			12/31/97			

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237222	DETROIT BALL BEARING CO 1948 PLAZA DRIVE BENTON HARBOR MI 49022	PHONE #616-927-4425 FAX # 616-927-1173	IRS 2X			12/31/97	
237230	DETROIT BALL BEARING CO 1860 SPRUCE ST DEFIANCE OH 43512	PHONE #419-784-4566 FAX # 419-784-3555	IRS 2EX 2X			12/31/97	
341677	DETROIT BALL BEARING CO 1400 HOWARD STREET DETROIT MI 48216	PHONE #313-963-6011 FAX # 313-963-5561	IRS 2X			12/31/97	
353094	DETROIT BALL BEARING CO 1199 W FORT STREET DETROIT MI 48216	PHONE #313-963-6011 FAX # 313-963-4453	IRS 2X			12/31/97	
249367	DETROIT BALL BEARING CO 230 STAMFORD PARKWAY FINDLAY OH 45840	PHONE #419-423-4921 FAX # 419-423-2509	IRS 2X			12/31/97	
256222	DETROIT BALL BEARING CO 404 KELSO ST FLINT MI 48506	PHONE #810-238-9633 FAX # 810-238-8347	IRS 2EX 2X			12/31/97	
350434	DETROIT BALL BEARING CO 2055 DICKERSON RD GAYLORD MI 49735	PHONE #517-732-6251 FAX # 517-732-4470	IRS 2X			12/31/97	
369470	DETROIT BALL BEARING CO 1137 PINE STREET GREEN BAY WI 54305	PHONE #764-598-6486	IRS 2X			12/31/97	
344708	DETROIT BALL BEARING CO 235 HOOVER BLVD HOLLAND MI 49423	PHONE #616-394-0733 FAX # 616-394-0309	IRS 2X			12/31/97	
256214	DETROIT BALL BEARING CO 2650 AIRPORT RD JACKSON MI 49202	PHONE #517-787-2414 FAX # 517-787-4936	IRS 2X			12/31/97	
233799	DETROIT BALL BEARING CO 3520 GEMBITT CIRCLE KALAMAZOO MI 49001	PHONE #616-349-9616 FAX # 616-349-8970	IRS 2EX 2X			12/31/97	
369454	DETROIT BALL BEARING CO 718 FORD STREET KIMBERLY MI 54136	PHONE #414-954-1083 FAX # 414-954-9477	IRS 2X			12/31/97	
256206	DETROIT BALL BEARING CO 4302 CREYTS ROAD LANSING MI 48917	PHONE #517-322-2610 FAX # 517-322-7765	IRS 2X			12/31/97	
239376	DETROIT BALL BEARING CO 31491 GLENDALE LIVONIA MI 48150	PHONE #810-352-6400 FAX # 810-352-6409	IRS 2X			12/31/97	
073445	DETROIT BALL BEARING CO 1003 WEST MURON BLVD MARYSVILLE MI 48040	PHONE #810-364-3650 FAX # 810-364-3336	IRS 2X			12/31/97	
259392	DETROIT BALL BEARING CO 6090 GRAND HAVEN ROAD NORTON SHORES MI 49441	PHONE #616-798-7750 FAX # 616-798-7522	IRS 2X			12/31/97	

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252700	DETROIT BALL BEARING CO 493 S SAGINAW ST PONTIAC MI 48341	PHONE #810-332-0211 FAX # 810-332-5279	IRS 2X			12/31/97	
256198	DETROIT BALL BEARING CO 1150 N OUTER DRIVE SAGINAW MI 48605	PHONE #517-752-0101 FAX # 517-752-7918	IRS 2EX 2X			12/31/97	
254078	DETROIT BALL BEARING CO 21200 MELROSE SOUTHFIELD MI 48075	PHONE #810-352-6400 FAX # 810-352-6409	IRS 2EX 2X			12/31/97	
254060	DETROIT BALL BEARING CO 6020 BENORE ROAD TOLEDO OH 43612	PHONE #419-729-6661 FAX # 419-729-5630	IRS 2EX 2X			12/31/97	
050161	DETROIT BALL BEARING CO 2404 AIRPORT RD SOUTH TRAVERSE CITY MI 49685	PHONE #616-944-2650 FAX # 616-944-3504	IRS 2X			12/31/97	
369488	DETROIT BALL BEARING CO 3309 TERRACE COURT MAUSAU MI 54401	PHONE #715-844-1331 FAX # 715-844-3734	IRS 2X			12/31/97	
369462	DETROIT BALL BEARING CO 2130 INDUSTRIAL STREET MILWAUKEE WI 53209	PHONE #715-421-1735 FAX # 715-423-0959	IRS 2X			12/31/97	
256250	DETROIT BALL BEARING CO M MICH REG CUST SERVICE CTR 759 36TH STREET SE MILWAUKEE WI 53209	PHONE #616-245-1864 FAX # 616-245-2508	IRS 2EX 2X			12/31/97	
248211	DIXIE AEROSPACE BEARINGS CO 1044 LEES MILL RD COLLEGE PARK GA 30084	PHONE #770-996-1631 FAX # 770-996-3833	2X			12/31/97	
349845	DIXIE RUBBER & BELTING 321 RESERVE DR JACKSON MS 39209	PHONE #601-969-2804 FAX # 601-953-6315	OX 1X 2EX 3G 3GY 3X 4X 9X			12/31/97	
*053041	DIXIE RUBBER & BELTING 6325 HWY 90 EAST DORR MS 39054	PHONE #601-475-0380 FAX # 601-475-4507	OX 1X 2X 3G 3GY 3M 3X 4X 9X			12/31/97	
*072652	DRACO MECHANICAL SUPPLY INC 804 E. LITZINGER RD ST LOUIS MO 63144	PHONE #314-781-8200 FAX # 314-781-8228	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			12/31/97	
353763	DRIVE SYSTEMS INC 412 8TH AVE N.E. DECATUR AL 35601	PHONE #205-350-7912 FAX # 205-350-7964	IRS 2EX 2X			06/30/97	
*025130	DUNCAN EDWARD 297 S ANDREWS AVE FT LAUDERDALE FL 33301	PHONE #305-467-1461 FAX # 305-724-3829	OX 1X 3G 3X 4X			12/31/97	
*371922	DUNHAM RUBBER & BELTING 2340 S HARDING P O BOX 47249 INDIANAPOLIS IN 46247	PHONE #800-876-3340 FAX # 317-788-1797	OX 1X 2EX 2X 3G 3GY 3X 4X 9X			06/30/97	

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*250506	DUROX COMPANY 12312 ALAMENDA DRIVE STRONGSVILLE OH 44136-2995	PHONE #216-238-5350 FAX # 216-238-5773	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			12/31/97			
*374314	DUTCH VALLEY SUPPLY COMPANY SUITE 103 955 HURRICANE SHOALS ROAD LAURENCEVILLE GA 30243-4810	PHONE #770-513-0612 FAX # 770-513-0716	OX 1X 2EX 2X 3G 3GY 3X 4X 9X			12/31/97	*		
371112	EAGLE GASKET & PACKING CO NORTHWEST INDUSTRIAL PARK 224 SIXTHORNE DRIVE HOUSTON TX 77041	PHONE #713-690-4384 FAX # 713-690-0319	3X			12/31/97		U	
*255380	EAST CAROLINA SUPPLY CO INC PO BOX 647 PLYMOUTH NC 27962	PHONE #919-793-2175 FAX # 919-793-2711	OX 1X 3G 3GY 3M 3X 4X 9X			12/31/97	*		
339804	EAST TEXAS BEARING CORP. 2448 CANTINA DRIVE TYLER TX 75708	PHONE #903-593-6077 FAX # 903-593-2492	1RS 2X			12/31/97	*		
366856	EASTERN BEARING INCORP CORONA DIVISION 2964 LAFAYETTE AVE BRONX NY 10465	PHONE #212-831-8800 FAX # 212-832-1828	1RS 2EX 2X			12/31/97			
*308643	EASTERN BEARING INCORP 48 WESTFIELD AVENUE PO BOX 778 ELIZABETH NJ 07207	PHONE #908-354-3800 FAX # 908-354-0683	1RS 2X			12/31/97			
051706	EASTERN BEARING INCORP 60 RAILROAD AVENUE HASBROUCK HEIGHTS NJ 07604	PHONE #201-288-8111 FAX # 201-288-8879	1RS 2X			12/31/97			
308676	EASTERN BEARING INCORP 14 JULES LANE HEM BRUNSWICK NJ 08901	PHONE #908-828-8711 FAX # 908-828-8711	1RS 2EX 2X			12/31/97			
254862	EASTERN BEARING INCORP 53 S JEFFERSON RD WHIPPANY NJ 07981	PHONE #201-428-0915 FAX # 201-428-0905	1RS 2X			12/31/97			
105130	EASTERN BEARINGS INC 362 SUMMER ST FITCHBURG MA 01420	PHONE #508-345-2555 FAX # 508-343-6811	1RS 2X			12/31/97			
105148	EASTERN BEARINGS INC 7096 SOUTH WILLOW ST MANCHESTER NH 03103	PHONE #603-668-3300 FAX # 603-669-5714	1RS 2X			12/31/97			
369678	EASTERN BEARINGS INC 366 WEST COMMERCIAL STREET PORTLAND ME 04102	PHONE #207-780-6610 FAX # 207-780-6624	1RS 2X			12/31/97			
339135	EASTERN BEARINGS INC CENTRAL INVENTORY 204 WEST ROAD PORTSMOUTH NH 03801	PHONE #603-431-1441 FAX # 603-431-9986	1RS 2X			12/31/97			

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797365	EASTERN BEARINGS INC 843 EDDY ST PROVIDENCE RI 02905	PHONE #401-781-7171 FAX # 401-941-7817	1RS 2X			12/31/97			
377945	EASTERN BEARINGS INC 300 D PLEASANT VALLEY ROAD SOUTH WINDSOR CT 06074	PHONE #860-290-4899 FAX # 860-290-4894	1RS 2X			12/31/97			
098889	EASTERN BEARINGS INC PO BOX 647 158 LEXINGTON ST MALTHAM MA 02254	PHONE #617-893-2884 FAX # 617-893-2923	1RS 2X			12/31/97			
361212	EASTERN BEARINGS INC 28 COMMERCE STREET MILLSIDE VT 05425	PHONE #802-845-2882 FAX # 802-843-0020	1RS 2X			12/31/97			
060186	EASTERN BEARINGS INC 103 LAFAYETTE STREET MORCESTER MA 01610	PHONE #508-757-7731 FAX # 508-757-2354	1RS 2X			12/31/97			
*351106	EMANUEL ZERVAKIS ENT INC DBA STOCK CAR PRODUCTS 10 THURMAN STREET RICHMOND VA 23224	PHONE #804-232-3500 FAX # 804-230-4438	2X			12/31/97	*		
266551	EMPIRE MACHINERY & SUPPLY CORP 711 HOMMET DRIVE HAMPTON VA 23661	PHONE #804-827-1440 FAX # 804-827-4938	OX 1X 2X 3G 3GY 3M 3X 4X 9X			12/31/97	*		
*711895	EMPIRE MACHINERY & SUPPLY CORP PO BOX 27 3290 VIRGINIA BEACH BLVD NORFOLK VA 23502	PHONE #804-855-1011 FAX # 804-855-4438	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			12/31/97	*		
*370528	ENERGY STEEL 2715 WALTON DRIVE AUBURN MILLS MI 48326	PHONE #810-277-4990 FAX # 810-377-2338	OX 1X 2X 3G 3X 4X 9X			12/31/97			
043273	ENGINEERED SEAL PRODUCTS 2920 DEER CREEK LANE NE CEDAR RAPIDS IA 52402	PHONE #319-393-3310 FAX # 319-393-3327	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			06/30/97			
277629	ENGINEERED SEAL PRODUCTS E 9TH STREET DAVENPORT IA 52807	PHONE #319-388-2382 FAX # 319-388-0057	OX 1X 2EX 2X 3G 3GY 3X 4X 9X			06/30/97			
*374348	ENVIRONMENTAL FAB & DESIGN 305 CEDAR SUITE 400 LANSING MI 48908	PHONE #800-223-1097 FAX # 313-489-8817	2X			12/31/97			
041356	EPSCO INC 2730 S CARDINAL DRIVE BEAUMONT TX 77705	PHONE #409-842-1434 FAX # 409-842-1672	OX 1X 2EX 2X 9X			12/31/97			
37A398	EPSCO INC 1818 HONOLULU ISLAND DRIVE CORPUS CHRISTI TX 78408	PHONE #800-266-8228 FAX # 361-389-8210	OX 2X			12/31/97			
*367755	EPSCO INC 113 GEORGIA DEER PARK TX 77536	PHONE #713-330-1330 FAX # 713-330-1332	OX 2X			12/31/97			

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370445	EPSCO INTERNATIONAL 804 COLUMBIA SOUTHERN RD WESTLAKE LA 70669	PHONE #318-882-6554 FAX # 318-882-6744	9X	12/31/97	*
375410	ERIE BEARINGS CO OLD ROUTE 15 R R 1 BOX 77 NEW COLUMBIA PA 17856	PHONE #717-538-9737 FAX # 717-538-9898	1RS 2X	12/31/97	
362376	ERIE BEARINGS CO 12833 BRUSSELLS STREET ST. MARYS PA 15857	PHONE #814-834-7402 FAX # 814-834-7404	1RS 2X	12/31/97	
263376	ERIE BEARINGS INC 3127 FAIRMAY DRIVE P O BOX 311 ALTOONA PA 16602-4475	PHONE #814-946-5428 FAX # 814-946-8111	1RS 2X	12/31/97	
053132	ERIE BEARINGS INC BOX 44 ROUTE 822 WEST CLEARFIELD PA 16830-4	PHONE #814-765-2623 FAX # 814-765-2722	1RS 2X	12/31/97	
647859	ERIE BEARINGS INC 1432 E 12TH ST ERIE PA 16503	PHONE #814-453-6871 FAX # 814-453-6237	1RS 2X	12/31/97	
336115	ERIE BEARINGS INC ROUTE 119 PO BOX 268 JOSEPHINE PA 15750	PHONE #412-248-7557 FAX # 412-248-9269	1RS 2X	12/31/97	
002584	ERIE BEARINGS INC 508 DEWEY STREET HEADVILLE PA 16335	PHONE #814-724-7717 FAX # 814-737-2537	1RS 2X	12/31/97	
659516	ERIE BEARINGS INC 3 ALLIE RD ST. 227 P O BOX 287 SENECA PA 16346	PHONE #814-676-8641 FAX # 814-676-8282	1RS 2X	12/31/97	
*318418	ERIKS WEST 1400 INTERURBAN AVE S SEATTLE WA 98168	PHONE #206-243-9660 FAX # 206-243-9718	1X 2X 3M	12/31/97	*
*371054	ERIKS/SOUTHWEST 4439 PRIMRY BLVD P O BOX 155399 FT WORTH TX 76155	PHONE #817-267-8837 FAX # 817-271-4700	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
*210078	EXPLORATION SUPPLIES OF HOUMA 2813 EAST PARK P O BOX 70361 HOUMA LA 70361	PHONE #504-876-3958 FAX # 504-876-3312	1RS 2X	12/31/97	*
*884908	F B WRIGHT CO 9999 MERCIER AVE P O BOX 172 DEARBORN MI 48121	PHONE #313-843-8250 FAX # 313-843-8450	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
793950	F B WRIGHT CO 6488 SHLEY DRIVE HAMILTON OH 45011	PHONE #513-874-9100 FAX # 513-874-0232	OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97	

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245746	F B WRIGHT CO 3424 EAST STREET SAGINAW MI 48601	PHONE #517-753-2413 FAX # 517-753-3314	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
229260	F B WRIGHT CO 5242 ANGOLA RD TOLEDO OH 43615	PHONE #419-531-4444 FAX # 419-531-3913	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
*014084	F B WRIGHT CO OF PITTSBURGH 98 VANADUM RD SUITE 104 BRIDGEVILLE PA 15017	PHONE #412-257-1700 FAX # 412-257-4170	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*894501	F H GASKINS CO INC 25TH & CHURCH ST PO BOX 1439 NORFOLK VA 23501	PHONE #804-622-4706 FAX # 804-623-2317	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*065342	F P FENSEL SUPPLY CO PO BOX 484 WILMINGTON NC 28402	PHONE #910-763-9924 FAX # 910-763-1928	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
375790	FAIRMONT SUPPLY 1000 S BYRNE STREET PONCA CITY OK 74602	PHONE #405-767-6286 FAX # 405-767-3625	1X 2X 3G 3GY 3X 4X 9X	12/31/97	
342923	FAIRMONT SUPPLY CO 1490 N 7TH STREET BEAUMONT TX 77702	PHONE #409-880-6816 FAX # 409-880-6960	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
246684	FAIRMONT SUPPLY CO HWY 185 CANAL ROAD BLOOMINGTON TX 77951	PHONE #512-275-1138 FAX # 512-275-9423	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
241123	FAIRMONT SUPPLY CO 4212 S CREEK ROAD CHATTANOOGA TN 37406	PHONE #615-424-0854 FAX # 615-424-1308	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
242191	FAIRMONT SUPPLY CO 1301 MCCORMICK AVE CHESAPEAKE WV 25815	PHONE #304-443-1111 FAX # 304-443-1114	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
352602	FAIRMONT SUPPLY CO CANTY BRAYTON ENTRANCE GATE #9 25945 ROUTE 23 S PO BOX 231 CIRCLEVILLE OH 43113	PHONE #614-474-1632 FAX # 614-474-6918	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	
348928	FAIRMONT SUPPLY CO C/O E I DUPONT CO CONSOL W/SE CHAMBERS WORK SITE DEEPHAIR NJ 08023	PHONE #609-340-2471 FAX # 609-340-2458	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
340935	FAIRMONT SUPPLY CO 4600 MAY ROAD EDGEWOOD DE 19809	PHONE #302-761-2020 FAX # 302-761-2080	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
377655	FAIRMONT SUPPLY CO 4001 GANTZ ROAD SUITE A GRQVE CITY OH 43123	PHONE #	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	

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342527	FAIRMONT SUPPLY CO 11604 STRANG RD LA PORTE TX 77571	PHONE #713-470-0910 FAX # 713-470-9239	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97
351692	FAIRMONT SUPPLY CO OLD PLANTATION RD & OFF AIRLINE HIGHWAY LAPLACE LA 70068	PHONE #504-536-5670 FAX # 504-536-5427	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97
343350	FAIRMONT SUPPLY CO 2020 FITE ROAD MILLINGTON IN 38053	PHONE #901-353-4200 FAX # 901-353-4014	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97
341016	FAIRMONT SUPPLY CO 1525 HERBERT STREET MOUNT VERNON IL 62864	PHONE #618-244-5344 FAX # 618-244-5389	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97
340059	FAIRMONT SUPPLY CO SPACE PARK EAST P O BOX 8090 2201 HARRIS AVENUE NASHVILLE TN 37207	PHONE #615-226-6762 FAX # 615-262-0820	OX 1X 2X 3G 3GY 3X 4X	12/31/97
363804	FAMILIAN NORTHWEST 8243 WESTPARK ST BOISE ID 83704	PHONE #208-376-6660 FAX # 208-377-4751	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97
366179	FAMILIAN NORTHWEST 4 WEST 3RD P O BOX 4069 MEDFORD OR 97501	PHONE #541-773-4323 FAX # 541-776-0803	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97
378240	FAMILIAN NORTHWEST 2121 N COLUMBIA PORTLAND OR 97217	PHONE #503-283-3333	3CR 3FM 3M 3TN 3UR 3I	12/31/97
377465	FAMILIAN NORTHWEST 1580 GREEN SIDING ROAD ROSEBURG OR 97470	PHONE #541-572-5013 FAX # 541-579-9612	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97
015917	FINK & CO. INC 222 E ST JOSEPH ST INDIANAPOLIS IN 46202	PHONE #317-637-1551 FAX # 317-636-7787	9X	12/31/97
378547	FLANGE PROTECTION & GASKET 308 WASHINGTON PO BOX 551 SOUTH HOUSTON TX 77587	PHONE #713-944-1723 FAX # 713-944-1665	3GA 3X	12/31/97
299844	FLORIDA BEARINGS INC 430 W BROWARD BLVD FORT LAUDERDALE FL 33312	PHONE #505-442-0285 FAX # 505-765-1043	INS 2X	12/31/97
299836	FLORIDA BEARINGS INC 1144 NORTH MIAMI AVENUE PO BOX 370490 MIAMI FL 33137	PHONE #505-573-8124 FAX # 505-573-7366	INS 2X	12/31/97
345181	FLOMARK CO 6837 COMMERCIAL AVE BILLINGS MT 59101	PHONE #406-652-1218 FAX # 406-652-4870	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97

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379016	FLUID SEALING 8910 SCANTON HOUSTON TX 77075	PHONE #713-910-1028 FAX # 713-910-1227	1X 2X 3G 3GY 3X 4X 9X	12/31/97
303701	FOURMEN ENGINEERED SALES 2910 E BROADWAY AVENUE BISMARCK ND 58501	PHONE #701-224-1156 FAX # 701-224-9993	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97
369999	FOUR EYES GASKET & RUBBER 475 E CEDAR FARMINGTON NM 87401	PHONE #505-325-5806 FAX # 505-325-5515	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97
696278	FOUR EYES GASKET & RUBBER 445 E MENLO AVENUE HEMET CA 92344	PHONE #909-452-2327 FAX # 909-452-0799	OX 1X 2X 3X 4X	12/31/97
324657	FRANK A OLSEN CO 1724 CYPRESS ST OAKLAND CA 94607	PHONE #510-452-8581 FAX # 510-452-0148	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97
344796	FT SMITH RUBBER & GASKET CO 5517-A WHEELER AVENUE PO BOX 6803 FORT SMITH AR 72204	PHONE #501-444-1150 FAX # 501-644-9788	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97
378976	FT WORTH GASKET & SUPPLY 2513 MINNIS DRIVE FORT WORTH TX 76117	PHONE #817-838-5196 FAX # 817-838-0104	3X	12/31/97
340885	FUGITT RUBBER & SUPPLY CO INC 1900 THOMAS ROAD MEMPHIS TN 38134	PHONE #901-525-7897 FAX # 901-377-5257	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97
375972	G & H INDUSTRIES 210 E CHESTER ST JACKSON TN 38301	PHONE #901-935-2143 FAX # 901-935-2005	1X 2EX 2X	12/31/97
259937	G M I INC 4822 E 355 ST MILLAUGHBY OH 44024	PHONE #216-953-8811 FAX # 216-953-9631	OX 1X 3FM 3U	12/31/97
320473	GADOIS ENGINEERING CO PO BOX 411 168 FOREST AVENUE LOCUST VALLEY NY 11940	PHONE #516-759-3100 FAX # 516-759-3175	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97
370536	GADOIS INC RECEIVING DEPT 386 SPANISH WELLS RD #2A HILTON HEAD ISLAND SC 29926	PHONE #803-681-4465 FAX # 803-681-4465	1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97
705509	GALLAGHER FLUID SEALS INC 500 HERTZOG BLVD PO BOX 61367 KING OF PRUSSIA PA 19406	PHONE #610-277-8200 FAX # 610-277-3850	1BS 2X	12/31/97
601013	GARLOCK CONSIGNMENT INVENTORY C/O B & CIND AND MARINE SALES 909 LEOKANE STREET HAIPAHU HI 96737	PHONE #808-676-5130 FAX # 808-676-7396	3G 3X 4X 9X	12/31/97

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*334102	GASKET PACKING SEAL SUPPLY CO 3614 HIGH STREET NE ALBUQUERQUE NM 87107-2102	PHONE #505-343-1411 FAX # 505-343-1440	OK 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97		
367748	GASKET PACKING SEAL SUPPLY CO 1491 LEE TRIVINO SUITE L EL PASO TX 79935	PHONE #915-598-9171 FAX # 915-598-9204	OK 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97		
334714	GASKET SERVICE INC 2120 KERMIT HWY ODESSA TX 79761	PHONE #915-332-0853 FAX # 915-332-6310	OK 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
*776280	GASKET SPECIALTIES INC 6200 HOLLIS STREET EMERYVILLE CA 94608	PHONE #510-547-7955 FAX # 510-547-8242	OK 3G 3GY 3M 3X	12/31/97	S	
*323931	GASKET TECHNOLOGY CO 23605 N E HALSEY SUITE A TROUTDALE OR 97060	PHONE #503-641-6584 FAX # 503-641-2010	OK 3G 3GY 3M 3X	12/31/97	S	
364406	GASKETS PACKINGS & SEALS INC 409 8TH STREET PARKERSBURG WV 26101	PHONE #304-422-3880 FAX # 304-422-9476	OK 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
*320879	GAULEY SALES CO INC ST RT #60 DRAHER C HICQ HY 25854	PHONE #304-658-5201 FAX # 304-658-4506	1RS 2X	12/31/97		
*092734	GENERAL BEARINGS CO 4875 PACIFIC BLVD LOS ANGELES CA 90058	PHONE #213-588-2101 FAX # 213-588-4351	1RS 2X	12/31/97		
758458	GENERAL ENGINEERING CO OF VIRGINIA INC 2688 MILLMAN HWY E ASINGDOM VA 24210	PHONE #540-628-6068 FAX # 540-628-6341	OK 1X 2EX 2X	12/31/97		
018200	GENERAL GASKET CORP 2202 SOUTH 7TH ST ST LOUIS MO 63104	PHONE #314-771-9550 FAX # 314-771-7760	OK 3G 3GY 3X	12/31/97	S	
*363812	GENERAL RUBBER & PLASTICS 1902 N KENTUCKY AVE PO BOX 4510 STATION A EVANSVILLE IN 47711	PHONE #812-444-5153 FAX # 812-444-5854	OK 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*	
*371294	GENERAL RUBBER & PLASTICS 3840 INDUSTRIAL DRIVE PADUCAN KY 42001	PHONE #502-443-2442 FAX # 502-443-3344	OK 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
*108514	GENERAL RUBBER ATLANTA 4785 HENDEL COURT PO BOX 44005 ATLANTA GA 30336	PHONE #404-621-5242 FAX # 404-621-5004	OK 1X 2X 4PM	12/31/97	S	
498209	GENERAL TECHNOLOGIES INC 6202 MAC CORKLE AVE SW ST ALBANS MV 25177	PHONE #304-768-4944 FAX # 304-768-9827	OK 1X 2X 3G 3GY 3X 4X 9X	12/31/97		
298372	GEORGE S THOMSON CO INC 3738 DURAZNO EL PASO TX 79905	PHONE #915-544-6008 FAX # 915-544-3429	OK 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	*	

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*551226	GERAND PACKING & BELTING CORP 24 MIDLAND AVE NICKSVILLE NY 11801	PHONE #516-935-2400 FAX # 516-931-6119	OK 3M 3M 4PM		12/31/97	S
338400	GERNYSH INC & IND SUPPLIES INC RECEIVING DOCK 1011 EAST E STREET TACOMA WA 98421	PHONE #206-371-7070 FAX # 206-272-4654	1RS 2X		12/31/97	
*798223	GLOBAL MERCHANDISING CORP # 5 DORMAN STREET SAN FRANCISCO CA 94141-0506	PHONE #415-285-5500 FAX # 415-441-0952	3G		12/31/97	S
*377218	GOODALL RUBBER 114 PHA DRIVE SUITE 114 DESVREHAN LA 70047	PHONE #504-725-1171 FAX # 504-724-0242	OK 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97	
*365742	GOODALL RUBBER CO 1430 MACCORMICK DRIVE BAYON ROUGE LA 70614	PHONE #504-926-3900 FAX # 504-926-8142	OK 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97	
365460	GOODALL RUBBER CO 3324 DIELMAN INDUSTRIAL DRIVE ST LOUIS MO 63132	PHONE #314-231-5353 FAX # 314-231-0910	OK 1X 2EX 2G 3GY 3X 4X 9X		06/30/97	
367813	GOODING SHIELDS DIV OF LESIM COETZ & CO INC 815 BYLTON DRIVE PITTSBURGH PA 15238	PHONE #412-963-9321 FAX # 412-963-2402	OK 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97	
*341214	GOPHER BEARING CO 2430 TERRITORIAL ROAD ST PAUL MN 55114	PHONE #612-645-5871 FAX # 612-645-8912	1RS 2X		12/31/97	
375840	GOPHER BEARING COMPANY 330 WEST 2ND STREET MINONA MN 55947	PHONE #507-452-1250 FAX # 507-452-1125	1RS 2X		12/31/97	
*364372	GORDON GASKET & PACKING CO 5400 MAC CORKLE AVE S E P O BOX 4046 CHARLESTON WV 25304	PHONE #304-925-2126 FAX # 304-925-5807	OK 1X 2EX 2X 3G 3GY 3X 4X 9X		12/31/97	
345252	GREENVILLE RUBBER & GASKET 2707 POINSETT HWY GREENVILLE SC 29609	PHONE #864-235-2574 FAX # 864-235-3298	OK 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97	*
372508	GULF BELTING & GASKET CO 1010 SAINT MARY ST NEW ORLEANS LA 70130	PHONE #504-522-9413 FAX # 504-588-9912	OK 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97	*
*372984	GULF COAST BEARING & SUPPLY 100958 HWY 435 P O BOX 197 CREOLA AL 36525	PHONE #334-675-9431 FAX # 334-675-4311	1X 2X		12/31/97	*
354688	GULF COAST MARINE SUPPLY CO CARSON ROAD P O BOX 8819 COLUMBUS MS 39705	PHONE #601-329-4095 FAX # 601-329-4828	OK 1RS 2EX 3GY 3M 3X 4X 9X		06/30/97	S

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344655	GULF COAST MARINE SUPPLY CO JEFFERSON RD PO BOX 917 DEMOPOLIS AL 36732	PHONE #205-289-2395 FAX # 205-289-2791	OX 1X 2EX 2X 3GY 3M 3X 4X 9X	12/31/97	*
339994	GULF COAST MARINE SUPPLY CO 501 STINRAD ROAD MOBILE AL 36610	PHONE #334-452-8066 FAX # 334-456-8868	OX 1X 2EX 2X 3GY 3M 3X 4X 9X	12/31/97	*
344648	GULF COAST MARINE SUPPLY CO BAYOU CASOTTE RD PO BOX 1117 PASCAGOULA MS 39567	PHONE #601-762-9282 FAX # 601-762-0925	OX 1X 2EX 2X 3GY 3M 3X 4X 9X	12/31/97	*
344671	GULF COAST MARINE SUPPLY CO 7885 PENSACOLA BLVD PO BOX 7008 PENSACOLA FL 32514-0305	PHONE #904-476-4910 FAX # 904-478-4724	OX 1X 2EX 2X 3GY 3M 3X 4X 9X	12/31/97	*
324558	GULF COAST SEAL INC. 9119 MONROE ROAD HOUSTON TX 77061	PHONE #713-910-7700 FAX # 713-910-6600	OX 1X 2X 4MP	12/31/97	
208926	GULF RUBBER & GASKET COMPANY PO BOX 9577 750 LAKESIDE DR MOBILE AL 36693	PHONE #205-666-7400 FAX # 205-666-7403	OX 1X 2X 3G 3M 4PM 9X	12/31/97	*
940270	GUY L WARDEN & SONS 1835 BETTENCOURT STREET CERRITOS CA 90703-1010	PHONE #310-926-6682 FAX # 310-926-1757	9X	12/31/97	
377200	H P S INC 1224 FOREST PARKWAY PO BOX 479 WEST OXFORD NJ 08066	PHONE #609-224-1120 FAX # 609-224-1119	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
377408	HALL MACHINE & WELDING CO INC 102 W MEMPHIS CARLSBAD NM 88220	PHONE #505-887-1143 FAX # 505-887-1146	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
367938	HAYS PUMPS INC 2721 S 4TH AVE FRESNO CA 93725	PHONE # 2X 4PM		12/31/97	
551291	HAYS PUMPS INC 5800 AIRPORT ROAD REDDING CA 96002	PHONE #916-224-9500 FAX # 916-224-6824	2X 4PM	12/31/97	
380618	HELMS INDUSTRIAL SUPPLY 2111 W 31ST AVE PHOENIX AZ 85017-5410	PHONE #602-272-7193 FAX # 602-272-0853	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
366807	HENNIG GASKET & SEALS INC 2305 WEST CULLERTON ST CHICAGO IL 60608	PHONE #312-243-8270 FAX # 312-243-7855	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	
674507	HENRY & PETER SUPPLY CO 110 WARTER-OAK DRIVE PADUCAH KY 42001	PHONE #502-443-2441 FAX # 502-443-3239	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*

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245985	HERSH PACKING & RUBBER CO 312 N HIGH ST PO BOX 186 CANAL WINCHESTER OH 43110-0186	PHONE #614-837-3526 FAX # 614-837-6219	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	06/30/97	
383430	HIGBEE GASKET & SEALING PROD 6741 THOMPSON ROAD NORTH SYRACUSE NY 13211	PHONE #315-432-8021 FAX # 315-432-0227	OX 2X 3G 3GY 3X	12/31/97	
181735	HOOK INDUSTRIAL SALES P.O. 9177 2121 BROOKLYN AVE EL PASO TX 79905	PHONE #219-432-9441	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
349902	HOLMA BEARING SERVICE INC 2905 GRAND CAYLON HOUMA LA 70363	PHONE #504-876-7899 FAX # 504-876-7892	1RS 2X	12/31/97	*
377440	HOUSTON GASKET & PACKING CO 2100 TEXAS ST SAN ANTONIO TX 78283	PHONE #210-225-2671 FAX # 210-225-2718	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
390914	HOUSTON GASKET & PACKING CO INC 1815 FRANKLIN ST HOUSTON TX 77002	PHONE #713-222-2231 FAX # 713-222-9208	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
374249	HOUSTON MFG & SPECIALTY 2905 WALLISVILLE ROAD HOUSTON TX 77013	PHONE #713-475-7400 FAX # 713-472-6413	1X 2X	12/31/97	
881201	HUNTER SALES CORP 2135 INDUSTRIAL BLVD PO BOX 234 BETHEL PARK PA 15102	PHONE #412-833-4223 FAX # 412-833-8722	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	
371369	HYDRAPAK SEALS INC 1605 WEST 2100 SOUTH SALT LAKE CITY UT 84119	PHONE #801-973-7325 FAX # 801-973-7440	1X	12/31/97	
364420	HYDRAULIC & AIR REPAIR 5820 COLLEGE STREET BEAUMONT TX 77707	PHONE #409-840-4880 FAX # 409-840-3079	1X	12/31/97	
361170	HYDRAULIC SPECIALTY CO 2200 18TH AVE S.W. CEDAR RAPIDS IA 52404	PHONE #319-394-2696 FAX # 319-394-4061	1X 2X	12/31/97	
206201	HYDRAULIC SPECIALTY CO 1135 72ND AVE NE MINNEAPOLIS MN 55432	PHONE #612-571-3072 FAX # 612-571-3350	1X 2X	12/31/97	
364315	HYDRAULICS COMPANY DIV OF BAUM IRON COMPANY 1221 HARNEY STREET OMAHA NE 68102	PHONE #402-345-6122 FAX # 402-345-6443	1X 2X	12/31/97	
377762	HYSECO INC 5000 ALMEDA GENOA ROAD HOUSTON TX 77048	PHONE #713-991-1240 FAX # 713-991-7510	1X 2X	12/31/97	
353904	I & MOORE CORP 648 LACO DRIVE LEXINGTON KY 40503	PHONE #606-235-8801 FAX # 606-235-1242	OX 1X 2X 3G 3GY 3X 4AP 4PM	12/31/97	

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368098	18Y INC 4233 SAYLES ABILENE TX 79605	PHONE #915-691-8949 FAX # 915-691-9080	1RS 2X 12/31/97	
362772	18Y INC 210 N TAYLOR AMARILLO TX 79107	PHONE #806-376-1466 FAX # 806-376-8361	1RS 2X 12/31/97	
368647	18Y INC 3536 S SANTA FE CHANUTE KS 66720	PHONE #316-431-0900 FAX # 316-431-0986	1RS 2X 12/31/97	
329235	18Y INC 6714 E 47TH AVE DRIVE DENVER CO 80216	PHONE #303-399-3777 FAX # 303-321-8154	1RS 2X 12/31/97	
367771	18Y INC 1427 ROOSEVELT AVE DODGE CITY KS 67801	PHONE #316-227-2340 FAX # 316-227-2588	1RS 2X 12/31/97	
759381	18Y INC 619 STRONG HIGHWAY EL DORADO AR 71730	PHONE #501-862-3413 FAX # 501-862-1450	2X 3G 12/31/97	*
371583	18Y INC 1405 VANDERBILT EL PASO TX 79935	PHONE #915-598-2900 FAX # 915-598-5656	OX 1X 2EX 2X 3X 4X 12/31/97	*
151175	18Y INC 1925 W 6TH AVE EMPORIA KS 66801	PHONE #316-343-6161 FAX # 316-342-9201	1RS 2X 12/31/97	
206144	18Y INC 6300 SOUTH 29TH ST FORT SMITH AR 72903	PHONE #501-644-8566 FAX # 501-644-2248	1RS 2X 12/31/97	
779765	18Y INC 3845 WEST JONES AVE GARDEN CITY KS 67846	PHONE #316-277-2135 FAX # 316-277-2728	1RS 2X 12/31/97	
360347	18Y INC SUITE B 236 N ROBERTS STREET GRAND ISLAND NE 68803	PHONE #308-384-9943 FAX # 308-384-9952	1RS 2X 12/31/97	
856765	18Y INC 5101 8TH ST GREAT BEND KS 67530	PHONE #316-792-2916 FAX # 316-792-3139	1RS 2X 12/31/97	
377168	18Y INC 301 E 1ST STREET HEREFORD TX 79045	PHONE #806-364-4145 FAX # 806-364-4146	1X 2EX 2X 12/31/97	
796987	18Y INC 2503 S 16TH HUTCHINSON KS 67501	PHONE #316-662-4444 FAX # 316-662-4376	1RS 2X 12/31/97	
342493	18Y INC 2401 INDUSTRIAL DRIVE JEFFERSON CITY MO 65109	PHONE #573-635-1042 FAX # 573-635-1227	1RS 2X 12/31/97	

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800511	18Y INC 2701 WEST 13TH STREET JOPLIN MO 64801	PHONE #417-781-2113 FAX # 417-781-8225	1RS 2X 12/31/97	
362871	18Y INC 9301-A E 47TH KANSAS CITY MO 64133	PHONE #816-737-0250 FAX # 816-256-0902	1RS 2X 12/31/97	
271601	18Y INC 1700 CHERRY ST KANSAS CITY MO 64108	PHONE #816-842-1963 FAX # 816-842-3766	1RS 2X 12/31/97	
308189	18Y INC 916 EAST 8TH LAWRENCE KS 66044	PHONE #913-841-2771 FAX # 913-841-4889	1RS 2X 12/31/97	
271718	18Y INC 14805 W 99TH ST LENEXA KS 66215	PHONE #913-492-2110 FAX # 913-492-6825	1RS 2X 12/31/97	
363093	18Y INC 5620 FLETCHER AVE LINCOLN NE 68507	PHONE #402-446-1166 FAX # 402-446-9024	1RS 2X 12/31/97	
274340	18Y INC 8203 DISTRIBUTION DRIVE LITTLE ROCK AR 72209	PHONE #501-348-2700 FAX # 501-348-3138	1RS 2X 12/31/97	
366161	18Y INC 1401 AVENUE F LUBBOCK TX 79401	PHONE #806-747-0090 FAX # 806-747-0094	1RS 2X 12/31/97	
271445	18Y INC 5420 ENGLAND MERRIAM KS 66203	PHONE #913-477-3151 FAX # 913-477-3752	1RS 2X 12/31/97	
238139	18Y INC 4700 SOUTH CLARK MEXICO MO 65265	PHONE #573-581-7455 FAX # 573-581-3943	1RS 2X 12/31/97	
229245	18Y INC 601 SOUTH TENTH STREET MT VERNON IL 62864	PHONE #618-244-5353 FAX # 618-244-5353	1RS 2X 12/31/97	
325522	18Y INC 1903 NORTH 11TH STREET MUSKOGEE OK 74401	PHONE #918-483-0900 FAX # 918-483-2555	1RS 2X 12/31/97	
371336	18Y INC 5733-A SALMEN STREET NEW ORLEANS LA 70123	PHONE #504-734-5150 FAX # 504-733-7958	1RS 2X 12/31/97	
798900	18Y INC 512 N DOUGLAS PO BOX 26162 OKLAHOMA CITY OK 73106	PHONE #405-235-2416 FAX # 405-235-4844	1RS 2X 12/31/97	
048173	18Y INC 7025 S 107TH ST OMAHA NE 68128	PHONE #402-592-2626 FAX # 402-592-3094	1RS 2X 12/31/97	

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263491	181 INC 1020 E SECOND AVE PINE BLUFF AR 71601	PHONE #501-534-2555 FAX # 501-534-8110	INS 2X			12/31/97	
362830	181 INC 2509 WEST 5TH STREET PLAINVIEW TX 79072	PHONE #806-293-0090 FAX # 806-293-3138	INS 2X			12/31/97	
368282	181 INC 33027 BRANIFF AVENUE PUEBLO CO 81001	PHONE #719-948-3000 FAX # 719-948-3004	INS 2X			12/31/97	
271916	181 INC 9301-A EAST 47TH ST RAYTOWN MO 64133	PHONE #816-737-0250 FAX # 816-356-0902	INS 2X			12/31/97	
206128	181 INC 217 EAST AVENUE A SALINA KS 67401	PHONE #913-825-4234 FAX # 913-825-0445	INS 2X			12/31/97	
375154	181 INC 34531-35 NORTH SUITE 340 SAN ANTONIO TX 78219	PHONE #210-225-0090 FAX # 210-225-8785	INS 2X			12/31/97	
273599	181 INC 410 NORTH STATE FAIR BLVD SEDALIA MO 65301	PHONE #816-827-4280 FAX # 816-827-5711	INS 2X			12/31/97	
*172676	181 INC PO BOX 2982 SHAMHEE MISSION KS 66201	PHONE #913-677-3151 FAX # 913-677-3752	INS 2X			12/31/97	
372391	181 INC 3218 NORTHBROOK DRIVESUITE B SIOUX CITY IA 51105	PHONE #712-255-5555 FAX # 712-255-4556	INS 2X			12/31/97	
251942	181 INC 712 M RANDALL HOBBS LANE SPRINGDALE AR 72764	PHONE #501-756-9980 FAX # 501-756-9983	INS 2X			12/31/97	
250613	181 INC 1358 EAST CHESTNUT EXPY SPRINGFIELD MO 65802	PHONE #417-869-0722 FAX # 417-869-8505	INS 2X			12/31/97	
787697	181 INC 1226 S 6TH ST ST JOSEPH MO 64501	PHONE #816-233-0233 FAX # 816-279-1419	INS 2X			12/31/97	
094243	181 INC 305 EAST CRANE TOPEKA KS 66603	PHONE #913-233-1381 FAX # 913-233-2778	INS 2X			12/31/97	
770825	181 INC 11221 E PINE TULSA OK 74116	PHONE #918-438-8100 FAX # 918-438-7100	INS 2X			12/31/97	
796581	181 INC 5819 W HARRY WICHITA KS 67209-2931	PHONE #316-943-3434 FAX # 316-943-3490	INS 2X			12/31/97	
773168	181 INC 4323 WOODSON RD WOODSON TERRACE MO 63134	PHONE #314-428-4284 FAX # 314-428-1048	INS 2X			12/31/97	

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008334	ILWEN INDUSTRIES 301 STANLEY BLVD SHELBYVILLE TN 37160	PHONE #615-484-8731 FAX # 615-484-8733	OX 1X 2X 3G 3GV 3X 4PW			12/31/97	
270421	ILLINOIS BEARING CO 1112 W MARKET STREET BLOOMINGTON IL 61701	PHONE #309-827-0434 FAX # 309-827-2149	INS 2X			12/31/97	
244822	ILLINOIS BEARING CO P O BOX 456 207 SHAN AVE CENTRALIA IL 62801	PHONE #618-533-2741 FAX # 618-533-8746	INS 2X			12/31/97	
421206	ILLINOIS BEARING CO 1520 HUBBARD AVE DECATUR IL 62526	PHONE #217-877-3400 FAX # 217-877-1580	IRS 2X			12/31/97	
421222	ILLINOIS BEARING CO 3113 N MAIN STREET P O BOX 2122 EAST PEORIA IL 61611-1797	PHONE #309-494-4214 FAX # 309-494-0512	IRS 2X			12/31/97	
144027	ILLINOIS BEARING CO 2011 CHARLESTON AVE P O BOX 949 MATTOON IL 61938-0949	PHONE #217-235-7151 FAX # 217-234-2244	IRS 2X			12/31/97	
093828	ILLINOIS BEARING CO 3761 SANGAMON AVENUE SPRINGFIELD IL 62707-9728	PHONE #217-323-8387 FAX # 217-323-8738	IRS 2X			12/31/97	
374512	ILLINOIS BEARING COMPANY 2308C HOFFMAN DRIVE EFFINGHAM IL 62401-1363	PHONE #217-342-2432 FAX # 217-342-2479	IRS 2X			12/31/97	
249210	INDEPENDENT BEARING INC 231 FRONTAGE RD UNIT 15 BURR RIDGE IL 60521	PHONE #708-454-3111 FAX # 708-454-3183	IRS 2X			12/31/97	
*253864	INDUSTRIAL BEARING CORP 500 CAYUGA ROAD BUFFALO NY 14225	PHONE #716-433-7166 FAX # 716-433-7136	INS 2X			12/31/97	
257626	INDUSTRIAL BEARING CORP 500 W DUBOISE RD RD 3 BOX 263 DUBOISE PA 15801	PHONE #814-373-0838 FAX # 814-373-9553	INS 2X			12/31/97	
254151	INDUSTRIAL BEARING CORP 524 MAIN STREET OLEAN NY 14760	PHONE #800-333-0935 FAX # 716-373-1662	IRS 2X			12/31/97	
335026	INDUSTRIAL BEARING CORP 315 MT READ BLVD ROCHESTER NY 14611	PHONE #716-235-1250 FAX # 716-235-0166	IRS 2X			12/31/97	
257147	INDUSTRIAL BEARING CORP 6305 MEADE ROAD SYRACUSE NY 13204	PHONE #800-950-5899 FAX # 315-463-7413	IRS 2X			12/31/97	

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251926	INDUSTRIAL BEARING SERVICE 1200 PROSPECT LANE KAUKAUNA WI 54130	PHONE #414-731-3360 FAX # 414-766-9460	IRS 2X		12/31/97				
*019853	INDUSTRIAL BEARING SERVICE 1701 PEARL STREET HAUKESHA WI 53186	PHONE #414-521-1500 FAX # 414-521-1706	IRS 2X		12/31/97				
344937	INDUSTRIAL BEARINGS INC 1423 ANNUNCIATION STREET NEW ORLEANS LA 70130	PHONE #504-522-5553 FAX # 504-522-1569	IRS 2X		12/31/97				
Y68587	INDUSTRIAL BELTING & SUPPLY CO 203-223 DEPOT AVE KNOXVILLE TN 37917	PHONE #423-525-8133 FAX # 423-522-2358	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97				
*326801	INDUSTRIAL GASKET & SHYM CO P O BOX 368 200 COUNTRY CLUB RD BLDG #3 MEADOWLANDS PA 15347	PHONE #412-222-5800 FAX # 412-222-5898	OX 3G 3GY 3X		12/31/97				
346544	INDUSTRIAL GASKET & SUPPLY INC 2025 RUMRILL BLVD SAN PABLO CA 94806	PHONE #510-232-4900 FAX # 510-232-0869	OX 3G 3GY 3M 3X		12/31/97				
*749036	INDUSTRIAL GASKET & SUPPLY INC 23015 S NORMANDEE AVE TORRANCE CA 90502	PHONE #310-530-1771 FAX # 310-530-9572	OX 3G 3GY 3M 3X 4FR		12/31/97				
*352856	INDUSTRIAL GASKET INC 5610 SILVERADO WAY AB ANCHORAGE AK 99518	PHONE #907-562-5565 FAX # 907-562-2464	OX 1X 2EX 2X 3G 3GY 3X 4X 9X		12/31/97				
*341966	INDUSTRIAL GASKET INC 2770 REVERE STREET SUITE 8 DENVER CO 80239	PHONE #303-375-9253 FAX # 303-371-0878	OX 1X 2X 3G 3GY 3M 3X 4X 9X		12/31/97				
*083709	INDUSTRIAL GASKET INC 6643 S 216TH STREET KENT WA 98032	PHONE #206-395-3848 FAX # 206-395-3862	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97				
*352443	INDUSTRIAL GASKET INC 2210 SOUTH 3400 WEST SALT LAKE CITY UT 84119	PHONE #801-974-5777 FAX # 801-974-5869	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97				
322651	INDUSTRIAL GASKET INC 2325 SH RIDGER RD SUITE 420 WILSONVILLE OR 97070	PHONE #503-685-9092 FAX # 503-685-9043	OX 1X 2X 3G 3GY 3M 3X 4X 9X		12/31/97				
*352573	INDUSTRIAL PARTS DEPOT 23231 S NORMANDEE TORRANCE CA 90501	PHONE #310-530-1900 FAX # 310-530-2708	1X 2X 3X		12/31/97				
368498	INDUSTRIAL PIPING SYSTEMS 1307 COMMERCE PARK DR WILLIAMSPORT PA 17701	PHONE #717-326-3033 FAX # 717-326-3122	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97				
*331819	INDUSTRIAL PIPING SYSTEMS 1250 IONONITA STREET YORK PA 17402	PHONE #717-844-7473 FAX # 717-844-0032	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97				

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*040958	INDUSTRIAL RUBBER & GASKET CO P O BOX 6116 ALEXANDRIA LA 71307-6116	PHONE #318-448-1625 FAX # 318-442-8415	OX 1X 2X 3G 3GY 3X 4X 9X		12/31/97				
*023846	INDUSTRIAL RUBBER & SAFETY PRO 1600 E 27TH ST P O BOX 911 CHATTANOOGA TN 37401	PHONE #423-698-8041 FAX # 423-622-2117	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97				
366658	INDUSTRIAL SUPPLIES INC HIGHWAY 20 WEST DECATUR AL 35601	PHONE #205-353-3400 FAX # 205-353-3737	IRS 2X		12/31/97				
343236	INDUSTRIAL SUPPLIES INC 3300 MAYNEVILLE ROAD MONTGOMERY AL 36108	PHONE #205-263-2400 FAX # 205-263-2532	IRS 2EX 2X		12/31/97				
315788	INDUSTRIAL SUPPLIES INC 1822 EAST AVALON AVENUE MUSCLE SHOALS AL 35661	PHONE #205-283-4280 FAX # 205-381-3244	IRS 2X		12/31/97				
335240	INDUSTRIAL SUPPLIES INC P O BOX 7199 10102 N PALAFOX STREET PENSACOLA FL 32534	PHONE #800-648-4468 FAX # 904-484-4305	IRS 2X		12/31/97				
312413	INDUSTRIAL SUPPLIES INC BIRMINGHAM WAREHOUSE 1439 PETTYJOHN ROAD SHANNON AL 35142	PHONE #205-942-0111 FAX # 205-940-7001	IRS 2EX 2X		12/31/97				
341636	INDUSTRIAL SUPPLY PRODUCTS INC 1620 SOUTH 13TH STREET P O BOX 6189 KANSAS CITY KS 66106	PHONE #913-262-0702 FAX # 913-262-0885	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97				
000422	INDUSTRIAL SUPPLY PRODUCTS INC 116 MONROE TOPEKA KS 66601	PHONE #913-235-3108 FAX # 913-235-3309	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97				
347229	INDUSTRIAL SUPPLY PRODUCTS INC 1542 N MOSLEY WICHITA KS 67214	PHONE #316-265-1233 FAX # 316-265-6070	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X		12/31/97				
*346875	INTEGRATED TURBO MACHINERY INC 7411 TELEGRAPH ROAD MONTELEO CA 90640	PHONE #213-726-5206 FAX # 213-726-5206	2EX 2X		12/31/97				
260786	INTERNATIONAL TRADING SERVICES 2250 COFFEE PORT ROAD BROWNVILLE TX 78523	PHONE #210-831-8691 FAX # 210-831-2740	2X		12/31/97				
338632	INTERSTATE BEARING 3801 COMMERCE DRIVE BISMARCK ND 58501	PHONE #701-258-2303 FAX # 701-224-0322	IRS 2X		12/31/97				
338616	INTERSTATE BEARING 3902 12TH AVENUE NORTH FARGO ND 58102	PHONE #701-232-6994 FAX # 701-277-1006	IRS 2X		12/31/97				
338624	INTERSTATE BEARING 1002 S 48TH STREET GRAND FORKS ND 58201	PHONE #701-726-0854 FAX # 701-775-9096	IRS 2X		12/31/97				

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366229	INTERSTATE BEARING 11938 W SILVER SPRING DR MILWAUKEE WI 53225	PHONE #414-461-2277 FAX # 414-461-6263	IRS 2X	12/31/97	
*338582	INTERSTATE BEARING 2601 EAST 80TH STREET MINNEAPOLIS MN 55425	PHONE #612-854-5511 FAX # 612-854-2999	IRS 2X	12/31/97	
338590	INTERSTATE BEARING 1921 16TH AVE WEST VIRGINIA MN 55792	PHONE #218-749-4484 FAX # 218-749-3927	IRS 2X	12/31/97	
338483	INTERSTATE BEARING 2914 4TH STREET S WAITE PARK MN 56387	PHONE #320-255-0804 FAX # 320-255-0928	IRS 2X	12/31/97	
*429522	INTERSTATE GASKET CO ROUTE 56 PO BOX 207 LEICESTER MA 01524	PHONE #508-892-4342 FAX # 508-892-9318	OX 3G 3GY 3X	12/31/97	
*327544	INTEX RUBBER & SPECIALTY 907 OLD TEMPLE RD P.O. BOX 67 HENRITT TX 76643	PHONE #817-666-0099 FAX # 817-666-1238	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	
*362228	INVETECH COMPANY 1400 HOWARD STREET DETROIT MI 48216	PHONE #313-963-6011 FAX # 313-963-5561	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	
429795	IOMA BEARING CO 802 FIRST STREET, SOUTHEAST CEDAR RAPIDS IA 52406	PHONE #319-364-2443 FAX # 319-364-1266	IRS 2X	12/31/97	
429811	IOMA BEARING CO 120 EAST 29TH UNIT A DAVENPORT IA 52807	PHONE #319-386-3226 FAX # 319-386-3227	IRS 2X	12/31/97	
429803	IOMA BEARING CO 171 GUTHRIE AVE DES MOINES IA 50316	PHONE #515-263-1484 FAX # 515-263-1612	IRS 2X	12/31/97	
333144	J B NASE CO INC 1115 GUTHRIE AVE JACKSONVILLE FL 32204	PHONE #904-355-4579 FAX # 904-355-3833	3A 3GA	12/31/97	
351668	J O GALLOUP CO 1001 E CIRCLE ANN ARBOR MI 48108	PHONE #313-668-0490 FAX # 313-668-0334	OX 1X 2EX 3G 3GY 3X 4X 9X	12/31/97	
*135491	J O GALLOUP CO 1300 S 25TH ROAD BATTLE CREEK MI 49015	PHONE #616-965-2303 FAX # 616-965-3263	OX 1X 2EX 3G 3GY 3X 4X 9X	12/31/97	
203968	J O GALLOUP CO 3517 SCHEELE DR JACKSON MI 49201	PHONE #517-787-6650 FAX # 517-787-6654	OX 1X 2EX 3G 3GY 3X 4X 9X	12/31/97	
187690	J O GALLOUP CO 2800 WILKINSON STREET KALAMAZOO MI 49001	PHONE #616-382-1190 FAX # 616-382-0731	OX 1X 2EX 3G 3GY 3X 4X 9X	12/31/97	

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311233	J O GALLOUP CO 1223 MACO DR LANSING MI 48912	PHONE #517-482-2170 FAX # 517-482-3020	OX 1X 2EX 3G 3GY 3X 4X 9X	12/31/97	
364751	J O GALLOUP CO 5562 EAST TEN MILE ROAD WARREN MI 48091	PHONE #810-759-1080 FAX # 810-759-1084	OX 1X 2EX 3G 3GY 3X 4X 9X	12/31/97	
*551093	J P KUSHNELL PACKING CO 3041 LOCUST ST ST LOUIS MO 63103	PHONE #314-531-5831	3M	12/31/97	
*345421	J W EQUIPMENT INC 6045 W CHANDLER BLVD SUITE 6-218 CHANDLER AZ 85226	PHONE #602-940-9043 FAX # 602-940-9044	OX 1X 2EX 3G 3X 4X	12/31/97	
345470	J-MAR MARINE INDUSTRIES INC DIY JACKSONVILLE MARINE SPLY 13102 S 28TH STREET N ST PETERSBURG FL 33716	PHONE #813-572-0192 FAX # 813-573-1930	4FO 4PM	12/31/97	
*379107	JAMES E DOOLEY CO 828 SUSSEX BLVD BROOKHALL PA 19008-4309	PHONE #610-326-2720 FAX # 610-328-6229	OX 1RS 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*351445	JAMES MCGRAM INC P O BOX 988 810 E MADISON STREET BLDG 1 COVINGTON VA 24426	PHONE #703-942-7412 FAX # 703-942-7323	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
*029156	JAMES MCGRAM INC 1491 HANCOCK STREET P O BOX 0014 DALEVILLE VA 24083	PHONE #540-966-2231 FAX # 540-966-4486	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
348763	JAMES MCGRAM INC 2003 NORTH GREENE STREET GREENVILLE NC 27834	PHONE #919-758-4444 FAX # 919-758-0300	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
*331371	JAMES MCGRAM INC 1266 25TH ST PL SE P O BOX 1907 HICKORY NC 28601	PHONE #704-322-3158 FAX # 704-322-2948	OX 1X 2EX 2X 4PM	12/31/97	*
*529628	JAMES MCGRAM INC PO BOX 10006 1701 HAYFLOWER DRIVE LYNCHBURG VA 24506	PHONE #804-847-7737 FAX # 804-844-5461	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
331363	JAMES MCGRAM INC 1227 HACKER DR RALEIGH NC 27684	PHONE #919-833-5584 FAX # 919-832-6623	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
529636	JAMES MCGRAM INC 1700 DEEPWATER TERMINAL ROAD RICHMOND VA 23234	PHONE #804-233-3071 FAX # 804-231-9120	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
*329466	JAMES MCGRAM INC ROUTE 4 PO BOX 400 MAYNESBORO VA 22980	PHONE #703-949-4919	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*

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529610	JAMES MCGRAW INC 136 W MARKET DRIVE WINCHESTER VA 22601	PHONE #703-869-6612 FAX # 703-869-6740	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
4007344	JNO J BISCH CO 116 COUTANT AVE CLEVELAND OH 44107	PHONE #216-521-1190 FAX # 216-521-9314	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
254235	JOHN DAY CO 6263 ABBOTT DRIVE OMAHA NE 68110	PHONE #402-455-8000 FAX # 402-457-3812	OX 1X 3G 3GY 3X 4X 9X	12/31/97	
807834	JOHNSON PACKINGS & IND PRODUCT 21 DEER PARK DRIVE PO BOX 545 EAST LONGMEADOW MA 01028	PHONE #413-525-5555 FAX # 413-525-5520	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
360628	JOHNSON PACKINGS & IND PRODUCT ONE INDUSTRIAL WAY UNIT 9 PORTLAND ME 04103	PHONE #207-797-9212	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*668186	JONESBORO BEARING & SUPPLY INC 2201 INDUSTRIAL DRIVE PO BOX 6020 JONESBORO AR 72401-6020	PHONE #501-932-6803 FAX # 501-972-5917	IRS 2X	12/31/97	
*176214	KAI R KUHL CO INC 3170 EAST 11TH ST LOS ANGELES CA 90023-3663	PHONE #213-264-8313 FAX # 213-264-1512	OX 1X 2EX 2X 3G 3GY 3X	12/31/97	S
328500	KAMAN AIRCRAFT PRODUCTS DIV OF KAMAN IND TECH CORP 2265 WARD AVE UNIT C SIMI VALLEY CA 93065	PHONE #805-520-9465 FAX # 805-520-0360	IRS 2X	12/31/97	
275132	KAMAN INDUSTRIAL TECH CORP 240 E VERDUGO BLVD BURBANK CA 91502	PHONE #818-842-4573 FAX # 818-842-4252	IRS 2X	12/31/97	
267417	KAMAN INDUSTRIAL TECHNOLOGIES 2 BINGHAMTON STREET ALBANY NY 12202	PHONE #518-427-2320 FAX # 518-427-2350	IRS 2X	12/31/97	
026849	KAMAN INDUSTRIAL TECHNOLOGIES 1613 FIRST STREET N W ALBUQUERQUE NM 87125	PHONE #505-247-0222 FAX # 505-242-8205	IRS 2X	12/31/97	
378042	KAMAN INDUSTRIAL TECHNOLOGIES 3835 INDEPENDENCE DRIVE ALEXANDRIA LA 71303	PHONE #518-442-1411 FAX # 518-442-1433	IRS 2X	12/31/97	
212555	KAMAN INDUSTRIAL TECHNOLOGIES 1040 NORTH IRVING STREET ALLENTOWN PA 18001	PHONE #215-434-7686 FAX # 215-432-1225	IRS 2X	12/31/97	
317642	KAMAN INDUSTRIAL TECHNOLOGIES 2871 E VIA MARTENS ANAHEIM CA 92806-1751	PHONE #714-772-4081 FAX # 714-666-1961	IRS 2X	12/31/97	
312959	KAMAN INDUSTRIAL TECHNOLOGIES AUBURN INDUSTRIAL PARK A STREET AUBURN MA 01501	PHONE #508-752-1275 FAX # 508-752-4340	IRS 2X	12/31/97	

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882191	KAMAN INDUSTRIAL TECHNOLOGIES 237 WASHINGTON ST AUBURN ME 04210	PHONE #207-784-5445 FAX # 207-784-4900	IRS 2X	12/31/97	
309740	KAMAN INDUSTRIAL TECHNOLOGIES 1404 29TH ST BAKERSFIELD CA 93301	PHONE #805-325-5871 FAX # 805-325-5941	IRS 2X	12/31/97	
862565	KAMAN INDUSTRIAL TECHNOLOGIES 305 TARGET CIRCLE BANGOR ME 04401	PHONE #207-947-1035 FAX # 207-947-3111	IRS 2X	12/31/97	
323998	KAMAN INDUSTRIAL TECHNOLOGIES 8839 SOUTH EASTERN AVE BELL CA 90201	PHONE #213-263-8584 FAX # 213-263-1498	IRS 2X	12/31/97	
241745	KAMAN INDUSTRIAL TECHNOLOGIES 22 STONEY HILL BTE 6 BETHEL CT 06801	PHONE #203-744-7053 FAX # 203-743-2658	IRS 2X	12/31/97	
247486	KAMAN INDUSTRIAL TECHNOLOGIES 1001 LOWER LANDING RD BLACKHOOD NJ 08012	PHONE #609-227-7000 FAX # 609-227-1192	IRS 2X	12/31/97	
*363358	KAMAN INDUSTRIAL TECHNOLOGIES 1330 BLUE HILLS AVE PO BOX 1 BLOOMFIELD CT 06002-0001	PHONE #203-243-7875	1X 2X	12/31/97	
947416	KAMAN INDUSTRIAL TECHNOLOGIES 1600 COMMERCE BOISE ID 83701	PHONE #208-342-6583 FAX # 208-342-7706	IRS 2X	12/31/97	
378059	KAMAN INDUSTRIAL TECHNOLOGIES 12842 PENNBRIDGE DRIVE BRIDGEYTON MO 63044	PHONE #314-209-1103 FAX # 314-209-1134	IRS 2X	12/31/97	
763615	KAMAN INDUSTRIAL TECHNOLOGIES 2407 ARTHUR ST CALDWELL ID 83405	PHONE #208-459-6301 FAX # 208-454-8226	IRS 2X	12/31/97	
102533	KAMAN INDUSTRIAL TECHNOLOGIES 480 NEPONSET STREET CANTON MA 02021	PHONE #617-828-8888 FAX # 617-828-0810	IRS 2X	12/31/97	
205112	KAMAN INDUSTRIAL TECHNOLOGIES 2145 PARK AVENUE CHICO CA 95926	PHONE #916-345-5171 FAX # 916-345-0654	IRS 2X	12/31/97	
728675	KAMAN INDUSTRIAL TECHNOLOGIES 3340 RIVERSIDE DRIVE SUITE G CHINO CA 91710	PHONE #909-590-8705 FAX # 909-590-0077	IRS 2X	12/31/97	
261305	KAMAN INDUSTRIAL TECHNOLOGIES 2200 HARDY PARKWAY PO BOX 23107 COLUMBUS OH 43233	PHONE #614-871-1893 FAX # 614-871-2200	IRS 2X	12/31/97	
947408	KAMAN INDUSTRIAL TECHNOLOGIES 2678 EUDORA ST COMMERCE CITY CO 80022	PHONE #303-289-3282 FAX # 303-289-4214	1X 2X	12/31/97	S

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353334	KAMAN INDUSTRIAL TECHNOLOGIES 1625 E. 6TH STREET A3 CA 91719	PHONE #714-272-8880 FAX # 714-272-6948	1RS 2X	12/31/97	
342477	KAMAN INDUSTRIAL TECHNOLOGIES 101 OLD GARIFFIN ROAD DAHA 33004	PHONE #954-920-4058 FAX # 954-921-6487	1RS 2X	12/31/97	
329680	KAMAN INDUSTRIAL TECHNOLOGIES 760 JASON ST CO 80223	PHONE #303-777-1301 FAX # 303-777-6948	1RS 2EX 2X	12/31/97	
212589	KAMAN INDUSTRIAL TECHNOLOGIES 503 GOVERNORS AVE DE 19903	PHONE #302-674-2943 FAX # 302-674-3807	1RS 2X	12/31/97	
336941	KAMAN INDUSTRIAL TECHNOLOGIES 200 N SUPERIOR ST MN 55806	PHONE #218-727-7284 FAX # 218-727-2372	1RS 2X	12/31/97	
817601	KAMAN INDUSTRIAL TECHNOLOGIES ONE TECHNOLOGY PLACE SAY SYRACUSE NY 13057	PHONE #315-437-2771 FAX # 315-437-3197	1RS 2X	12/31/97	
254748	KAMAN INDUSTRIAL TECHNOLOGIES 1900 LOGMOOD ROAD CA 92243	PHONE #619-352-6460 FAX # 619-352-0251	1RS 2X	12/31/97	
329730	KAMAN INDUSTRIAL TECHNOLOGIES 6839 COMMERCE AVE TX 79915	PHONE #915-778-8880 FAX # 915-775-1102	1RS 2X	12/31/97	
370585	KAMAN INDUSTRIAL TECHNOLOGIES 1800 RIVER ROAD UNIT C NV 89801	PHONE #702-753-7535 FAX # 702-753-7533	1RS 2X	12/31/97	
817742	KAMAN INDUSTRIAL TECHNOLOGIES ELMIRA COUNTY RT #64 NY 14903	PHONE #607-739-8385 FAX # 607-739-7016	1RS 2X	12/31/97	
209601	KAMAN INDUSTRIAL TECHNOLOGIES 200 HILLSDALE RD PA 16508	PHONE #814-868-5295 FAX # 814-868-3331	1RS 2X	12/31/97	
359887	KAMAN INDUSTRIAL TECHNOLOGIES 1800 S PRAIRIE ROAD OR 97402	PHONE #503-469-4413 FAX # 503-461-2378	1RS 2X	12/31/97	
337709	KAMAN INDUSTRIAL TECHNOLOGIES 240 S KOTTER AVENUE IN 47715	PHONE #812-474-1717 FAX # 812-474-1799	1RS 2X	12/31/97	
335943	KAMAN INDUSTRIAL TECHNOLOGIES 1000 SUMMIT AVE MA 08201	PHONE #206-259-3189 FAX # 206-252-0666	1RS 2X	12/31/97	
817478	KAMAN INDUSTRIAL TECHNOLOGIES 20 E FALCONER STREET NY 14733	PHONE #716-665-5510 FAX # 716-665-3855	1RS 2X	12/31/97	
113761	KAMAN INDUSTRIAL TECHNOLOGIES 1800 SAN JUAN BLVD FARMINGTON NM 87401	PHONE #505-327-5033 FAX # 505-326-0341	1RS 2X	12/31/97	

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102186	KAMAN INDUSTRIAL TECHNOLOGIES 490 EAST BUTLER FLAGSTAFF AZ 86001	PHONE #520-774-7159 FAX # 520-779-5641	1RS 2X	12/31/97	
321919	KAMAN INDUSTRIAL TECHNOLOGIES 1500 S SARAH AVE CA 93706	PHONE #209-233-2571 FAX # 209-233-0928	1RS 2X	12/31/97	
322677	KAMAN INDUSTRIAL TECHNOLOGIES 324 S SUMMIT VIEW RD FT COLLINS CO 80524	PHONE #303-493-7135 FAX # 303-493-2437	1RS 2X	12/31/97	
261453	KAMAN INDUSTRIAL TECHNOLOGIES 7510 HONEYMELL DRIVE IN 46825	PHONE #219-483-1121 FAX # 219-483-1226	1RS 2X	12/31/97	
169672	KAMAN INDUSTRIAL TECHNOLOGIES 2 GLENS FALLS TECH PARK GLENS FALLS NY 12801	PHONE #518-792-2131 FAX # 518-792-5480	1RS 2X	12/31/97	
344598	KAMAN INDUSTRIAL TECHNOLOGIES US HIGHWAY 119 SOUTH PO BOX 859 HARLAN KY 40831	PHONE #606-573-5058 FAX # 606-573-5312	OX 1X 2EX 2X 4PM	12/31/97	
232538	KAMAN INDUSTRIAL TECHNOLOGIES 1015 EISENHOWER BLVD HARRISBURG PA 17111	PHONE #717-939-9327 FAX # 717-939-1299	1RS 2X	12/31/97	
212597	KAMAN INDUSTRIAL TECHNOLOGIES 2940 TURNPIKE DRIVE P.O. BOX 728 MATSONG PA 19040	PHONE #215-442-5699 FAX # 215-442-5686	1RS 2X	12/31/97	
349736	KAMAN INDUSTRIAL TECHNOLOGIES 255 85ER AVE HAUPPAUGE NY 11788	PHONE #516-436-5090 FAX # 516-436-5078	1RS 2X	12/31/97	
105379	KAMAN INDUSTRIAL TECHNOLOGIES 285 CENTENNIAL DRIVE HEYBURN ID 83336	PHONE #208-436-1900 FAX # 208-436-1903	1RS 2X	12/31/97	
862607	KAMAN INDUSTRIAL TECHNOLOGIES 502 BLDG STREET HILLSIDE HILLSIDE NJ 07205	PHONE #908-687-0004 FAX # 908-687-6621	1RS 2X	12/31/97	
323881	KAMAN INDUSTRIAL TECHNOLOGIES 374 KALANIAQA STREET HILO HI 96720	PHONE #808-935-6496 FAX # 808-935-7075	1RS 2X	12/31/95	
308205	KAMAN INDUSTRIAL TECHNOLOGIES 3267 KOAPAKA ST HONOLULU HI 96819	PHONE #808-836-1371 FAX # 808-836-0538	1RS 2X	12/31/95	
616953	KAMAN INDUSTRIAL TECHNOLOGIES 725 S UTAH AVE LOANO FALLS ID 83401	PHONE #208-523-6811 FAX # 208-524-6250	1RS 2X	12/31/97	
273060	KAMAN INDUSTRIAL TECHNOLOGIES 2040 S BURNST DRIVE INDIANAPOLIS IN 46241	PHONE #317-248-8355 FAX # 317-243-3442	1RS 2X	12/31/97	

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728683	KAMAN INDUSTRIAL TECHNOLOGIES 45480 COMMERCE RD INDIO CA 92201	PHONE #619-347-3586 FAX # 619-342-4971	1RS 2X 4X	12/31/97	S
377580	KAMAN INDUSTRIAL TECHNOLOGIES 101 N CONALCO DRIVE JACKSON TN 38301	PHONE #901-421-1555	1X 2EX 2X	12/31/97	
342160	KAMAN INDUSTRIAL TECHNOLOGIES 339 AHO STREET KAHULUI HI 96732	PHONE #808-877-6524 FAX # 808-877-4720	1RS 2X	12/31/95	
360131	KAMAN INDUSTRIAL TECHNOLOGIES P O BOX 1176 117 EAST RESERVE DRIVE KALISPELL MI 59901	PHONE #406-752-4415 FAX # 406-752-5643	1RS 2X	12/31/97	
203133	KAMAN INDUSTRIAL TECHNOLOGIES 2701 BEARCO LOOP P.O. BOX 1023 LA GRANDE OR 97850	PHONE #503-963-8556 FAX # 503-963-4215	1RS 2X	12/31/97	
293233	KAMAN INDUSTRIAL TECHNOLOGIES 400 F. H. HUBBEE DR. LAFAYETTE IN 47905	PHONE #317-448-4529 FAX # 317-447-4582	1RS 2X	12/31/97	
068155	KAMAN INDUSTRIAL TECHNOLOGIES 2830 ORANGE FIELD ROAD LAKELAND FL 33811	PHONE #813-646-8554 FAX # 813-646-8558	1RS 2X	12/31/97	
212563	KAMAN INDUSTRIAL TECHNOLOGIES 1550 HANHEIM PIKE LANCASTER PA 17604	PHONE #717-569-8523 FAX # 717-560-1557	1RS 2X	12/31/97	
044297	KAMAN INDUSTRIAL TECHNOLOGIES 20 AVIS DR. GURTELL IND. PARK LATHAM NY 12110	PHONE #518-783-8114 FAX # 518-782-4720	1RS 2X	12/31/97	
338384	KAMAN INDUSTRIAL TECHNOLOGIES 505 E 22ND ST. N. LEHISTON ID 83501	PHONE #208-743-1110 FAX # 208-743-1224	1RS 2X	12/31/97	
315283	KAMAN INDUSTRIAL TECHNOLOGIES 848 N. HANCOCK BLVD. LEXINGTON KY 40511	PHONE #606-252-5522 FAX # 606-252-9263	1RS 2X	12/31/97	
344122	KAMAN INDUSTRIAL TECHNOLOGIES 1220 FINDLAY RD. LIMA OH 45801	PHONE #419-227-7613 FAX # 419-227-7960	1RS 2X	12/31/97	
326587	KAMAN INDUSTRIAL TECHNOLOGIES 311 N. PACIFIC COAST HWY LONG BEACH CA 90806	PHONE #310-591-3831 FAX # 310-593-2834	1RS 2X	12/31/97	
062299	KAMAN INDUSTRIAL TECHNOLOGIES 44 N. HAYFIELD STREET MASSENA NY 13662	PHONE #315-764-0592 FAX # 315-764-0716	1RS 2X	12/31/97	
862573	KAMAN INDUSTRIAL TECHNOLOGIES 55 EASTERN STEEL ROAD MILFORD CT 06460	PHONE #203-882-5906 FAX # 203-882-5339	1RS 2X	12/31/97	

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336412	KAMAN INDUSTRIAL TECHNOLOGIES 4950 WEST 35TH ST MINNEAPOLIS MN 55416	PHONE #612-927-9841 FAX # 612-927-0011	1RS 2X	12/31/97	
339127	KAMAN INDUSTRIAL TECHNOLOGIES 1377 YOSEMITE BLVD MODESTO CA 95354	PHONE #209-523-8555 FAX # 209-523-9317	1RS 2X	12/31/97	
365635	KAMAN INDUSTRIAL TECHNOLOGIES 4210 WEST RIVER ROAD MORAINE OH 45439	PHONE #937-298-5836 FAX # 937-298-8435	1RS 2EX 2X	12/31/97	
310524	KAMAN INDUSTRIAL TECHNOLOGIES 220 KILGORE AVE MUNCIE IN 47304	PHONE #317-288-0228 FAX # 317-288-6478	1RS 2X	12/31/97	
242966	KAMAN INDUSTRIAL TECHNOLOGIES 4 TOWNSEND WEST NASHUA NH 03063	PHONE #603-884-0551 FAX # 603-886-3451	1RS 2X	12/31/97	
299503	KAMAN INDUSTRIAL TECHNOLOGIES 320 BELLEVILLE RD NEM BEDFORD MA 02741	PHONE #508-947-9837 FAX # 617-997-5839	1RS 2X	12/31/97	
280701	KAMAN INDUSTRIAL TECHNOLOGIES AIRPORT INDUSTRIAL CENTER 128 QUIGLEY BLVD NEM CASTLE DE 19720	PHONE #302-328-3888 FAX # 302-328-4991	1RS 2X	12/31/97	
378034	KAMAN INDUSTRIAL TECHNOLOGIES 5624 HEEBE STREET NEM ORLEANS LA 70123	PHONE #504-279-3598 FAX # 504-733-6801	1RS 2X	12/31/97	
862540	KAMAN INDUSTRIAL TECHNOLOGIES ONE JEANNE DRIVE P.O. BOX 7125 NEWBURGH NY 12550	PHONE #914-566-0054 FAX # 914-566-0492	1RS 2X	12/31/97	
817635	KAMAN INDUSTRIAL TECHNOLOGIES 26TH & HENRY NIAGARA FALLS NY 14304	PHONE #716-283-6200 FAX # 716-283-0928	1RS 2X	12/31/97	
862623	KAMAN INDUSTRIAL TECHNOLOGIES 1530 JERSEY CAY NORTH BRUNSWICK NJ 08902	PHONE #908-249-5200 FAX # 908-249-8277	1RS 2X	12/31/97	
329581	KAMAN INDUSTRIAL TECHNOLOGIES 840 WEST 24TH STREET OGDEN UT 84401	PHONE #801-399-5683 FAX # 801-399-0735	1RS 2X	12/31/97	
342956	KAMAN INDUSTRIAL TECHNOLOGIES 910 S. HAMAKER AVE ONTARIO CA 91761	PHONE #714-988-0631	1RS 2X	12/31/97	
333575	KAMAN INDUSTRIAL TECHNOLOGIES 268 SE 2ND STREET ONTARIO OH 43094	PHONE #503-889-9143 FAX # 503-889-6362	1RS 2X	12/31/97	
001891	KAMAN INDUSTRIAL TECHNOLOGIES 175 SOUTH 1400 WEST OREM UT 84057	PHONE #801-225-5477 FAX # 801-225-5443	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	

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361121	KAMAN INDUSTRIAL TECHNOLOGIES 3626 SILVER STAR ROAD ORLANDO FL 32808	PHONE #407-292-3353 FAX # 407-292-3356	1RS 2X	12/31/97	
211177	KAMAN INDUSTRIAL TECHNOLOGIES 2930 LOS OLIVOS SUITE 120 Oxnard CA 93030	PHONE #805-981-9044 FAX # 805-981-9344	1RS 2X	12/31/97	
364588	KAMAN INDUSTRIAL TECHNOLOGIES 427 NORTH OREGON PASCO WA 99301	PHONE #509-545-8418 FAX # 509-545-8459	1RS 2X	12/31/97	
102202	KAMAN INDUSTRIAL TECHNOLOGIES BUILDING B SUITE 1 1001 S 54TH AVE PHOENIX AZ 85043	PHONE #602-272-2381 FAX # 602-484-0479	1RS 2X	12/31/97	
782029	KAMAN INDUSTRIAL TECHNOLOGIES 2601 SOUTH 24TH STREET PHOENIX AZ 85034	PHONE #602-273-1641 FAX # 602-273-7926	1RS 2X	12/31/97	
022533	KAMAN INDUSTRIAL TECHNOLOGIES 110 BROWN STREET PITTSBURGH PA 15204	PHONE #717-655-6866 FAX # 717-655-9831	1RS 2X	12/31/97	
238188	KAMAN INDUSTRIAL TECHNOLOGIES 32 VETERANS LANE SUITE A PLATTSBURGH NY 12901	PHONE #518-563-5860 FAX # 518-561-0113	1RS 2X	12/31/97	
030502	KAMAN INDUSTRIAL TECHNOLOGIES 2610 GARRETT WAY - B1-B4 PO BOX 4206 POCATELLO ID 83205-4206	PHONE #208-233-0762 FAX # 208-233-2961	1RS 2X	12/31/97	
369918	KAMAN INDUSTRIAL TECHNOLOGIES 930 MARINE DRIVE PORT ANGELES WA 98362	PHONE #206-417-3020 FAX # 206-417-3025	1RS 2X	12/31/97	
339879	KAMAN INDUSTRIAL TECHNOLOGIES 1703 NE ARGYLE PORTLAND OR 97211	PHONE #503-283-3040 FAX # 503-283-0573	1RS 2X	12/31/97	
253245	KAMAN INDUSTRIAL TECHNOLOGIES 60 SOUTH 700 EAST UNIT 2 PO BOX 1406 PRICE UT 84501-1406	PHONE #801-637-4122 FAX # 801-637-7068	1RS 2X	12/31/97	
063229	KAMAN INDUSTRIAL TECHNOLOGIES 20 GREENWOOD STREET PUEBLO CO 81003	PHONE #719-542-2712 FAX # 719-542-6933	1RS 1X 2X 3G 3GV 3M 3X 4X 9X	12/31/97	
748749	KAMAN INDUSTRIAL TECHNOLOGIES 715 24TH STREET RANCHO CUCAMONGA CA 91730	PHONE #714-823-1368 FAX # 714-823-1739	1RS 2X	12/31/97	
212522	KAMAN INDUSTRIAL TECHNOLOGIES 1000 VICTOR ST READING PA 19612	PHONE #215-374-6241 FAX # 215-374-8337	1RS 2X	12/31/97	
728667	KAMAN INDUSTRIAL TECHNOLOGIES 3093 KANSAS AVE RIVERSIDE CA 92507	PHONE #714-883-6503 FAX # 714-883-3359	1RS 2X	12/31/97	

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364182	KAMAN INDUSTRIAL TECHNOLOGIES KAL & SYSTEMS CENTER 156 MUSHROOM BLVD ROCHESTER NY 14623-3204	PHONE #716-424-1730 FAX # 716-424-1747	1RS 2X	12/31/97	
328385	KAMAN INDUSTRIAL TECHNOLOGIES 2024 S BROADWAY STREET ROCHESTER MN 55901	PHONE #507-289-1808 FAX # 507-289-5791	1RS 2X	12/31/97	
817627	KAMAN INDUSTRIAL TECHNOLOGIES 157 LA GRANGE AVE ROCHESTER NY 14613	PHONE #716-254-3730 FAX # 716-254-8534	1RS 2X	12/31/97	
001909	KAMAN INDUSTRIAL TECHNOLOGIES 1981 YELLOWSTONE ROAD ROCK SPRINGS WY 82901	PHONE #307-362-3719 FAX # 307-362-1045	1RS 2EX 2X	12/31/97	
343657	KAMAN INDUSTRIAL TECHNOLOGIES 1536 AUSTIN ROAD ROSEBURG OR 97470	PHONE #503-679-8755 FAX # 503-679-9671	1RS 2X	12/31/97	
276568	KAMAN INDUSTRIAL TECHNOLOGIES 316 LITTLEFIELD AVE S. SAN FRANCISCO CA 94080	PHONE #415-589-6800 FAX # 415-589-0746	1RS 2X	12/31/97	
862516	KAMAN INDUSTRIAL TECHNOLOGIES 326 MARKET ST SADDLE BROOK NJ 07462	PHONE #201-845-8774 FAX # 201-845-5581	1RS 2X	12/31/97	
212548	KAMAN INDUSTRIAL TECHNOLOGIES ALEXANDER AVE SALISBURY MD 21801	PHONE #301-742-9424 FAX # 301-749-1309	1RS 2X	12/31/97	
339333	KAMAN INDUSTRIAL TECHNOLOGIES 4370 WEST 1750 SOUTH SALT LAKE CITY UT 84104	PHONE #801-975-2085 FAX # 801-975-2079	1RS 2X	12/31/97	
073379	KAMAN INDUSTRIAL TECHNOLOGIES 3173 WEST 2100 SOUTH SALT LAKE CITY UT 84126	PHONE #801-973-8868 FAX # 801-973-6701	1RS 2X	12/31/97	
748764	KAMAN INDUSTRIAL TECHNOLOGIES 168 S ARROWHEAD AVE SAN BERNARDINO CA 92408	PHONE #714-885-6565 FAX # 714-884-2993	1RS 2X	12/31/97	
210039	KAMAN INDUSTRIAL TECHNOLOGIES 1675 NEWTON AVE SAN DIEGO CA 92113	PHONE #619-233-5311 FAX # 619-234-0803	1RS 2X	12/31/97	
342485	KAMAN INDUSTRIAL TECHNOLOGIES 2116 ADAMS AVE SAN LEANDRO CA 94477	PHONE #510-632-8506 FAX # 510-632-9549	1RS 2X	12/31/97	
351007	KAMAN INDUSTRIAL TECHNOLOGIES 1355 GRAND AVE SUITE 103 SAN MARCOS CA 92069	PHONE #619-471-6222 FAX # 619-471-6832	1RS 2X	12/31/97	
291625	KAMAN INDUSTRIAL TECHNOLOGIES 1565 E EDINGER SANTA ANA CA 92705	PHONE #714-285-0640 FAX # 714-285-0624	1X 2X 4X	12/31/97	

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326306	KAMAN INDUSTRIAL TECHNOLOGIES 1450 W MCCOY LN #C SANTA MARIA CA 93454	PHONE #805-925-9516 FAX # 805-922-2722	IRS 2X		12/31/97	
329714	KAMAN INDUSTRIAL TECHNOLOGIES SUITE 705 2203 AIRPORT WAY S SEATTLE WA 98134	PHONE #206-682-4081 FAX # 206-682-1875	IRS 2X		12/31/97	
345728	KAMAN INDUSTRIAL TECHNOLOGIES 755 MOOPER SODA SPRINGS ID 83276	PHONE #208-547-3347 FAX # 208-547-4735	IRS 2X		12/31/97	
862326	KAMAN INDUSTRIAL TECHNOLOGIES 75 DARLING AVE SOUTH PORTLAND ME 04106	PHONE #207-774-5733 FAX # 207-772-6273	IRS 2X		12/31/97	
614719	KAMAN INDUSTRIAL TECHNOLOGIES 882 FREEMONT BLVD SPARKS NV 89432	PHONE #702-358-0215 FAX # 702-358-0565	OX 1X 2X 3G 3GY 3X 4X 9X		12/31/97	
010348	KAMAN INDUSTRIAL TECHNOLOGIES EAST 4115 TRENT AVE SPOKANE WA 99220	PHONE #509-535-1611 FAX # 509-535-8379	IRS 2X		12/31/97	
884692	KAMAN INDUSTRIAL TECHNOLOGIES 211 CARANDO DRIVE SPRINGFIELD MA 01101	PHONE #413-732-3168 FAX # 413-737-1804	IRS 2X		12/31/97	
334334	KAMAN INDUSTRIAL TECHNOLOGIES 2324 EAST 11TH STREET TACOMA WA 98421	PHONE #206-383-2723 FAX # 206-383-0573	IRS 2X		12/31/97	
068148	KAMAN INDUSTRIAL TECHNOLOGIES 5609 ADAMO DRIVE TAMPA FL 33601	PHONE #813-628-4404 FAX # 813-628-0425	IRS 2X		12/31/97	
817593	KAMAN INDUSTRIAL TECHNOLOGIES 245 COOPER AVENUE TOMAHAWK NY 14150	PHONE #716-874-7565 FAX # 716-874-7579	IRS 2X		12/31/97	
212571	KAMAN INDUSTRIAL TECHNOLOGIES 1985 E STATE ST EXT TRENTON NJ 08619	PHONE #609-586-4200 FAX # 609-586-6507	IRS 2X		12/31/97	
788463	KAMAN INDUSTRIAL TECHNOLOGIES 4401 S SANTA RITA TUCSON AZ 85714-1643	PHONE #602-889-3324 FAX # 602-889-4998	IRS 2X		12/31/97	
151894	KAMAN INDUSTRIAL TECHNOLOGIES 635 5TH AVE WEST TULSA OK 74101	PHONE #208-733-8562 FAX # 208-733-8127	IRS 2X		12/31/97	
817643	KAMAN INDUSTRIAL TECHNOLOGIES PO BOX 341 UTICA NY 13505	PHONE #315-797-1590 FAX # 315-797-4845	IRS 2X		12/31/97	
817619	KAMAN INDUSTRIAL TECHNOLOGIES 2602 OLD VESTAL RD VESTAL NY 13850	PHONE #607-754-7350 FAX # 607-754-0429	IRS 2X		12/31/97	

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010084	KAMAN INDUSTRIAL TECHNOLOGIES 15056 SEVENTH AVE VICTORVILLE CA 92392	PHONE #619-245-3431 FAX # 619-245-3475	IRS 2X		12/31/97	
339374	KAMAN INDUSTRIAL TECHNOLOGIES HOOVER RD VIRGINIA MN 55792	PHONE #218-741-3747 FAX # 218-741-7371	IRS 2X		12/31/97	
243055	KAMAN INDUSTRIAL TECHNOLOGIES 300 LINCOLN AVE WARHICK RI 02888	PHONE #401-443-7200 FAX # 401-443-5912	IRS 2X		12/31/97	
880138	KAMAN INDUSTRIAL TECHNOLOGIES 843 HAMILTON AVE WATERBURY CT 06705	PHONE #203-753-2188 FAX # 203-753-9234	IRS 2X		12/31/97	
817452	KAMAN INDUSTRIAL TECHNOLOGIES 131 HOULTON ST WATERBURY NY 13401	PHONE #315-782-1020 FAX # 315-782-4151	IRS 2X		12/31/97	
207050	KAMAN INDUSTRIAL TECHNOLOGIES KENNEDY MEMORIAL DRIVE PO BOX 1221 WATERVILLE ME 04901-1221	PHONE #207-445-3126 FAX # 207-445-3703	IRS 2X		12/31/97	
335265	KAMAN INDUSTRIAL TECHNOLOGIES 22A ANDOVER DRIVE WEST HARTFORD CT 06110	PHONE #860-953-4295 FAX # 860-953-1794	IRS 2X		12/31/97	
323899	KAMAN INDUSTRIAL TECHNOLOGIES 2350 DEL MONTE STREET WEST SACRAMENTO CA 95631	PHONE #916-372-7812 FAX # 916-372-4212	IRS 2X		12/31/97	
023267	KAMAN INDUSTRIAL TECHNOLOGIES 1314 UNIT 2 COMMERCE PARK DR PO BOX 1806 WILLIAMSPORT PA 17701	PHONE #717-326-2649 FAX # 717-326-3896	IRS 2X		12/31/97	
103135	KAMAN INDUSTRIAL TECHNOLOGIES INDUSTRIAL PARKWAY ROBURN MA 01861	PHONE #617-935-7590 FAX # 617-935-1100	IRS 2X		12/31/97	
363200	KAMAN INDUSTRIAL TECHNOLOGIES 670 HILLTOP SPRINGS LAKE YORK PA 17403	PHONE #800-443-5273 FAX # 717-264-0303	IRS 2X		12/31/97	
342915	KAMAN INDUSTRIAL TECHNOLOGIES 1601 FIRST AVE YUMA AZ 85364	PHONE #520-782-4723 FAX # 520-782-4024	IRS 2X		12/31/97	
0789834	KANSAS MARINE COMPANY 2511 NW 163RD STREET MCALEER FL 33014	PHONE #305-428-5555 FAX # 305-428-5540	OX 1X 2X 3G 3GY 3X 4X 9X		12/31/97	
344323	KENNETH INDUSTRIAL PRODUCTS 750 BRATT STREET MERYDEN CT 06450	PHONE #800-322-3306 FAX # 203-234-4323	OX 1X 2X 3G 3GY 3X 4X 9X		12/31/97	
344341	KENNETH INDUSTRIAL PRODUCTS 247 HOOVER ROAD MERYDEN CT 06450	PHONE #203-234-2623 FAX # 203-234-4323	OX 1X 2X 3G 3GY 3X 4X 9X		12/31/97	

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039305	KENTUCKY BEARINGS SERVICE INC 509 GORDON AVENUE BOWLING GREEN KY 42102	PHONE #502-781-2461 FAX # 502-842-5819	IRS 2X			12/31/97	
344200	KENTUCKY BEARINGS SERVICE INC 1517 E 9TH STREET HOPKINSVILLE KY 42241	PHONE #502-885-4481 FAX # 502-885-2272	IRS 2X			12/31/97	
313395	KENTUCKY BEARINGS SERVICE INC 1111 MAJAN ROAD LEXINGTON KY 40583	PHONE #606-231-8288 FAX # 606-231-8956	IRS 2X			12/31/97	
026005	KENTUCKY BEARINGS SERVICE INC 1524 ALGONQUIN PKWY LOUISVILLE KY 40232	PHONE #502-636-2571 FAX # 502-635-2268	IRS 2X			12/31/97	
025999	KENTUCKY BEARINGS SERVICE INC AMERICAN BRG & POWER TRANS 900 E 2ND ST OHMSBORO KY 42303	PHONE #502-684-9601 FAX # 502-685-1779	IRS 2X			12/31/97	
347393	KING BEARINGS INC 4107 EASTMOOR RD LOUISVILLE KY 40218	PHONE #502-456-6360 FAX # 502-456-1809	1X 2X			12/31/97	
338574	KNOX BEARING SLS CO 5401 GULF FREEWAY HOUSTON TX 77023	PHONE #713-923-2507 FAX # 713-923-2730	1X 2X			12/31/97	
491738	LAKE CHARLES RUBBER & GSKT CO 930 THIRD AVENUE LAKE CHARLES LA 70601	PHONE #318-433-1002 FAX # 318-436-8289	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			12/31/97	*
351676	LAMONS GASKET COMPANY POWER ENGINEERING DIVISION 25503 1/2TH AVE SOUTH KENT WA 98032	PHONE #206-813-3909 FAX # 206-813-3926	OX 1X 2EX 2X 3G 3GY 3X 4X 9X			12/31/97	
338814	LAMONS METAL GASKET CO 5909 PHELPS STREET MARAHAN LA 70123	PHONE #504-733-4211 FAX # 504-733-4344	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	
702571	LAMONS METAL GASKET CO 3600 CANAL STREET HOUSTON TX 77061	PHONE #713-223-0284 FAX # 713-227-9544	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	
333047	LAMONS METAL GASKET CO 102 QUEENS DR KING OF PRUSSIA PA 19106	PHONE #610-337-9733 FAX # 610-337-1552	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	
263947	LEHIGH GASKET INC 7709 BETH BATH PIKE BATH PA 18014	PHONE #610-837-1818 FAX # 610-837-9582	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	
173880	LIBERAL GASKET MFG CO INC 12 N 5TH STREET PO BOX 2955 LIBERAL KS 67901	PHONE #316-624-4921 FAX # 316-624-8242	OX 1X 3G 3GY 3M 3X 4X			12/31/97	
*880206	LOEMY MACHINERY SUPPLIES CO 33-37 57TH ST WOODSIDE NY 11377-2214	PHONE #718-423-2700 FAX # 718-457-5215	1X 2X 4PM			12/31/97	

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337121	LOWE STAR GASKET & SUPPLY INC 1413 A GRANT ST ODESSA TX 79761	PHONE #915-333-1815 FAX # 915-334-8661	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	
189753	LONGHORN GASKET & SUPPLY CO 2425 N LONGHORN DR LANCASTER TX 75134	PHONE #214-224-9201 FAX # 214-224-8371	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	
232827	LOUISIANA HOSE & RUBBER CO 11730 IRENE HWY BATON ROUGE LA 70817	PHONE #504-293-4250 FAX # 504-291-6623	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	*
203455	LUFKIN RUBBER & GASKET CO INC 501 ALLEN TROUT DR LUFKIN TX 75901-0463	PHONE #409-639-1101 FAX # 409-639-2620	OX 1X 2EX 2X 3G 3GY 3X 4X 9X			12/31/97	*
*207621	LUTY SALES CO INC 479 TURNBERRY DRIVE MANOVER PARK IL 60103	PHONE #708-339-2925 FAX # 708-339-7124	2X			12/31/97	
211417	M F MURDOCK CO 310 WATER ST AKRON OH 44309	PHONE #330-333-7108 FAX # 330-333-1125	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	
*376988	M S O SEALS AND GASKET 10696 HADDINGTON SUITE 100 HOUSTON TX 77043	PHONE #713-468-7800 FAX # 713-468-3663	1X 2X			12/31/97	
*538445	M V B INC 3014 REPUBLIC AVE SE WARREN OH 44484	PHONE #330-349-2100 FAX # 330-349-3215	OX 1X 3G 3GY 3X 4X 9X			12/31/97	
346205	MADEN BEARINGS SUPPLY CO INC 150 N CEDAR ST MOBILE AL 36603	PHONE #334-433-8218 FAX # 334-433-7958	IRS 2X			12/31/97	*
*350322	MAGUIRE BEARING COMPANY LTD 1915 MAU STREET MONOLULU HI 96819	PHONE #808-842-3891 FAX # 808-842-4889	IRS 2X			12/31/97	
*364646	MAR INDUSTRIAL SALES 4865 N LAGOON PORTLAND OR 97217	PHONE #503-285-4541 FAX # 503-285-8075	2X			12/31/97	
190520	MARTINE & PETROLEUM MFG INC 1404 N AVE J FREEPORT TX 77541-2102	PHONE #409-333-8271 FAX # 409-333-8108	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	
*027466	MARTINE & PETROLEUM MFG INC 9426 OLD KATY RD HOUSTON TX 77055	PHONE #713-827-4701 FAX # 713-827-4731	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	
153361	MARTINE & PETROLEUM MFG INC 11125 IM 10 EAST ORANGE TX 77630	PHONE #808-351-0024 FAX # 409-882-9631	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	
*102293	MARK HYDRAULIC CO INC 4771 G STREET OMAHA NE 68117	PHONE #402-734-6734 FAX # 402-734-0227	OX 1X			12/31/97	
375535	MARTIN FLUID POWER 9000 CLAY ROAD # 108 HOUSTON TX 77080	PHONE #713-939-9990 FAX # 713-939-9797	1X			12/31/97	

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369185	MARTIN FLUID POWER 84 MINNESOTA TROY MI 48083	PHONE #810-585-8170 FAX # 810-585-4398		1RS	12/31/97		S
331017	MC GUIRE BEARING CO 2611-B W 5TH AVENUE EUGENE OR 97402	PHONE #503-343-0820 FAX # 503-343-9216		1RS 2X	12/31/97		
*173823	MC GUIRE BEARING CO 947 S E MARKET ST PORTLAND OR 97214	PHONE #503-238-1570 FAX # 503-239-5181		1RS 2X	12/31/97		
039370	MC GUIRE BEARING CO 5516 1ST AVE SOUTH SEATTLE WA 98108	PHONE #206-767-3283 FAX # 206-763-2181		1RS 2X	12/31/97		
341735	MC GUIRE BEARING CO 4230 E MISSION AVENUE SPOKANE WA 99202-4407	PHONE #509-535-1511 FAX # 509-535-6685		1RS 2X	12/31/97		
046995	MC GUIRE BEARING CO 915 S CENTER STREET TACOMA WA 98409-8114	PHONE #206-572-2700 FAX # 206-272-8681		1X 2X	12/31/97		S
747055	MCJUNKYN-REPUBLIC SUPPLY CORP 3000 PEGASUS DRIVE BAKERSFIELD CA 93308	PHONE #805-393-3033 FAX # 805-393-1862		OX 1X 2X 3G 3GV 3M 3X 9X	12/31/97		S
747030	MCJUNKYN-REPUBLIC SUPPLY CORP 3000 PEGASUS DRIVE BAKERSFIELD CA 93210	PHONE #209-935-2041 FAX # 209-935-2781		OX 1X 2X 3G 3GV 3M 3X 9X	12/31/97		S
745786	MCJUNKYN-REPUBLIC SUPPLY CORP 3110 BAY SHORE ROAD BENICIA CA 94510	PHONE #707-744-4960 FAX # 707-744-6979		OX 1X 2X 3G 3GV 3X 9X	12/31/97		S
745757	MCJUNKYN-REPUBLIC SUPPLY CORP 23803 S WILMINGTON AVENUE CARSON CA 90745	PHONE #304-348-5211 FAX # 304-348-5211		OX 1X 3G 3GV 3M 3X 9X	12/31/97		S
745794	MCJUNKYN-REPUBLIC SUPPLY CORP 26407 MINAY 33 FELLOWS CA 93224	PHONE #805-764-4908 FAX # 805-766-7437		OX 1X 3G 3GV 3M 3X 9X	12/31/97		S
773828	MCJUNKYN-REPUBLIC SUPPLY CORP 421 KANSAS AVE MODESTO CA 95351	PHONE #209-526-8785 FAX # 209-526-6256		OX 1X 2X 3G 3GV 3X 9X	12/31/97		S
745703	MCJUNKYN-REPUBLIC SUPPLY CORP 1710 S BALBOA AVE ONTARIO CA 91761-7773	PHONE #619-474-7547 FAX # 619-474-7548		OX 1X 3G 3GV 3X 9X	12/31/97		S
351999	MCJUNKYN-REPUBLIC SUPPLY CORP 1710 BALBOA AVENUE ONTARIO CA 91761	PHONE #909-923-1555 FAX # 909-932-3206		OX 1X 3G 3GV 3X 9X	12/31/97		S
745778	MCJUNKYN-REPUBLIC SUPPLY CORP 3608 N VENTURA AVE VENTURA CA 93001	PHONE #805-643-6158 FAX # 805-643-4497		OX 1X 2X 3G 3GV 3X 9X	12/31/97		S
617208	MECHANICAL RUBBER & SUPPLY CO 512 SW WASHINGTON ST PEORIA IL 61601	PHONE #309-673-5111 FAX # 309-673-3457		9X	12/31/97		

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*264721	HENRYT MARTINE SUPPLY 2621 N E FOURTH AVE POMPANO BEACH FL 33064	PHONE #305-944-4950 FAX # 305-943-5734		OX 1X 4FO 4PH	12/31/97		S
*363341	WENS CO 606 MESINPAR ROAD JOHNSON CITY TN 37604	PHONE #423-282-2343 FAX # 423-282-8197		OX 1X 2EX 2X 3G 3GV 3M 3X 4X 9X	12/31/97		S
*366492	MICHAEL STEPHENS COMPANY 1221 EAST FOURTEEN MILE ROAD TROY MI 48083	PHONE #810-583-7727 FAX # 810-583-1051		1X	12/31/97		S
*549428	MID STATES SUPPLY CO 1716 GUINOTTE AVE PO BOX 410558 KANSAS CITY MO 64141	PHONE #816-842-4290 FAX # 816-842-3630		OX 3G 3M 9X	12/31/97		S
*549410	MID STATES SUPPLY OF KANSAS 724 E OSIE STREET KANSAS CITY MO 64102	PHONE #316-265-6261		3M	12/31/97		S
*549378	MIDCO SUPPLY COMPANY 1141 NORTH 11TH STREET OKLAHOMA CITY OK 73102	PHONE #402-345-4400 FAX # 402-345-4407		OX 3G 3M 9X	12/31/97		S
*354050	MIDPOINT BEARING 280 N. HENSON SUITE 7 UPLAND CA 91786	PHONE #909-920-9133 FAX # 909-989-7360		2EX 2X	12/31/97		
262162	MIDWAY INDUSTRIAL SUPPLY 8487 E WILLOW RD. EAST SYRACUSE NY 13057	PHONE #315-437-6693 FAX # 315-437-6693		OX 1X 2EX 2X 3G 3GV 3X 4X 9X	12/31/97		
333633	MIDWAY INDUSTRIAL SUPPLY 233 NORTH PERRY STREET PO BOX 239 JOHNSTOWN NY 12095	PHONE #518-762-0218 FAX # 518-762-0832		OX 1X 2EX 2X 3G 3GV 3X 4X 9X	12/31/97		
255356	MIDWAY INDUSTRIAL SUPPLY 21 MONZ AVENUE UTICA NY 12503	PHONE #315-797-6660 FAX # 315-797-6143		OX 1X 2EX 2X 3G 3GV 3X 4X 9X	12/31/97		
*154880	MILKRON PRODUCTS INC 4205 SAN FERNANDO RD GLENDALE CA 91204	PHONE #818-245-1251 FAX # 818-207-0583		1X 2X	12/31/97		
*352583	MILL EQUIPMENT & ENGINEERING PO BOX 40229 41 ST & MILLON STREET PITTSBURGH PA 15201	PHONE #412-682-4200 FAX # 412-683-4208		1X 2X	12/31/97		
518522	MILL SUPPLY CORP 1210 JACKSON ST PO BOX 921 ALBANY OR 97221	PHONE #541-926-5831 FAX # 541-967-8021		OX 1X 2X 3G 3GV 3M 3X 4X 9X	12/31/97		
347088	MILLER BEARINGS INC US 1 21 COCOA BLVD COCOA FL 32922	PHONE #407-622-4091 FAX # 407-631-1851		1RS 2X	12/31/97		S

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347344	MILLER BEARINGS INC 601 N 39TH ST FORT PIERCE FL 34947	PHONE #561-444-0490 FAX # 561-489-2532		1RS 2X	12/31/97	*	
343962	MILLER BEARINGS INC 4621 POWERLINE ROAD FT LAUDERDALE FL 33309	PHONE #954-491-6232 FAX # 954-492-0102		1RS 2X	12/31/97	*	
342949	MILLER BEARINGS INC 3210 POWERS AVE JACKSONVILLE FL 32207	PHONE #904-737-9919 FAX # 904-737-9969		1RS 2X	12/31/97	*	
343210	MILLER BEARINGS INC 2505 DRANE FIELD ROAD LAKELAND FL 33811	PHONE #941-701-9580 FAX # 941-701-9600		1RS 2X	12/31/97	*	
360845	MILLER BEARINGS INC 6480 126TH AVENUE NORTH LARGO FL 34643	PHONE #813-536-5521 FAX # 813-539-0915		1RS 2X	12/31/97	*	
345405	MILLER BEARINGS INC 6681 NW 82ND AVE MIAMI FL 33166	PHONE #305-593-1724 FAX # 305-592-6971		1RS 2X	12/31/97	*	
360873	MILLER BEARINGS INC 1635 N. MAGNOLIA AVE OCALA FL 34475	PHONE #352-732-4141 FAX # 352-368-1799		1RS 2X	12/31/97	*	
363218	MILLER BEARINGS INC CENTRAL WAREHOUSE 5 S WESTMORELAND DRIVE ORLANDO FL 32805	PHONE #407-843-6680 FAX # 407-841-7816		1RS 2X	12/31/97	*	
342295	MILLER BEARINGS INC 1 S WESTMORELAND DRIVE ORLANDO FL 32805	PHONE #407-849-6000 FAX # 407-648-4474		1RS 2X	12/31/97	*	
343319	MILLER BEARINGS INC 4951A EAST ADAMO DR SUITE 110 TAMPA FL 33605	PHONE #813-247-7455 FAX # 813-247-3896		1RS 2X	12/31/97	*	
343160	MILLER BEARINGS INC 1132 53RD COURT N M. PALM BEACH FL 33407	PHONE #561-863-5111 FAX # 561-842-8158		1RS 2X	12/31/97	*	
661405	MILMAC SALES INC 460 CABOT ROAD SAN FRANCISCO CA 94080	PHONE #415-871-4343 FAX # 415-871-1712		9X	12/31/97		S
352823	MINNESOTA BEARING 2327 CARSON STREET LACROSSE WI 54603	PHONE #608-784-7887 FAX # 608-784-2038		1RS 2X	12/31/97		
555805	MINNESOTA BEARING CO 822 W SUPERIOR ST DULUTH MN 55806	PHONE #218-624-4883 FAX # 218-628-3565		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
555813	MINNESOTA BEARING CO 504 W 41ST ST P.O. BOX 277 HIBBING MN 55942	PHONE #218-263-3687 FAX # 218-262-5992		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		

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181032	MINNESOTA BEARING CO 1104 GLENWOOD AVE MINNEAPOLIS MN 55405	PHONE #612-374-2100 FAX # 612-377-0639		1RS 2X	12/31/97		
198119	MINNESOTA BEARING CO 101 ROOSEVELT ROAD ST CLOUD MN 56301	PHONE #612-252-3481 FAX # 612-252-1611		1RS 2X	12/31/97		
555785	MINNESOTA BEARING CO 265 E FILLMORE AVE ST PAUL MN 55107	PHONE #612-222-1744 FAX # 612-222-5743		1RS 2X	12/31/97		
482419	MISSISSIPPI BEARINGS INC DIV OF INDUSTRIAL SUPPLIES INC 839 S STATE STREET JACKSON MS 39201	PHONE #601-354-4816 FAX # 601-354-4821		1RS 2X	12/31/97	*	
551200	MISSISSIPPI RUBBER & SPEC CO 712 E McDOWELL RD JACKSON MS 39204	PHONE #601-348-2975 FAX # 601-352-3109		OX 1X 3G 3GY 3M 3X 4X 9X	12/31/97		
113423	MONROE RUBBER & GASKET CO INC 1100 LOUISVILLE AVE MONROE LA 71201	PHONE #318-388-4114 FAX # 318-323-9644		OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	*	
354621	MOORE BEARING CO 801 RANKIN ROAD NE ALBUQUERQUE NM 87107	PHONE #505-345-8555 FAX # 505-345-8550		1X 2EX 2X	12/31/97		S
289918	MOORE BEARING CO 515 S WALNUT CASPER WY 82401	PHONE #307-237-9595 FAX # 307-237-0424		OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97		
150664	MOORE BEARING CO 1119 WEST 20TH ST CHEYENNE WY 82001	PHONE #307-632-5569 FAX # 307-635-4221		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
802520	MOORE BEARING CO 633 ELKTON DRIVE COLORADO SPRINGS CO 80907	PHONE #719-598-3331 FAX # 719-598-3337		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
319954	MOORE BEARING CO 305 MACK LANE CRAIG CO 81625	PHONE #970-824-8274 FAX # 970-824-8276		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
345967	MOORE BEARING CO 2454 HAVANA ST DENVER CO 80239	PHONE #303-371-5970 FAX # 303-376-2520		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
146167	MOORE BEARING CO 316 COMMERCE DRIVE FORT COLLINS CO 80524	PHONE #970-482-2293 FAX # 970-482-2302		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
264010	MOORE BEARING CO 573-25 ROAD GRAND JUNCTION CO 81505	PHONE #303-245-8060 FAX # 303-245-3974		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
097808	MOORE BEARING CO 1721 FIRST AVENUE GREELEY CO 80631	PHONE #303-353-5427 FAX # 303-351-0946		OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97		

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137588	MOORE BEARING CO 1721 FIRST AVE GREELEY CO 80631	PHONE #303-353-5427 FAX # 303-351-0946	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			12/31/97			
037291	MOORE BEARING CO 1326 SHERMAN DRIVE LONGMONT CO 80501	PHONE #303-776-3641 FAX # 303-678-5873	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			12/31/97			
002386	MOTION EQUIPMENT INC DIV OF MOTION INDUSTRIES INC 825 N GRIMES MOORE NM 88240	PHONE #505-397-7641 FAX # 505-397-4951	1RS 2X			12/31/97			
318584	MOTION EQUIPMENT INC DIV OF MOTION INDUSTRIES INC 144 PROGRESS CIRCLE MILLS NY 82644	PHONE #307-266-2966 FAX # 307-265-5917	1RS 2X			12/31/97			
237248	MOTION INDUSTRIES INC 209 S MOCK RD PO BOX 50038 ALBANY GA 31702	PHONE #912-888-0910 FAX # 912-888-6943	1RS 2X			12/31/97			
367532	MOTION INDUSTRIES INC 2490 PERRY STREET PO BOX 729 ALBANY OR 97321	PHONE #503-924-0262 FAX # 503-924-0258	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			12/31/97			
363143	MOTION INDUSTRIES INC 6634 FLEET DRIVE PO BOX 30288 ALEXANDRIA VA 22310	PHONE #703-719-6803 FAX # 703-719-0495	1X 2EX 2X			12/31/97			
262600	MOTION INDUSTRIES INC 1240 US HWY 23 NORTH PO BOX 355A ALPENA MI 49707	PHONE #517-354-3141 FAX # 517-354-3440	1RS 2X			12/31/97			
329243	MOTION INDUSTRIES INC STUART ROAD PO BOX 376 AMELIA LA 70340	PHONE #504-631-9031 FAX # 504-631-0250	OX 1X 2X 3G 3X 4X 9X			12/31/97			
233062	MOTION INDUSTRIES INC 3845 SWEETEN CREEK RD PO BOX 1076 ARDEN NC 28704	PHONE #704-684-3180 FAX # 704-684-3842	1RS 2X			12/31/97			
112334	MOTION INDUSTRIES INC 619 STADIUM DR ARLINGTON TX 76011	PHONE #817-261-1771 FAX # 817-277-8108	1RS 2X			12/31/97			
332676	MOTION INDUSTRIES INC 545 OLYMPIC DRIVE ATHENS GA 30601	PHONE #706-353-7780 FAX # 706-546-1427	1RS 2X			12/31/97			
740712	MOTION INDUSTRIES INC 1247 GORDON PARK RD AUGUSTA GA 30901	PHONE #706-724-7401 FAX # 706-722-4310	1RS 2X			12/31/97			
624014	MOTION INDUSTRIES INC 8148 TROON CIRCLE SW SUITE AUSTELL GA 30001	PHONE #404-948-5300 FAX # 404-948-6300	1RS 2X			12/31/97			

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197186	MOTION INDUSTRIES INC MIDCAP BEARING DIV 10909 BURNET ROAD AUSTIN TX 78758	PHONE #512-837-4485 FAX # 512-837-9070	1RS 2X			12/31/97			
681445	MOTION INDUSTRIES INC 5001 STANDARD ST BAKERSFIELD CA 93308	PHONE #805-324-4741 FAX # 805-324-2133	1RS 2EX 2X			12/31/97			
280428	MOTION INDUSTRIES INC ATLANTIC TRACY DIVISION 216 PERRY ROAD BANGOR ME 04401	PHONE #207-542-5771 FAX # 207-542-2738	1RS 2X			12/31/97			
749234	MOTION INDUSTRIES INC 1920 EAST HWY 60 BY PASS PO BOX 177 BARTON FL 33830	PHONE #941-533-0574 FAX # 941-533-1886	1RS 2X			12/31/97			
768487	MOTION INDUSTRIES INC 2516 HELLER AVE BATON ROUGE LA 70805	PHONE #504-356-6131 FAX # 504-359-2973	1RS 2X			12/31/97			
001990	MOTION INDUSTRIES INC 5334 EAST RD BAYTOWN TX 77522	PHONE #713-421-6100 FAX # 713-421-3018	1RS 2EX 2X			12/31/97			
075531	MOTION INDUSTRIES INC 2940 WILAM ST BEAUMONT TX 77701	PHONE #409-832-7761 FAX # 409-832-8424	1RS 2X			12/31/97			
644487	MOTION INDUSTRIES INC 2025 VORE AVE BENTON HARBOR MI 49022	PHONE #616-326-7216 FAX # 616-326-1888	1RS 2X			12/31/97			
347971	MOTION INDUSTRIES INC 824 N 31ST STREET BIRMINGHAM AL 35223	PHONE #205-251-3231 FAX # 205-250-9947	1X 2EX 2X			12/31/97			
378469	MOTION INDUSTRIES INC BLDG B 824 N 31ST STREET BIRMINGHAM AL 35210	PHONE #205-781-1000	1RS 2X			12/31/97			
361923	MOTION INDUSTRIES INC 1605 AUTUM ROAD BIRMINGHAM AL 35210	PHONE #205-956-2581 FAX # 205-951-1179	1RS 2X			12/31/97			
332072	MOTION INDUSTRIES INC 331 VANDERBILT DRIVE PO BOX 51128 BOWLING GREEN KY 42101	PHONE #502-842-6195 FAX # 502-842-4839	1RS 2X			12/31/97			
761759	MOTION INDUSTRIES INC ATLANTIC TRACY DIVISION 100 HESSIANA DRIVE BRAINTREE MA 02184-6784	PHONE #617-843-5849 FAX # 600-244-5869	1RS 2X			12/31/97			
360891	MOTION INDUSTRIES INC RTE 2 BOX 115A HIGH 31 RD PO BOX 953 BRENTON AL 36427	PHONE #205-867-6263 FAX # 205-867-8276	OX 1X 2EX 2X 3M 4X 9X			12/31/97			

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360990	MOTION INDUSTRIES INC 2020 NOLAN ROAD PO BOX 353 BROUSSARD, LA 70518	PHONE #318-837-8154 FAX # 318-837-3658 OX 1X 2X 3G 3GV 3X 9X	12/31/97	*
799528	MOTION INDUSTRIES INC MIDCAP BEARING DIV 488 REGAL BOM. SUITE 108 BROWNSVILLE, TX 77821	PHONE #512-546-5191 FAX # 512-546-6927 1RS 2X	12/31/97	*
073668	MOTION INDUSTRIES INC 111 KEY DRIVE PO BOX 1139 BRUNSWICK, GA 31520	PHONE #912-245-0178 FAX # 912-245-0152 1RS 2X	12/31/97	*
209478	MOTION INDUSTRIES INC MIDCAP BEARING DIV 106 WEST WM J PARKWAY BRYAN, TX 77803	PHONE #409-779-8485 FAX # 409-779-8946 1RS 2X	12/31/97	*
375824	MOTION INDUSTRIES INC 87 MAIN STREET BUCKSPORT, ME 04416	PHONE #207-469-1995 2X	12/31/97	*
353185	MOTION INDUSTRIES INC 415 HAMILTON CROSSING RD WM PO BOX 1422 CARTERSVILLE, GA 30120	PHONE #770-387-0131 FAX # 770-387-1542 1RS 2X	12/31/97	*
103804	MOTION INDUSTRIES INC 910 COMMERCE CIRCLE CHARLESTON, SC 29406	PHONE #803-554-9090 FAX # 803-554-0467 1RS 2X	12/31/97	*
061358	MOTION INDUSTRIES INC 1157 J CORDAGE STREET CHARLOTTE, NC 28273	PHONE #704-588-4100 FAX # 704-588-9119 1RS 2EX 2X	12/31/97	*
709675	MOTION INDUSTRIES INC 1548 RIVERSIDE DR SUITE G CHATTANOOGA, TN 37406	PHONE #615-629-0004 FAX # 615-629-0977 1RS 2X	12/31/97	*
339630	MOTION INDUSTRIES INC 12200 FLEETWAY DRIVE PO BOX 667 CHESAPEAKE, VA 23323-0676	PHONE #804-487-0311 FAX # 804-487-2448 1X 2EX 2X	12/31/97	*
353631	MOTION INDUSTRIES INC 1050 EASTER AVE PO BOX 432 CHILLICOTHE, OH 45601	PHONE #614-775-1226 FAX # 614-775-1470 1RS 2EX 2X	12/31/97	*
105361	MOTION INDUSTRIES INC 115 YORK AVE 475 MILLER AVENUE CINCINNATI, OH 45226	PHONE #513-533-4900 FAX # 513-533-4912 1RS 2X	12/31/97	*
673079	MOTION INDUSTRIES INC SERVICE CENTER 2041 SAYBROOK AVE CITY OF COMMERCE, CA 90040	PHONE #213-728-0281 FAX # 213-728-8628 1RS 2X	12/31/97	*
213595	MOTION INDUSTRIES INC 1100 HATCHER AVE UNIT C CITY OF INDUSTRY, CA 91748	PHONE #818-912-5397 FAX # 818-912-6708 1RS 2X	12/31/97	*

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360461	MOTION INDUSTRIES INC 1485 BLYTHE FERRY ROAD NE CLEVELAND, TN 37312	PHONE #615-474-9449 FAX # 615-472-4932 1RS 2X	12/31/97	*
365445	MOTION INDUSTRIES INC 4620 HINKLEY INDUSTRIAL PARKWAY PO BOX 609330 CLEVELAND, OH 44109	PHONE #216-398-2200 FAX # 216-398-2220 1RS 2X	12/31/97	*
372086	MOTION INDUSTRIES INC 727 EAST SUGARLAND HIGHWAY CLEMENSIDE, FL 32440	PHONE #813-983-5500 FAX # 813-983-5588 1RS 2X	12/31/97	*
736975	MOTION INDUSTRIES INC MIDCAP BEARING DIV 101 WEST 7TH STREET CLOVE, NM 88101	PHONE #505-762-4773 FAX # 505-762-1766 1RS 2X	12/31/97	*
360982	MOTION INDUSTRIES INC 1000 EMBURNE ROAD COLUMBIA, TN 38401	PHONE #615-489-2700 FAX # 615-483-2728 1RS 2X	12/31/97	*
801688	MOTION INDUSTRIES INC 1000 GLADSTONE COLUMBUS, IN 47201	PHONE #812-379-2329 FAX # 812-379-6762 1RS 2X	12/31/97	*
652933	MOTION INDUSTRIES INC COLUMBUSVILLE RD COLUMBUS, MS 39702	PHONE #601-328-8041 FAX # 601-329-4084 1X 2EX 2X	12/31/97	*
105668	MOTION INDUSTRIES INC 1666 INTEGRITY DR E PO BOX 5911 COLUMBUS, OH 43209	PHONE #614-444-3030 FAX # 614-444-1041 1RS 2X	12/31/97	*
155267	MOTION INDUSTRIES INC 1100 BLANCHARD BLVD COLUMBUS, GA 31901	PHONE #706-324-9313 FAX # 706-324-7164 1RS 2X	12/31/97	*
253948	MOTION INDUSTRIES INC 2020 HOFF DRIVE SUITE J CONCORD, CA 94520	PHONE #510-689-6880 FAX # 510-689-1403 1RS 2X	12/31/97	*
374749	MOTION INDUSTRIES INC 2440 WESTERN AVE PO BOX 1019 CONNERSVILLE, IN 47331	PHONE #317-825-8328 FAX # 317-825-8384 1RS 2X	12/31/97	*
365219	MOTION INDUSTRIES INC 1296 BOYD FARRIS ROAD COOKEVILLE, TN 38501	PHONE #615-528-3757 FAX # 615-528-3488 1RS 2X	12/31/97	*
354266	MOTION INDUSTRIES INC 917 CORN PRODUCTS ROAD PO BOX 10367 CORPUS CHRISTI, TX 78409	PHONE #512-289-1773 FAX # 512-289-9172 1RS 2X	12/31/97	*
360958	MOTION INDUSTRIES INC 10139 INDUSTRIAL DR NE PO BOX 510 COVINGTON, GA 30029	PHONE #404-786-4273 FAX # 404-786-4675 1RS 2X	12/31/97	*

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342980	MOTION INDUSTRIES INC 6623 FOREST PARK ROAD DALLAS TX 75235	PHONE #214-357-0909 FAX # 214-350-0144	1RS 2X	12/31/97
978072	MOTION INDUSTRIES INC 2221 W MOCKINGBIRD LANE PO BOX 35487 DALLAS TX 75235	PHONE #214-351-2211 FAX # 214-358-7294	1RS 2X	12/31/97
798678	MOTION INDUSTRIES INC 3440 NEEDMORE ROAD DAYTON OH 45414	PHONE #513-236-7711 FAX # 513-236-1769	1RS 2EX 2X	12/31/97
328047	MOTION INDUSTRIES INC 12717 PROSPECT DRIVE DEARBORN MI 48126	PHONE #313-581-5540 FAX # 313-581-6094	1RS 2EX 2X	12/31/97
027615	MOTION INDUSTRIES INC 226 WOODALL ROAD DECATUR AL 35602	PHONE #205-355-0492 FAX # 205-355-0032	1RS 2EX 2X	12/31/97
105676	MOTION INDUSTRIES INC 1874 SPRUCE STREET P O BOX 699 DEFIANCE OH 43512	PHONE #419-784-4013 FAX # 419-782-7395	1RS 2X	12/31/97
350694	MOTION INDUSTRIES INC HWY 3226 BY-PASS RD DERRIDDER CA 70634	PHONE #318-463-2555 FAX # 318-463-2733	1RS 2X	12/31/97
020917	MOTION INDUSTRIES INC 1934 HISE DR DOTHAN AL 36303	PHONE #334-794-2747 FAX # 334-792-4444	OX 1X 2X 3M 4X 9X	12/31/97
363135	MOTION INDUSTRIES INC 201 WEST FIRST PO BOX 497 DUMAS TX 79029-0497	PHONE #806-935-7010 FAX # 806-935-7027	1RS 2X	12/31/97
362814	MOTION INDUSTRIES INC 1420 MORGAN RD P O DRAWER D DYERSBURG TN 38025	PHONE #901-287-0234 FAX # 901-287-0030	1RS 2EX 2X	12/31/97
329498	MOTION INDUSTRIES INC ATLANTIC/TRACEY DIVISION 254 MAIN STREET EAST WINDSOR CT 06086	PHONE #860-292-8091 FAX # 860-292-4087	1RS 2X	12/31/97
372094	MOTION INDUSTRIES INC 901 TONY LAMA STE 4 EL PASO TX 79915	PHONE #915-779-3335 FAX # 915-779-3341	1RS 2X	12/31/97
375196	MOTION INDUSTRIES INC 1512 NORTH DIXIE AVENUE ELIZABETHTOWN KY 42701	PHONE #502-769-1114 FAX # 502-769-1313	1RS 2X	12/31/97
364331	MOTION INDUSTRIES INC POWER DRIVES & BEARINGS DIV 201 27TH STREET NORTH FARGO ND 58102-4039	PHONE #701-234-9015 FAX # 701-234-0837	1RS 2X	12/31/97

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236257	MOTION INDUSTRIES INC 212 STANFORD PARKWAY INDIAN OH 45840	PHONE #419-423-1003 FAX # 419-423-9305	1RS 2X	12/31/97
053587	MOTION INDUSTRIES INC 1526 ABERDEEN DR PO BOX 10055 FLORENCE SC 29501	PHONE #803-395-0099 FAX # 803-395-1375	1RS 2X	12/31/97
252080	MOTION INDUSTRIES INC 10887 COMMERCE WAY SUITE C FONTANA CA 92334	PHONE #714-357-9898 FAX # 714-357-9877	1RS 2X	12/31/97
366482	MOTION INDUSTRIES INC 130 FOREST PARKWAY FOREST PARK GA 30050	PHONE #404-361-2227 FAX # 404-361-2448	1RS 2X	12/31/97
318097	MOTION INDUSTRIES INC 2903 SOUTH 24TH CIRCLE FORT SMITH AR 72903	PHONE #501-644-6868 FAX # 501-644-5809	1RS 2X	12/31/97
166561	MOTION INDUSTRIES INC 3333 E WASHINGTON BLVD FORT WAYNE IN 46802	PHONE #219-422-4451 FAX # 219-424-3829	1RS 2X	12/31/97
053595	MOTION INDUSTRIES INC BEARING CHAIN UNIT 2582 N E 33RD STREET FORT WORTH TX 76111	PHONE #817-828-7878 FAX # 817-824-6434	1RS 2X	12/31/97
632679	MOTION INDUSTRIES INC 5922 HWY 332 EAST P O DRAWER C FREEPORT TX 77541	PHONE #409-233-6476 FAX # 409-233-8042	1RS 2X	12/31/97
305216	MOTION INDUSTRIES INC 2680 CHURCH AVE FRESNO CA 93706	PHONE #209-237-2131 FAX # 209-237-9139	1RS 2X	12/31/97
372151	MOTION INDUSTRIES INC FL44-FT PIERCE 7400 RANDY BLVD FT PIERCE FL 34981	PHONE #407-444-2537 FAX # 407-444-4647	1RS 2X	12/31/97
107425	MOTION INDUSTRIES INC 111 SOUTH FIRST ST GADSDEN AL 35901	PHONE #205-543-3441 FAX # 205-547-1432	1RS 2X	12/31/97
344783	MOTION INDUSTRIES INC 1011 SPORT ST GAINESVILLE GA 30601-7255	PHONE #404-331-4268 FAX # 404-331-9892	1RS 2X	12/31/97
668640	MOTION INDUSTRIES INC 7471 DOIG DRIVE GARDEN GROVE CA 92641	PHONE #714-379-3800 FAX # 714-379-3518	1RS 2X	12/31/97
256453	MOTION INDUSTRIES INC 740 W 130TH STREET GARDENA CA 90248	PHONE #313-327-2578 FAX # 313-327-2643	1X 2EX 2X	12/31/97
003160	MOTION INDUSTRIES INC 2221 EXECUTIVE DRIVE GARLAND TX 75041	PHONE #214-278-0240 FAX # 214-278-2052	1RS 2X	12/31/97

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213652	MOTION INDUSTRIES INC 1411 BUSINESS PARK COURT GASTONIA NC 28052	PHONE #704-853-2003 FAX # 704-853-0409	IRS 2X	12/31/97	*
360933	MOTION INDUSTRIES INC 650 A CHESTNUT STREET GILROY CA 95020	PHONE #408-848-3699 FAX # 408-848-3939	IRS 2X	12/31/97	*
009530	MOTION INDUSTRIES INC 906 W PRICE ROTH GONZALES LA 70737	PHONE #504-644-6568 FAX # 504-647-7848	IRS 2X	12/31/97	*
333625	MOTION INDUSTRIES INC POWER DRIVES & BEARINGS DIV 1705 HOLLARD DRIVE GRAND ISLAND NE 68801-5623	PHONE #308-381-2279 FAX # 308-381-2748	IRS 2X	12/31/97	*
331504	MOTION INDUSTRIES INC 106 STATION COURT PO BOX 8108 GREENVILLE NC 27834	PHONE #919-752-6400 FAX # 919-752-7740	IRS 2EX 2X	12/31/97	*
790923	MOTION INDUSTRIES INC 39 BATESVILLE CT GREER SC 29651	PHONE #864-288-7503 FAX # 864-297-6266	IRS 2EX 2X	12/31/97	*
365130	MOTION INDUSTRIES INC 1311 SUNSET DRIVE GRENADA MS 38901	PHONE #601-226-6800 FAX # 601-226-0060	IRS 2X	12/31/97	*
354662	MOTION INDUSTRIES INC 14110 SEAMAY ROAD GULFPORT MS 39503	PHONE #601-864-4451 FAX # 601-864-5235	OX 1X 2EX 2X 3M 4X 9X	12/31/97	*
329441	MOTION INDUSTRIES INC 331 PLEASANT VALLEY ROAD PO BOX 209 HARRISONBURG VA 22801	PHONE #703-434-1919 FAX # 703-434-0041	1X 2EX 2X	12/31/97	*
777441	MOTION INDUSTRIES INC 1414 MC ARTHUR AVE HARVEY LA 70058	PHONE #504-340-2271 FAX # 504-340-4944	IRS 2X	12/31/97	*
371478	MOTION INDUSTRIES INC FLORIAN TRACY DIVISION 34 ROGERS ROAD HAVERHILL MA 01835	PHONE #508-373-4420 FAX # 508-921-1983	IRS 2X	12/31/97	*
248591	MOTION INDUSTRIES INC 28978 HOPKINS ST SUITE# H MAYHARD CA 94545	PHONE #510-264-0288 FAX # 510-264-0218	IRS 2X	12/31/97	*
378604	MOTION INDUSTRIES INC 399 SOUTH 22ND ST PO BOX 2215 HEATH OH 43056-2215	PHONE #414-352-3510 FAX # 414-323-1480	IRS 2X	12/31/97	*
759910	MOTION INDUSTRIES INC 10781 NW 89TH AVE MIALEAH GARDENS FL 33016	PHONE #305-821-6697 FAX # 305-362-0524	IRS 2X	12/31/97	*

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365437	MOTION INDUSTRIES INC 170-3 MANUFACTURERS DR PO BOX 2638 HOLLAND MI 49424	PHONE #616-786-9444 FAX # 616-786-9510	IRS 2X	12/31/97	*
075556	MOTION INDUSTRIES INC 1200 SILBER ST HOUSTON TX 77055	PHONE #713-688-9100 FAX # 713-683-7029	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	*
243402	MOTION INDUSTRIES INC PETROLEUM BEARINGS INT DIV 7808 KEMPWOOD DRIVE HOUSTON TX 77055	PHONE #713-956-0150 FAX # 713-956-4122	1X 2X	12/31/97	*
306688	MOTION INDUSTRIES INC 215 15TH STREET HUNTINGTON WV 25701	PHONE #304-525-6706 FAX # 304-525-6737	IRS 2X	12/31/97	*
105767	MOTION INDUSTRIES INC 410 K-MAY INDIANAPOLIS IN 46241	PHONE #317-246-2100 FAX # 317-246-2112	IRS 2X	12/31/97	*
339846	MOTION INDUSTRIES INC BIRMINGHAM DISTRIBUTION CENTER 1605 S TON ROAD IRONDALE AL 35210	PHONE #205-956-1122 FAX # 205-951-1179	IRS 2X	12/31/97	*
077677	MOTION INDUSTRIES INC 31 CONALCO RD JACKSON TN 38301	PHONE #901-423-4241 FAX # 901-437-4244	IRS 2EX 2X	12/31/97	*
074443	MOTION INDUSTRIES INC 210 FRONTAGE ROAD I-20 JACKSON MS 39204	PHONE #601-373-3283 FAX # 601-372-2805	IRS 2X	12/31/97	*
176867	MOTION INDUSTRIES INC 2332 E HIGH ST JACKSON MI 49203	PHONE #517-788-6700 FAX # 517-788-6164	IRS 2X	12/31/97	*
365205	MOTION INDUSTRIES INC 129 COLLEGE AVE PO BOX 784 JACKSON AL 36545	PHONE #334-246-7700 FAX # 256-342-4400	OX 1X 2EX 2X 3M 4X 9X	12/31/97	*
733071	MOTION INDUSTRIES INC 401 HECKSCHER DR JACKSONVILLE FL 32226	PHONE #904-757-5080 FAX # 904-751-5045	IRS 2X	12/31/97	*
375238	MOTION INDUSTRIES INC 6217 EAST HIGHLAND DRIVE PO BOX 2188 JONESBORO AR 72401-2188	PHONE #501-972-1410 FAX # 501-972-6748	IRS 2X	12/31/97	*
365254	MOTION INDUSTRIES INC 3730 E 20TH ST JOPLIN MO 64801	PHONE #417-781-0010 FAX # 417-781-8803	IRS 2X	12/31/97	*
644716	MOTION INDUSTRIES INC 3321 E CORK STREET KALAMAZOO MI 49001	PHONE #616-381-7560 FAX # 616-381-7190	IRS 2X	12/31/97	*

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213884	MOTION INDUSTRIES INC 1305 S PARK DRIVE KERNERSVILLE NC 27284	PHONE #919-993-2974 FAX # 919-996-1796 1X 2EX 2X	12/31/97	*
288761	MOTION INDUSTRIES INC 109 REGIONAL PARK DRIVE KINGSFORD TN 37660	PHONE #423-349-5092 FAX # 423-349-4099 0X 1X 2EX 2X 4PM	12/31/97	*
078709	MOTION INDUSTRIES INC 2956 INDUSTRIAL PKWY KNOXVILLE TN 37921	PHONE #423-546-1704 FAX # 423-971-4392 1X 2EX 2X 4PM	12/31/97	*
132852	MOTION INDUSTRIES INC 1619 RANK PMHY CT KOKOMO IN 46901	PHONE #317-457-5368 FAX # 317-452-6240 1RS 2X	12/31/97	*
346387	MOTION INDUSTRIES INC 1502 ORCHARD HILL RD SUITE A LA GRANGE GA 30240	PHONE #404-883-7995 FAX # 404-883-6256 1RS 2X	12/31/97	*
009902	MOTION INDUSTRIES INC 903 TEXAS AVENUE P O BOX 718 LA MARQUE TX 77568	PHONE #409-938-8156 FAX # 409-938-0142 1RS 2X	12/31/97	*
209841	MOTION INDUSTRIES INC U.S. HIGHWAY 91 SOUTH LAKE CITY FL 32055	PHONE #904-752-7010 FAX # 904-752-1260 1RS 2X	12/31/97	*
195552	MOTION INDUSTRIES INC 700 SOUTH LEMING STREET P O BOX 17 LANCASTER OH 43130	PHONE #614-687-0405 FAX # 614-687-1518 1RS 2X	12/31/97	*
261941	MOTION INDUSTRIES INC 342 S CRYSTAL RD LANSING MI 48917	PHONE #317-322-0540 FAX # 317-322-0389 1RS 2X	12/31/97	*
367987	MOTION INDUSTRIES INC MIDCAP BEARING DIV 2613 LOOP 20 LAREDO TX 78043	PHONE #210-718-2229 FAX # 210-718-2233 1RS 2X	12/31/97	*
344099	MOTION INDUSTRIES INC MIDCAP BEARING DIV 365 AVENIDA DE MESILLA LAS CRUCES NM 88005	PHONE #505-524-3232 FAX # 505-524-8410 1RS 2X	12/31/97	*
369702	MOTION INDUSTRIES INC 3210 WEST DESERT INN ROAD LAS VEGAS NV 89102	PHONE #702-251-1123 FAX # 702-251-8889 1RS 2X	12/31/97	*
758961	MOTION INDUSTRIES INC 2025 MERIDIAN AVE N LAUREL MS 39440	PHONE #601-649-1321 FAX # 601-626-2929 0X 1X 2X 4X 9X	12/31/97	*
371443	MOTION INDUSTRIES INC 480 PLEASANT ST RTE 102 LEE MA 01238	PHONE #413-243-0800 FAX # 413-243-0033 1RS 2X	12/31/97	*

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349951	MOTION INDUSTRIES INC POWER DRIVES & BEARINGS DIV 5900 CORNHUSKER HWY LINCOLN NE 68507-3108	PHONE #402-447-1153 FAX # 402-447-1157 1RS 2X	12/31/97	*
148833	MOTION INDUSTRIES INC 4525 HOFFMAN RD LITTLE ROCK AR 72209	PHONE #501-568-3116 FAX # 501-565-5027 1RS 2X	12/31/97	*
164723	MOTION INDUSTRIES INC 33801 SCHOOLCRAFT ROAD LIVONIA MI 48150	PHONE #313-261-4920 FAX # 313-261-2332 1RS 2X	12/31/97	*
330340	MOTION INDUSTRIES INC 1030 VICTOR RD P O BOX 727 LODI CA 95240	PHONE #209-334-2530 FAX # 209-334-0144 1RS 2X	12/31/97	*
247684	MOTION INDUSTRIES INC 192 BYPASS LONDON KY 40341	PHONE #606-878-6312 FAX # 606-884-8238 0X 1X 2EX 2X 3G 3GV 3M 3X 4X 9X	12/31/97	*
362954	MOTION INDUSTRIES INC 1121 INDUSTRIAL HWY LONGVIEW WA 98632	PHONE #206-425-4650 FAX # 206-425-8260 1RS 2EX 2X	12/31/97	*
804732	MOTION INDUSTRIES INC 2201 S EASTMAN RD LONGVIEW TX 75602	PHONE #903-757-2383 FAX # 903-757-3617 1RS 2X	12/31/97	*
354423	MOTION INDUSTRIES INC 3324 GILMORE INDUSTRIAL BLVD LOUISVILLE KY 40213	PHONE #502-944-4804 FAX # 502-944-8448 1RS 2X	12/31/97	*
197749	MOTION INDUSTRIES INC 3149 N. PROGRESS STREET PO BOX 200 LUDINGTON MI 49431	PHONE #616-845-6256 FAX # 616-845-9871 1RS 2X	12/31/97	*
145953	MOTION INDUSTRIES INC 2100 N. JOHN REDDY DR PO BOX 3110 LUFKIN TX 75903	PHONE #409-634-4628 FAX # 409-634-4344 1RS 2X	12/31/97	*
360966	MOTION INDUSTRIES INC 3185 WEST 5TH STREET LUMBERTON NC 28358	PHONE #910-738-4221 FAX # 910-738-1627 1X 2EX 2X	12/31/97	*
327783	MOTION INDUSTRIES INC 7444 AIRPORT DRIVE MACON GA 31204	PHONE #912-784-0550 FAX # 912-788-1500 1RS 2X	12/31/97	*
378000	MOTION INDUSTRIES INC 2000 N SHAW PIKE PO BOX 847 MADISON IN 47250	PHONE #812-273-1870 FAX # 812-273-3099 1RS 2X	12/31/97	*
637348	MOTION INDUSTRIES INC 1700 EAST AVIS DR MADISON MI 48071	PHONE #810-583-8400 FAX # 810-583-8635 1RS 2X	12/31/97	*

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341503	MOTION INDUSTRIES INC ATLANTIC/TRACEY DIV 495 TECH CENTER WEST 34 ST MARTIN DR MARLBORO MA 01752	PHONE #508-229-2688 FAX # 508-229-2940	1RS 2X	12/31/97	*
368654	MOTION INDUSTRIES INC HOLLIS DRIVE PO BOX 3277 MARTINSVILLE VA 24115	PHONE #703-632-6600 FAX # 703-632-3772	1RS 2X	12/31/97	*
360651	MOTION INDUSTRIES INC 1005 DELAWARE AVE P O BOX 207 MARYSVILLE OH 43040	PHONE #513-644-1613 FAX # 513-644-1613	1RS 2X	12/31/97	*
368324	MOTION INDUSTRIES INC 1514 INDUSTRIAL PARK DR PO BOX 445 MAYSVILLE KY 41056	PHONE #606-759-5101 FAX # 606-759-5146	1RS 2X	12/31/97	*
261990	MOTION INDUSTRIES INC HIDCAP BEARING DIV 419 N HIGHWAY 83 MC ALLEN TX 78501	PHONE #210-682-1416 FAX # 210-682-1488	1RS 2X	12/31/97	*
660464	MOTION INDUSTRIES INC 3343 ONE PLACE MEMPHIS TN 38116	PHONE #901-398-2000 FAX # 901-345-0839	1RS 2X	12/31/97	*
376731	MOTION INDUSTRIES INC 5653 E SHELBY DR MEMPHIS TN 38115	PHONE #901-365-7353 FAX # 901-366-0893	1RS 2X	12/31/97	*
307744	MOTION INDUSTRIES INC 160 CONSTITUTION DR P O BOX 2188 MENLO PARK CA 94025	PHONE #415-328-5606 FAX # 415-328-1339	1RS 2X	12/31/97	*
376343	MOTION INDUSTRIES INC 2260 UNIT M COOPER AVE MERCED CA 95348	PHONE #209-384-2170 FAX # 209-384-9304	1RS 2X	12/31/97	*
333419	MOTION INDUSTRIES INC 2124 ARUNDEL ROAD P O BOX 431 MERIDIAN MS 39307	PHONE #601-482-0433 FAX # 601-632-4920	1RS 2X	12/31/97	*
3799726	MOTION INDUSTRIES INC 1223 HOOK DRIVE MIDDLETON OH 45042	PHONE #513-423-2833 FAX # 513-423-7718	1RS 2EX 2X	12/31/97	*
335976	MOTION INDUSTRIES INC HIGHWAY 70 P O BOX 270 MILLERTON OK 74750	PHONE #405-746-2227 FAX # 405-746-2343	1RS 2X	12/31/97	*
009225	MOTION INDUSTRIES INC 823 LAKESIDE DR MOBILE AL 36693	PHONE #334-661-7800 FAX # 334-661-5152	OX 1X 2EX 2X 3M 4X 9X	12/31/97	*
330332	MOTION INDUSTRIES INC 448 MITCHELL ROAD MODESTO CA 95354	PHONE #209-529-0261 FAX # 209-529-1812	1RS 2X	12/31/97	*

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376822	MOTION INDUSTRIES INC 2300 HIGHWAY 98 P O BOX 710 MOJAVE CA 93502	PHONE #805-824-9410 FAX # 805-824-2398	1RS 2X	12/31/97	*
304774	MOTION INDUSTRIES INC 7 HORNADY DR MONROEVILLE AL 36460	PHONE #205-743-4814 FAX # 205-575-2870	OX 1X 2EX 2X 3M 4X 9X	12/31/97	*
027573	MOTION INDUSTRIES INC 540 TRADE CENTER STREET MONTGOMERY AL 36108	PHONE #205-242-5788 FAX # 205-834-6603	OX 1X 2EX 2X 3M 4X 9X	12/31/97	*
353060	MOTION INDUSTRIES INC 3744 EAST MORRIS BLVD MORRISTOWN IN 47816	PHONE #423-587-4156 FAX # 423-587-6417	1X 2EX 2X	12/31/97	*
748673	MOTION INDUSTRIES INC 3550 SOUTH MOVI AVENUE MUNCIE IN 47302	PHONE #317-280-4476 FAX # 317-288-4480	1RS 2X	12/31/97	*
345983	MOTION INDUSTRIES INC 803 PARK AVE MURFREESBORO TN 37130	PHONE #615-895-0114 FAX # 615-895-4247	1RS 2X	12/31/97	*
027698	MOTION INDUSTRIES INC 800 E SECOND ST P O BOX 3209 MUSCLE SHOALS AL 35661	PHONE #205-383-0863 FAX # 205-381-9949	1X 2EX 2X	12/31/97	*
633115	MOTION INDUSTRIES INC ATLANTIC TRACEY DIVISION 352 AMHERST STREET NASHUA NH 03063	PHONE #603-883-0533 FAX # 603-883-9762	1RS 2X	12/31/97	*
690750	MOTION INDUSTRIES INC 841 PEABODYS PARKWAY NASHVILLE TN 37210	PHONE #615-244-7385 FAX # 615-244-7407	1RS 2X	12/31/97	*
642934	MOTION INDUSTRIES INC 5229 SALMEN STREET NEW ORLEANS LA 70123	PHONE #504-733-5600 FAX # 504-736-0227	1RS 2X	12/31/97	*
368582	MOTION INDUSTRIES INC KIMBERLY VALLEY PLANT 200 FIRST AVE STE 200 BLD 2 NITRO WV 25143	PHONE #304-755-3245	1RS 2X	12/31/97	*
188458	MOTION INDUSTRIES INC 5695 OAKBROOK PKWY SUITE A PO BOX 2488 NORCROSS GA 30091	PHONE #404-441-9904 FAX # 404-441-0628	1RS 2X	12/31/97	*
352021	MOTION INDUSTRIES INC POWER DRIVES & BEARINGS DIV 516 N POPLAR STREET NORTH PLATTE NE 69101	PHONE #308-524-4225 FAX # 308-524-4226	1RS 2X	12/31/97	*
191528	MOTION INDUSTRIES INC 777 OAKPORT STREET OAKLAND CA 94621	PHONE #510-542-6907 FAX # 510-562-0673	1RS 2X	12/31/97	*

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756577	MOTION INDUSTRIES INC MOTION EQUIPMENT DIVISION 4000 W COUNTY RD ODESSA TX 79764 PHONE #915-362-7815 FAX # 915-362-0531	IRS 2X	12/31/97	*	
341446	MOTION INDUSTRIES INC 900 METROPOLITAN AVENUE OKLAHOMA CITY OK 73108-2030 PHONE #405-943-3216 FAX # 405-943-0627	IRS 2X	12/31/97	*	
344523	MOTION INDUSTRIES INC POWER DRIVES & BEARINGS DIV 801 S. 20TH ST. P.O. BOX 3647 OMAHA NE 68103-0647 PHONE #402-344-7223 FAX # 402-344-7432	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97		
009746	MOTION INDUSTRIES INC 704 BORDER ST PO BOX 1900 ORANGE TX 77630 PHONE #409-886-7015 FAX # 409-886-7021	IRS 2EX 2X	12/31/97	*	
213546	MOTION INDUSTRIES INC 2425 SILVER STAR RD ORLANDO FL 32802 PHONE #407-298-0380 FAX # 407-299-7689	IRS 2X	12/31/97	*	
360941	MOTION INDUSTRIES INC 2295 PASEA-DE-LAS-AMERICAS OTAY MESA CA 92173 PHONE #619-661-7155 FAX # 619-661-7157	IRS 2X	12/31/97	*	
336610	MOTION INDUSTRIES INC 1234 E 2ND ST OWENSBORO KY 42303 PHONE #502-526-6330 FAX # 502-926-3077	IRS 2X	12/31/97	*	
374983	MOTION INDUSTRIES INC 114 SOUTHGATE DRIVE P O BOX 40 OXFORD NC 27565 PHONE #919-693-5455 FAX # 919-693-8099	IRS 2X	12/31/97	*	
365106	MOTION INDUSTRIES INC 858 E FIFTH ST OXNARD CA 93030 PHONE #805-487-4877 FAX # 805-487-3555	IRS 2X	12/31/97	*	
663658	MOTION INDUSTRIES INC 2900 POMELL ST PADUCAH KY 42001 PHONE #502-442-4291 FAX # 502-442-3644	IRS 2X	12/31/97	*	
328393	MOTION INDUSTRIES INC ROUTE 6 BOX 920 PALATKA FL 32177 PHONE #904-325-4304 FAX # 904-325-8841	IRS 2X	12/31/97	*	
691584	MOTION INDUSTRIES INC SIERRA BUSINESS PARK 41757 11TH ST. N. PALMDALE CA 93550 PHONE #805-948-8436 FAX # 805-949-0349	IRS 2X	12/31/97	*	
021055	MOTION INDUSTRIES INC 102 N. 15TH ST PANAMA CITY FL 32401 PHONE #904-769-2492 FAX # 904-784-0729	IRS 2EX 2X	12/31/97	*	
758011	MOTION INDUSTRIES INC 14610 LANARK STREET PANORAMA CITY CA 91402 PHONE #212-988-1450 FAX # 818-297-0726	IRS 2X	12/31/97	*	

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CUST #	COMPANY / CONTRACT ADDRESS	PRODUCT LINES	EXP. DATE	PAPER	RCVD.
617787	MOTION INDUSTRIES INC 711 BELMONT PASADENA TX 77506 PHONE #713-477-0351 FAX # 713-477-0357	IRS 2EX 2X	12/31/97	*	
009449	MOTION INDUSTRIES INC 3503 O MOBILE HIGHWAY PASADENA MS 39581 PHONE #601-762-8943 FAX # 601-762-3711	OX 1X 2X 3M 4X 9X	12/31/97	*	S
328534	MOTION INDUSTRIES INC ATLANTIC/TRACEY DIVISION 211 ARMISTICE BLVD PANTUCKET RI 02860 PHONE #401-722-7505 FAX # 401-728-8750	IRS 2X	12/31/97	*	
369124	MOTION INDUSTRIES INC 138 CORPORATE WAY P O BOX 1210 PELHAM AL 35124 PHONE #205-443-6393 FAX # 205-443-9181	IRS 2X	12/31/97	*	
190017	MOTION INDUSTRIES INC IDA DRIVE PO BOX 452 PENNINGTON AL 36916 PHONE #205-654-2975 FAX # 205-654-2977	OX 1X 2EX 2X 3M 4X 9X	12/31/97	*	S
111625	MOTION INDUSTRIES INC 3877 PALAFOX ST NO PENSACOLA FL 32505 PHONE #904-432-0021 FAX # 904-432-8092	OX 1X 2EX 2X 3M 4X 9X	12/31/97	*	S
322032	MOTION INDUSTRIES INC SUITE 2 4901 W VAN BUREN PHOENIX AZ 85043 PHONE #602-263-7697 FAX # 602-278-1451	IRS 2X	12/31/97	*	
360974	MOTION INDUSTRIES INC 993 CHLOE ROAD P O BOX 2832 PIKEVILLE KY 41501 PHONE #606-432-3333 FAX # 606-432-9111	IRS 2X	12/31/97	*	
009670	MOTION INDUSTRIES INC 8580 INDUSTRY PK DR P O BOX 625 PIQUA OH 45356 PHONE #513-778-1905 FAX # 513-778-1932	IRS 2X	12/31/97	*	
061952	MOTION INDUSTRIES INC 23002 HWY P O BOX 807 PLAQUEMINE LA 70764 PHONE #504-887-9295 FAX # 504-887-0136	IRS 2EX 2X	12/31/97	*	
364778	MOTION INDUSTRIES INC 1450 SW 3RD ST BAY A-1 PO BOX 1054 POMPANO BEACH FL 33061 PHONE #305-784-8929 FAX # 305-784-9154	IRS 2X	12/31/97	*	
075564	MOTION INDUSTRIES INC 2140 TENTH STREET P O BOX 1544 PORT ARTHUR TX 77640 PHONE #409-983-9333 FAX # 409-983-7924	IRS 2X	12/31/97	*	
797456	MOTION INDUSTRIES INC 2209 NORTH HWY 35 BY PASS P O BOX 22 PORT LAYACA TX 77979 PHONE #512-552-7466 FAX # 512-552-4032	IRS 2X	12/31/97	*	

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377556	MOTION INDUSTRIES INC 190 RAND ROAD PORTLAND ME 04102	PHONE #207-828-4727 FAX # 207-828-4728	1RS 2X	12/31/97 *
367548	MOTION INDUSTRIES INC 12602 NE MARX ST BLDG 5 P O BOX 301278 PORTLAND OR 97230	PHONE #503-254-3464 FAX # 503-254-3779	1RS 2EX 2X	12/31/97 *
363390	MOTION INDUSTRIES INC ATLANTIC TRACY DIVISION RT 16 HARTFORD RD. BOX 688 PRESQUE ISLE ME 04769	PHONE #207-764-7270 FAX # 207-764-7699	1RS 2X	12/31/97 *
350157	MOTION INDUSTRIES INC 3221 E DURHAM DRIVE RALEIGH NC 27603	PHONE #919-779-7400 FAX # 919-779-0838	1RS 2EX 2X	12/31/97 *
347450	MOTION INDUSTRIES INC 2203 BURGE AVE RICHMOND VA 23237	PHONE #804-743-8000 FAX # 804-743-9428	1X 2EX 2X 4PM	12/31/97 *
237016	MOTION INDUSTRIES INC 7225 RICH ROAD RICHMOND VA 23274	PHONE #317-966-3528 FAX # 317-966-4027	1RS 2X	12/31/97 *
369520	MOTION INDUSTRIES INC 288 N. PATTE VALLEY DRIVE RIVERSIDE MO 64150	PHONE #816-587-8844	1RS 2X	12/31/97 *
353326	MOTION INDUSTRIES INC 3229 COLLINS RD. N.E. ROANOKE VA 24012	PHONE #703-362-7695 FAX # 703-362-6720	1X 2EX 2X	12/31/97 *
366567	MOTION INDUSTRIES INC 52 HURRY CIRCLE ROCHESTER NY 14624	PHONE #716-247-2400 FAX # 716-247-2137	1RS 2X	12/31/97 *
318477	MOTION INDUSTRIES INC ATLANTIC TRACY DIVISION US RT 2 WILKES PO BOX 720 RUMFORD ME 04276	PHONE #207-364-7933 FAX # 207-364-7730	1RS 2X	12/31/97 *
329573	MOTION INDUSTRIES INC 1809 SOUTH EL MITRA AVE P O BOX 1254 RUSSELLVILLE AR 72801	PHONE #501-968-3422 FAX # 501-968-8404	1RS 2X	12/31/97 *
775385	MOTION INDUSTRIES INC 3473 RAMONA AVE SACRAMENTO CA 95826	PHONE #916-455-1990 FAX # 916-455-3507	1RS 2X	12/31/97 *
777284	MOTION INDUSTRIES INC 3345 E WASHINGTON RD SAGINAW MI 48601	PHONE #517-771-2270 FAX # 517-771-1091	1RS 2X	12/31/97 *
376251	MOTION INDUSTRIES INC 510 E SCHILLING ROAD P O BOX 6274 SALINA KS 67401-0274	PHONE #913-826-9970	1RS 2X	12/31/97 *

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255232	MOTION INDUSTRIES INC 721 C ABBOTT STREET SALINAS CA 93901	PHONE #408-758-3343 FAX # 408-758-3349	1RS 2X	12/31/97 *
549329	MOTION INDUSTRIES INC MIDCAP BEARING DIV 2899 NE LOOP 410 SAN ANTONIO TX 78218	PHONE #210-625-1994 FAX # 210-625-0775	1RS 2X	12/31/97 *
650234	MOTION INDUSTRIES INC 7445 RAYMEON ROAD SAN DIEGO CA 92111	PHONE #619-565-0092 FAX # 619-565-0281	1RS 2X	12/31/97 *
347443	MOTION INDUSTRIES INC 3500 VENTURE ROAD SANDUSKY OH 44870	PHONE #419-625-2432 FAX # 419-625-8403	1RS 2X	12/31/97 *
753392	MOTION INDUSTRIES INC 7705 LAFAYETTE SANTA CLARA CA 95050	PHONE #408-727-6408 FAX # 408-727-6035	1RS 2X	12/31/97 *
367797	MOTION INDUSTRIES INC 2925 TRAILHATE DR #102 SARASOTA FL 34243	PHONE #813-755-4114 FAX # 813-755-2434	1RS 2X	12/31/97 *
073684	MOTION INDUSTRIES INC 1921 TELFAIR RD SAYANNAH GA 31401	PHONE #912-326-1591 FAX # 912-333-2012	1RS 2X	12/31/97 *
371534	MOTION INDUSTRIES INC 6703 EAST MARGINAL WAY P O BOX 80747 SEATTLE WA 98108	PHONE #206-767-9119 FAX # 206-767-9123	1RS 2X	12/31/97 *
370437	MOTION INDUSTRIES INC 300 EAST 14TH STREET SEDALIA MO 65301	PHONE #816-827-7080	1RS 2X	12/31/97 *
245738	MOTION INDUSTRIES INC 1802 TEXOMA DRIVE PO BOX 638 SHERMAN TX 75090	PHONE #903-892-4646 FAX # 903-892-4562	1RS 2X	12/31/97 *
368662	MOTION INDUSTRIES INC 641 E DEUCE OF CLUBS SUITE E SHOW LOW AZ 85601	PHONE #520-337-9081 FAX # 520-337-9091	1RS 2X	12/31/97 *
072017	MOTION INDUSTRIES INC 7280 W BERT KOONS IND LOOP SHREVEPORT LA 71129	PHONE #318-687-2110 FAX # 318-686-4907	1RS 2X 4PM	12/31/97 *
352179	MOTION INDUSTRIES INC POWER DRIVES & BEARINGS DIV 4529 HARBOR DRIVE SIOUX CITY IA 51111	PHONE #712-258-0395 FAX # 712-258-0603	1RS 2X	12/31/97 *
628826	MOTION INDUSTRIES INC ATLANTIC TRACY DIVISION 44 THIRD AVE PO BOX 129 SOMERVILLE MA 02143-AA30	PHONE #617-225-1185 FAX # 600-287-3908	1RS 2X	12/31/97 *

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195271	MOTION INDUSTRIES INC 704 S ICE ISLAND DRIVE SPARKS NV 89431	PHONE #702-355-0555 IRS 2X FAX # 702-355-0595	12/31/97	*
368399	MOTION INDUSTRIES INC 100 CORPORATE DRIVE SUITE K SPARTANBURG SC 29303	PHONE #864-599-7393 IRS 2EX 2X FAX # 864-599-7484	12/31/97	*
372581	MOTION INDUSTRIES INC 7321 EAST TRENT P.O. BOX 11824 SPOKANE WA 99211	PHONE #509-924-4800 IRS 2X FAX # 509-924-1731	12/31/97	*
340539	MOTION INDUSTRIES INC 402 S THOMPSON SUITE 2 SPRINGDALE AR 72764	PHONE #501-756-6905 IRS 2X FAX # 501-756-2264	12/31/97	*
351825	MOTION INDUSTRIES INC 240 SOUTH UNION SPRINGFIELD MO 65801	PHONE #417-862-5300 IRS 2X FAX # 417-862-9422	12/31/97	*
372102	MOTION INDUSTRIES INC 2307 SOUTH 6TH STREET P.O. BOX 3007 ST JOSEPH MO 64503	PHONE #206-767-9119 IRS 2X FAX # 206-767-9123	12/31/97	*
369777	MOTION INDUSTRIES INC 13724 SHORELINE COURT EAST ST LOUIS MO 63045-1214	PHONE #314-770-2600 IRS 2X FAX # 314-770-2272	12/31/97	*
375204	MOTION INDUSTRIES INC HWY 301 NORTH 100 PAMELA WAY STATESBORO GA 30458	PHONE #912-489-6800 IRS 2X FAX # 912-489-6996	12/31/97	*
352476	MOTION INDUSTRIES INC 6576 DIPLOMAT DRIVE STERLING HEIGHTS MI 48314	PHONE #810-726-6262 IRS 2X FAX # 810-726-6867	12/31/97	*
303727	MOTION INDUSTRIES INC 704 E HAZELTON STREET STOCKTON CA 95203	PHONE #209-943-2801 IRS 2X FAX # 209-943-7493	12/31/97	*
063362	MOTION INDUSTRIES INC 2411 MYLL RD SYLACAUGA AL 35150	PHONE #205-242-4341 IRS 2X FAX # 205-242-0111	12/31/97	*
372992	MOTION INDUSTRIES INC 6211 EAST TAFT ROAD P.O. BOX 2576 SYRACUSE NY 13212	PHONE #315-422-1775 IRS 2X FAX # 315-422-1183	12/31/97	*
351569	MOTION INDUSTRIES INC 5000 YENNEE CAPITAL BLVD PO BOX 37033 TALLAHASSEE FL 32315	PHONE #904-576-8677 IRS 2EX 2X FAX # 904-576-7907	12/31/97	*
000513	MOTION INDUSTRIES INC 1417 MASSARD BOULEVARD P.O. BOX 1073 TAMPA FL 33619-1073	PHONE #813-426-1101 IRS 2X FAX # 813-421-7452	12/31/97	*

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378612	MOTION INDUSTRIES INC SUITE 102 1611 S ROOSEVELT TEMPE AZ 85282	PHONE #602-921-9800 IRS 2X FAX # 602-921-9798	12/31/97	*
176735	MOTION INDUSTRIES INC 2301 E 9TH ST TEXARKANA AR 75502	PHONE #501-774-2547 IRS 2X FAX # 501-772-3231	12/31/97	*
360925	MOTION INDUSTRIES INC 5119 ENTERPRISE BLVD TOLEDO OH 43612	PHONE #419-726-7422 IRS 2X FAX # 419-726-7429	12/31/97	*
366211	MOTION INDUSTRIES INC 5000 YOUNG STREET SUITE 500 TOMAHAWK WI 54150	PHONE #716-743-0697 IRS 2X FAX # 716-743-0697	12/31/97	*
330720	MOTION INDUSTRIES INC 1515 COMMERCIAL DRIVE TRACY CA 95374	PHONE #209-836-3780 IRS 2X FAX # 209-836-3949	12/31/97	*
344168	MOTION INDUSTRIES INC 1805 BRINSTON DR TROY MI 48062	PHONE #810-480-4777 IRS 2X FAX # 810-480-0075	12/31/97	*
354977	MOTION INDUSTRIES INC SUITE 107 1802 WEST GRANT RD TUCSON AZ 85743	PHONE #520-882-4800 IRS 2X FAX # 520-882-4804	12/31/97	*
360867	MOTION INDUSTRIES INC 7302 E. 28TH ST TULSA OK 74143	PHONE #918-427-0011 IRS 2X FAX # 918-427-9712	12/31/97	*
365163	MOTION INDUSTRIES INC 2211 CLIFF GORMAN ALVD TUPELO MS 38801	PHONE #601-844-2119 IRS 2X FAX # 601-842-4022	12/31/97	*
615898	MOTION INDUSTRIES INC 3721 ELEVANTH AVE TUSCALOOSA AL 35401	PHONE #205-759-4261 IRS 2X FAX # 205-342-3021	12/31/97	*
647131	MOTION INDUSTRIES INC 2500 WEST HWY LOOP 323 PO BOX 4444 TYLER TX 75712	PHONE #903-592-0873 IRS 2X FAX # 903-592-3207	12/31/97	*
361941	MOTION INDUSTRIES INC 2020 A INDUSTRY ROAD UKIAH CA 95482	PHONE #707-442-2766 IRS 2X FAX # 707-442-2409	12/31/97	*
370502	MOTION INDUSTRIES INC 104 HENLOCK STREET VALDOSTA GA 31601	PHONE #912-244-4248 1X 2X	12/31/97	*
360917	MOTION INDUSTRIES INC 550 FIELDRIDGE DRIVE P.O. BOX 827 VERSAILES KY 40383	PHONE #606-873-7212 IRS 2X FAX # 606-873-7296	12/31/97	*
367979	MOTION INDUSTRIES INC MIDCAP BEARING INC 3102 HOUSTON HWY VICTORIA TX 77901	PHONE #512-576-0015 IRS 2X FAX # 512-576-2124	12/31/97	*

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266171	MOTION INDUSTRIES INC 1337 N PALZA DRIVE VISALIA CA 93291	PHONE #209-491-0111 FAX # 209-651-1078	IRS 2X			12/31/97	*
372557	MOTION INDUSTRIES INC 2475 CORAL STREET SUITE C VISTA CA 92083	PHONE #619-598-6777 FAX # 619-598-0093	IRS 2X			12/31/97	*
371377	MOTION INDUSTRIES INC 6500 DEPOT DRIVE MACQ TX 76712	PHONE #817-772-1119 FAX # 817-772-1163	IRS 2EX 2X			12/31/97	*
698829	MOTION INDUSTRIES INC 2570 WALKER NM WALKER MI 49544	PHONE #616-791-9770 FAX # 616-791-9796	IRS 2X			12/31/97	*
641290	MOTION INDUSTRIES INC 25600 DEQUINDRE HARREN MI 48091	PHONE #810-758-1420 FAX # 810-758-3319	IRS 2X			12/31/97	*
274548	MOTION INDUSTRIES INC 375 BEACH ST HATSONVILLE CA 95076	PHONE #408-724-1123 FAX # 408-724-1779	IRS 2X			12/31/97	*
327460	MOTION INDUSTRIES INC 2548 MORNINGSIDE DR WEST COLUMBIA SC 29169	PHONE #803-796-1071 FAX # 803-739-0927	IRS 2X			12/31/97	*
672808	MOTION INDUSTRIES INC 105 ENTERPRISE WEST MONROE LA 71292	PHONE #318-387-6875 FAX # 318-388-2232	IRS 2X			12/31/97	*
667618	MOTION INDUSTRIES INC ATLANTIC/TRACEY DIVISION 152 WARREN AVE WESTBROOK ME 04092	PHONE #207-854-9721 FAX # 207-854-3490	IRS 2X			12/31/97	*
350140	MOTION INDUSTRIES INC 804 COLUMBIA SOUTHERN ROAD SOUTH DOWLING E-1 WESTLAKE LA 70669	PHONE #318-882-6004 FAX # 318-882-6049	IRS 2EX 2X			12/31/97	*
369603	MOTION INDUSTRIES INC 2939 WEST SHAMNEE P O BOX 13313 NICHITA KS 67213	PHONE #316-242-4700 FAX # 316-242-1001	IRS 2X			12/31/97	*
207204	MOTION INDUSTRIES INC 1202 INDIANA AVE NICHITA FALLS TX 76301	PHONE #817-764-3328 FAX # 817-764-0305	IRS 2X			12/31/97	*
368035	MOTION INDUSTRIES INC 3340-A U S HWY 421 NORTH PO BOX 1649 MILLINGTON NC 28541	PHONE #919-762-2021 FAX # 919-762-1883	IRS 2EX 2X			12/31/97	*
329458	MOTION INDUSTRIES INC 2957 SHAMNEE DRIVE P O BOX 3207 WINCHESTER VA 22601	PHONE #703-662-4800 FAX # 703-722-2667	1X 2EX 2X			12/31/97	*

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329540	MOTION INDUSTRIES INC 275 KENTUCKY AVE P O BOX 1025 MORRISLAND CA 95776-1025	PHONE #916-642-9451 FAX # 916-642-1223	IRS 2X			12/31/97	*
376830	MOTION INDUSTRIES INC PO BOX 2707 650 E. EAST 20TH ST VIA TX 75768-2707	PHONE #520-782-3919 FAX # 520-782-4332	IRS 2X			12/31/97	*
112615	MOUNTAIN BEARING & SUPPLY CO 2117 S. HWY 27 MILLETTE WY 82716	PHONE #307-682-8821 FAX # 307-682-2539	2X			12/31/97	
*377119	MUELLER STEAM 1492 R C HWY 20 WEST ST PAULS NC 28384	PHONE #910-845-8241 FAX # 910-845-8252	3G 3GY 3X			12/31/97	
*373725	MUELLER BELTING & SPEC CO INC 130 N MIDLAND AVE SADDLE BROOK NJ 07662	PHONE #201-791-5000 FAX # 201-791-0212	3G 3M 3X 4FT 4X			12/31/97	
*371609	MUNACO PACKING CO 225 WEST 16TH STREET NEW YORK NY 10011	PHONE #212-923-5550 FAX # 212-923-7152	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 2X			12/31/97	
351148	NAPA BEARING 926 KAISER ROAD NAPA CA 94558	PHONE #707-252-7333 FAX # 707-252-4847	OX 1X 2EX 2X 3G 3GY 3X 4X 9X			12/31/97	
*551010	NATIONAL HOSE & ACC DIST CORP 1321 SOUTH HOUSTON ROAD PASADENA TX 77502	PHONE #713-920-2030 FAX # 713-920-1733	OX 1X 2X 3G 3GY 3M 3X 4X 9X			12/31/97	
*330639	NEAL & ASSOCIATES DIV 10410 BOOMER CIRCLE DALLAS TX 75238	PHONE #214-340-1464 FAX # 214-340-7787	9X			12/31/97	
*338731	NEBRASKA BEARING CO DIV OF MINNESOTA BEARING 10156 L STREET OMAHA NE 68117	PHONE #402-339-6263 FAX # 402-339-4855	IRS 2X			12/31/97	
*379436	NEVADA SEAL & PUMP 2800 RIGHT HAND CANYON RD RENO NV 89510	PHONE #702-775-2409 FAX # 702-746-2463	2EX 2X 3G 3GY 3M 3X 4X			12/31/97	
*451924	NIANTYC SEAL INC 17 POWDER HILL ROAD LINCOLN RI 02845	PHONE #401-334-4870 FAX # 401-334-6871	OX 1X 2X 3G 3GY 3X 4X 9X			12/31/97	
447658	NOLAN BEARINGS INC DIV BEARING SERVICE & SUPPLY 1703 JEFFERSON ST LAFAYETTE LA 70501	PHONE #318-232-5227 FAX # 318-232-0538	IRS 2EX 2X			12/31/97	*
334540	NOLAN COMPANY 2510 BELLWOOD ROAD RICHMOND VA 23237	PHONE #804-275-0031 FAX # 804-271-3667	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X			12/31/97	

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*315671	NORFOLK BEARING & SUPPLY CO P O BOX 12825 3512 EAST PRINCESS ANNE RD NORFOLK VA 23502	PHONE #804-853-3691 FAX # 804-855-5861	1X 2EX 2X	12/31/97	
317495	NORMAN SUPPLY COMPANY DIV OF FAMILIAN NORTHWEST INC 756 S FIRST AVE POCATELLO ID 83205-4023	PHONE #208-233-4023 FAX # 208-233-9848	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
323030	NORMAN SUPPLY COMPANY DIV OF FAMILIAN NORTHWEST INC 150 MADRONA THIN FALLS ID 83301	PHONE #208-733-3770 FAX # 208-736-7248	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
361832	NOVA RUBBER CO INC 3218 ST. RT. 5 ASHLAND KY 41101	PHONE #606-329-8309 FAX # 606-329-0819	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
365221	NOVA RUBBER CO INC 517 HARTIN AVENUE NEW MARTINSVILLE WV 26155	PHONE #304-455-6558 FAX # 304-455-3041	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
*307249	NOVA RUBBER CO INC P O BOX 8580 134 7TH AVE S CHARLESTON WV 25303	PHONE #304-744-4658 FAX # 304-744-0731	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*324103	NOVELTY MACHINE & SUPPLY CO 901 5TH STREET PO BOX 477 SIQUOK CITY IA 51102	PHONE #713-255-6111 FAX # 713-255-0405	1RS 2X	12/31/97	
*648394	O G SUPPLY INC 2350 POMONA RINCON ROAD CORONA CA 91720	PHONE #909-279-7840 FAX # 909-279-7779	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	S
*376509	O-RING SALES AND SERVICE 700 DENNIS AVE OLATHE KS 66061	PHONE #913-829-5171 FAX # 913-829-5234	1X 2X	12/31/97	S
*005025	OHIO TRANSMISSION & PUMP CO P O BOX 06246 646 PARSONS AVENUE COLUMBUS OH 43206	PHONE #614-444-2172 FAX # 614-444-1235	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
162701	OHIO TRANSMISSION & PUMP CO 1200 OUTER LOOP PO BOX 19989 LOUISVILLE KY 40259-9989	PHONE #502-366-5601 FAX # 502-366-5500	1RS 2X	12/31/97	
630897	OHIO TRANSMISSION & PUMP CO 201 GARVER RD MONROE OH 45050	PHONE #513-523-8411 FAX # 513-523-8416	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
001517	OHIO TRANSMISSION & PUMP CO RT 16-E AT DAYTON ROAD NEWMARK OH 43055	PHONE #614-343-8402 FAX # 614-343-8647	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
*375548	OLDFIELD BEARINGS INC 25090 PITKIN RD SPRING TX 77386	PHONE #713-362-2180 FAX # 713-362-2179	1X 2EX 2X	12/31/97	

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*248351	OMNI PACKING & SEAL CO 132 SO ORCAS ST SEATTLE WA 98108	PHONE #206-762-3850 FAX # 206-764-3222	1X 2X	12/31/97	S
*350751	OSBORNE TECHNOLOGIES DIVISION 801 HATSON INDUSTRIAL PARK ST LOUIS MO 63126	PHONE #314-968-3991 FAX # 314-968-1240	OX 4X	12/31/97	
*617803	P M INDUSTRIAL SUPPLY CO 210 LITTLE FALLS RD CEDAR GROVE NJ 07009	PHONE #201-239-0096 FAX # 201-239-1849	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
375360	PACIFIC MECHANICAL SUPPLY 2000 CONCORD CIRCLE SUITE F CONCORD CA 94520	PHONE #510-885-7981 FAX # 510-885-7603	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
252825	PACIFIC MECHANICAL SUPPLY INC 2721 FRUITVALE AVENUE BAKERSFIELD CA 93308	PHONE #805-888-3575 FAX # 805-888-3575	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
347773	PACIFIC MECHANICAL SUPPLY INC 21 INDUSTRIAL PK RD SUITE 108 HENDERSON NY 14015	PHONE #702-564-1232 FAX # 702-564-2432	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*854794	PACIFIC MECHANICAL SUPPLY INC 13705 MILROY PL SANTA FE SPRINGS CA 90670	PHONE #310-921-0575 FAX # 310-921-9449	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
367516	PACIFIC MECHANICAL SUPPLY INC 1955-A KERN STREET TAFT CA 92368	PHONE #805-762-1214 FAX # 805-762-1218	OX 1X 2X 3G 3GY 3M 3X 4X	12/31/97	
161695	PACKING SPECIALISTS INC 418 EAST MINNEBAGO STREET APPLETON WI 54911	PHONE #414-731-3259 FAX # 414-731-6094	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
034421	PACKINGS & GASKETS INC 16750 PARK CIRCLE DR PO BOX 23693 CHAGRIN FALLS OH 44023-0699	PHONE #216-542-8108 FAX # 216-542-8024	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	
*706358	PAMHANDLE PACKING & GASKET INC LUBBOCK GASKET & SUPPLY 402 19TH ST PO BOX 2154 LUBBOCK TX 79408	PHONE #806-762-2801 FAX # 806-762-0769	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	
*371914	PARAMOUNT VALVE SERVICES 901 N 13TH STREET DEER PARK TX 77534-3163	PHONE #713-478-2300 FAX # 713-478-6420	3M 4X	12/31/97	S
*374272	PARAMOUNT SUPPLY 1302 HEAGOR AVENUE PO BOX 5764 BELLINGHAM WA 98227	PHONE #360-647-8328 FAX # 360-647-8330	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*311573	PARAMOUNT SUPPLY 232 8TH AVE PO BOX 14096 PORTLAND OR 97214	PHONE #503-244-1111 FAX # 503-244-2651	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	

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*374264	PARAMOUNT SUPPLY 10832 E MARGINAL WAY S SEATTLE WA 98168	PHONE #206-762-1717 FAX # 206-762-8879	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
315010	PARAMOUNT SUPPLY 1401 THORNE ROAD TACOMA WA 98421	PHONE #206-383-3111 FAX # 206-383-9360	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	
*106997	PEORIA BEARING CO 1515 N E ADAMS ST P O BOX 1199 PEORIA IL 61653	PHONE #309-673-8177 FAX # 309-673-4557	1RS 2X	12/31/97	
344085	PETALUMA BEARING & IND SUPPLY 709 PETALUMA BLVD S PETALUMA CA 94952	PHONE #707-778-1122 FAX # 707-769-1586	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
262543	PHILADELPHIA BALL & ROLLER CO 1338 N IRVING ALLENTOWN PA 18103	PHONE #610-432-6800 FAX # 610-432-5088	1RS 2X	12/31/97	
*257394	PHILADELPHIA BALL & ROLLER CO 400 N 6TH ST 6TH & GALLOWHILL STS PHILADELPHIA PA 19123	PHONE #215-574-0900 FAX # 215-440-7119	1RS 2X	12/31/97	
259481	PHILADELPHIA BALL & ROLLER CO 101 HIGH ST POTTSVILLE PA 19424	PHONE #610-323-0400 FAX # 610-327-4566	1RS 2X	12/31/97	
301978	PHILADELPHIA BALL & ROLLER CO 1346 CENTER AVE READING PA 19601	PHONE #610-374-7500 FAX # 610-376-0782	1RS 2X	12/31/97	
257279	PHILADELPHIA BALL & ROLLER CO 701 CORNELL DRIVE SUITES E-114 F-12 CORNELL BUSINESS PARK MILFINGTON DE 19801	PHONE #302-658-5121 FAX # 302-658-4012	1RS 2X	12/31/97	
*649129	PHILADELPHIA CONSOL. DIE CO 327 RACE ST PHILADELPHIA PA 19106	PHONE #215-627-2109 FAX # 215-627-4688	OX 3G 3GY 3X	12/31/97	
*348631	PIONEER GASKET CO INC 3419 WEST 1820 SOUTH SALT LAKE CITY UT 84104-4923	PHONE #801-973-2727 FAX # 801-973-2956	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
350066	PIONEER GASKET COMPANY 13 BOWKER ROAD P O BOX 968 ROCK SPRINGS WY 82902	PHONE #307-362-1865 FAX # 307-362-8206	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*370494	PLYING & EQUIPMENT CO 6009 HABERSHAM STREET BRUNSWICK GA 31520	PHONE #912-265-5430 FAX # 912-265-4321	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
*340182	PLATNS BEARING CO 2513 AVENUE F LUBBOCK TX 79404	PHONE #806-747-0883 FAX # 806-747-0885	1RS 2X	12/31/97	
*011262	PLYMERS SUPPLY CO 1012 E MAIN ST PO BOX 4149 LOUISVILLE KY 40206	PHONE #502-242-2261 FAX # 502-242-5521	OX 1X 3G 3GY 3X 4X	12/31/97	

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347948	PNEU DRAULICS 11 BROOKSIDE DR NICHOLASVILLE KY 40356	PHONE #606-885-2155 FAX # 606-887-4165	OX 1X 2X	12/31/97	
*682922	POLK EQUIP CO 3000 HIGHWAY 17 SOUTH P O BOX 1016 BARTON FL 32830	PHONE #813-513-3191 FAX # 813-514-3723	OX 1X 3G 3GY 3X 4X	12/31/97	*
*742203	POTTER ASSOCIATES INC 24 BROMCROFT BLVD ROCHESTER NY 14609	PHONE #716-288-2850 FAX # 716-288-6038	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*368605	POWER & PUMPS INC 1405 CAMP LANE ALBANY GA 31707	PHONE #800-258-3498 FAX # 912-436-0431	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 7X 9X	12/31/97	*
362317	POWER & PUMPS INC 3402 SH 26TH TERRACE SUITE 11 FT LAUDERDALE FL 33312	PHONE #305-584-1178 FAX # 407-423-9786	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
*365577	POWER & PUMPS INC 803 NORTH MYRTLE AVENUE P O BOX 40129 JACKSONVILLE FL 32204	PHONE #904-356-5881 FAX # 904-356-8717	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
*363333	POWER & PUMPS INC 400 BYTHAM ST PO BOX 2153 ORLANDO FL 32801	PHONE #407-843-7400 FAX # 407-423-9786	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
*363325	POWER & PUMPS INC SUITE 100 3214 QUEEN PALM DRIVE TAMPA FL 33619	PHONE #813-241-8071 FAX # 813-623-5591	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
*377416	POWER DYNAMICS GASKET CO INC 1971 SENECA ROAD EAGAN MN 55122	PHONE #612-454-5504 FAX # 612-454-5409	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
353441	POWER ENGINEERING & EQUIPMENT 189 ARTHUR ROAD MARTINEZ CA 94553	PHONE #510-313-9080 FAX # 510-313-9348	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	
267930	POWER ENGINEERING & EQUIPMENT 20009 S RANCHO WAY PO BOX 1000 RANCHO DOMINGUEZ CA 90220	PHONE #310-886-1133 FAX # 310-886-3999	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*363929	POWER IN MOTION INC 224 RYAN ROAD FAIRFIELD NJ 07604	PHONE #201-244-0101 FAX # 201-244-0749	1RS 2X	12/31/97	
*360081	POWER LINK INC 200 E ST. MARY NICHOLS KS 67211	PHONE #316-267-4700 FAX # 316-267-4778	1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
*684121	POWER SUPPLY & ENGINEERING 299 E 11TH STREET BLOOMINGTON MN 55420	PHONE #612-854-7117 FAX # 612-854-7477	OX 1X 2X 3G 3GY 3X 4X 9X	06/30/97	

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4374280	POWER SUPPLY COMPONENTS INC 506 YALE HOUSTON TX 77007	PHONE #713-869-8003 FAX # 713-869-8725	1X 2X	12/31/97			
362988	PRECISION INDUSTRIES 1301 AMARILLO BLVD EAST AMARILLO TX 79107	PHONE #806-376-8180 FAX # 806-376-9031	1RS 2X	12/31/97			
378562	PRECISION INDUSTRIES 2100 B CENTRAL CARGO CIRCLE PO BOX 45628 ATLANTA GA 30320	PHONE #404-767-9877 FAX # 404-767-8477	1RS 2X	12/31/97			
371898	PRECISION INDUSTRIES 3641 ZIP INDUSTRIAL BLVD ATLANTA GA 30356	PHONE #404-767-7711 FAX # 404-767-7718	1RS 2X	12/31/97			
377051	PRECISION INDUSTRIES 6200 ARTESIA BLVD BUENA PARK CA 90620	PHONE #714-670-7770 FAX # 714-670-7773	1X 2X	12/31/97			
690982	PRECISION INDUSTRIES 1149 27TH AVE SW CEDAR RAPIDS IA 52404	PHONE #319-365-5276 FAX # 319-365-9132	1RS 2X	12/31/97			
278341	PRECISION INDUSTRIES 2074 3RD AVENUE COLUMBUS NE 68601	PHONE #402-563-3488 FAX # 402-563-1334	1RS 2X	12/31/97			
336792	PRECISION INDUSTRIES 5635 EAST WASHINGTON COMMERCE CA 90040	PHONE #800-342-0377 FAX # 213-889-1808	1RS 2X	12/31/97			
368886	PRECISION INDUSTRIES 113 RHODES BLDG F COMRGE TX 77301	PHONE #409-756-7770 FAX # 409-756-7713	1RS 2X	12/31/97			
368456	PRECISION INDUSTRIES 909-B NORTH INDUSTRIAL BLVD DALLAS TX 75207	PHONE #214-745-7707	1RS 2X	12/31/97			
367391	PRECISION INDUSTRIES 818 W 13TH STREET DEER PARK TX 77536	PHONE #713-478-5077 FAX # 713-478-5076	1RS 2EX 2X	12/31/97			
691881	PRECISION INDUSTRIES 2050 DELAMARE AVE DES MOINES IA 50317	PHONE #515-265-9811 FAX # 515-262-5765	1RS 2X	12/31/97			
371526	PRECISION INDUSTRIES 410 ALLEN STREET ELIZABETH NJ 07202	PHONE #908-474-0777 FAX # 908-474-0770	2X 3A 3G 3GA	12/31/97			
362574	PRECISION INDUSTRIES 1830 WEST 6TH AVE EMPORIA KS 66801	PHONE #316-343-1777 FAX # 316-343-2110	1RS 2X	12/31/97			
366070	PRECISION INDUSTRIES 512 N BEACH FT. WORTH TX 76111	PHONE #817-831-7770 FAX # 817-831-0737	1RS 2X	12/31/97			

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362590	PRECISION INDUSTRIES 3640 WEST JONES AVE GARDEN CITY KS 67846	PHONE #316-277-2777 FAX # 316-277-0444	1RS 2X	12/31/97			
065391	PRECISION INDUSTRIES 3224 LANGENHARDER ST GRAND ISLAND NE 68803	PHONE #308-382-8544 FAX # 308-382-3472	1RS 2X	12/31/97			
371906	PRECISION INDUSTRIES 1200 WOODRUFF RD UNIT E-5 GREENVILLE SC 29507	PHONE #864-427-1317 FAX # 864-427-1307	1RS 2X	12/31/97			
367581	PRECISION INDUSTRIES 7821 PINEMONT HOUSTON TX 77040	PHONE #713-869-7771 FAX # 713-869-7700	1RS 2EX 2X	12/31/97			
378067	PRECISION INDUSTRIES 1936 S LYNHURST SUITE B & C INDIANAPOLIS IN 46241	PHONE #317-347-7670 FAX # 317-347-7755	1RS 2X	12/31/97			
367821	PRECISION INDUSTRIES 3043 ROANOKE KANSAS CITY MO 64108	PHONE #816-931-8880 FAX # 816-931-9119	1RS 2X	12/31/97			
378681	PRECISION INDUSTRIES SUITE 108 1866 COLONIAL VILLAGE LANE LANCASTER PA 17601	PHONE #717-481-8777 FAX # 717-481-8779	1RS 2X	12/31/97			
022277	PRECISION INDUSTRIES 419 W 5TH ST LEXINGTON NE 68850	PHONE #308-324-2344 FAX # 308-324-7169	1RS 2X	12/31/97			
323279	PRECISION INDUSTRIES 1919 CORNHUSKER HWY LINCOLN NE 68521	PHONE #402-474-7700 FAX # 402-474-0141	1RS 2X	12/31/97			
364082	PRECISION INDUSTRIES 81248 SCOTT HAMILTON DRIVE LITTLE ROCK AR 72209	PHONE #501-545-0777 FAX # 501-545-7067	1RS 2X	12/31/97			
370452	PRECISION INDUSTRIES 5635 E WASHINGTON BLVD LOS ANGELES CA 90040-1405	PHONE #619-457-7726 FAX # 619-457-7882	1RS 2X	12/31/97			
336800	PRECISION INDUSTRIES 2780 4TH STREET SW MASON CITY IA 50401	PHONE #515-424-0400 FAX # 512-424-1606	1RS 2X	12/31/97			
378554	PRECISION INDUSTRIES 1736 LOCHEARN MEMPHIS TN 38114	PHONE #901-396-7773 FAX # 901-396-7732	1X 2X	12/31/97			
368985	PRECISION INDUSTRIES 109 EAST BAILEY NASH TX 75689	PHONE #903-838-9077 FAX # 903-838-0052	1RS 2X	12/31/97			
793059	PRECISION INDUSTRIES 2503 S 13TH STREET NOBFOLK NE 68701	PHONE #402-371-4777 FAX # 402-371-4476	1RS 2X	12/31/97			

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*291484	RANDALL BIRNEY COMPANY INC 117 INDUSTRIAL DRIVE PO BOX 1090 BOERNE TX 78006	PHONE #210-249-3596 FAX # 210-249-9223	3X	12/31/97	S
304469	REEL INDUSTRIAL SUPPLY 2131 RAND ROAD RAPID CITY SD 57702	PHONE #605-343-9393 FAX # 605-343-6536	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
378935	RGA CO INC DBA ARKANSAS RUBBER & GASKET 4416 E STATE HWY 18 ARMOREL AR 72310-0284	PHONE #501-762-2044 FAX # 501-762-2312	1RS 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
378943	RGA CO INC DBA RUBBER & GASKET OF EL PASO 11800 ROJAS DRIVE C-17 EL PASO TX 79936	PHONE #915-595-2528 FAX # 915-595-8851	1RS 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
378919	RGA CO INC DBA RUBBER & GSKY OF JONESBORO 3416 E HIGHLAND AVE JONESBORO AR 72401	PHONE #501-930-9101 FAX # 501-930-9779	1RS 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
275594	RGA CO INC 1623 ENMAR DRIVE LITTLE ROCK AR 72209	PHONE #501-568-7356 FAX # 501-568-7886	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
378927	RGA CO INC DBA RUBBER & GASKET OF MCALLEN 901 E WHITING AVE SUITE A MCALLEN TX 78501	PHONE #210-630-2433 FAX # 501-568-7886	1RS 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
378851	RGA CO INC DBA MID STATE RUBBER & GASKET 4728 NH 1ST OKLAHOMA CITY OK 73127	PHONE #405-942-8100 FAX # 405-943-8027	1RS 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
378901	RGA CO INC DBA SPRINGDALE RUBBER & GSKT 1000 S OLD MISSOURI RD SPRINGDALE AR 72764	PHONE #501-756-3777 FAX # 501-756-0836	1RS 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
378877	RGA CO INC DBA RUBBER & GASKET OF TULSA 5425 S 99 EAST AVE TULSA OK 74147	PHONE #918-464-4111 FAX # 918-464-4083	1RS 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
*346757	ROCK SPRINGS WINDUSTRIAL CO 799 E K STREET P O BOX 1910 ROCK SPRINGS WY 82902	PHONE #307-382-2343 FAX # 307-382-8919	1X	12/31/97	S
*346536	ROCKY MOUNTAIN SUPPLY INC 2021 FIRST AVE GREELEY CO 80631	PHONE #303-659-8220 FAX # 303-351-6444	OX 1RS 2X 3M 4PM	12/31/97	S
*889006	ROEMING INDUSTRIAL SALES 1133 M LIEBAU RD 124H MEQUON WI 53092	PHONE #414-243-5800 FAX # 414-243-5803	OX 1X 3G 3GY 3X 4X 9X	12/31/97	

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*254755	ROGER BROWN CO INC 2803 CANTON STREET NORTH EL PASO TX 79902	PHONE #915-532-2418 FAX # 915-532-5105	1RS 2X	12/31/97	
*271351	ROYE CORP 1210 WASHINGTON SOUTH HOUSTON TX 77587	PHONE #713-944-6477	OX 1X 3M	12/31/97	S
375261	S E C 1100 HWY 43 SOUTH DEMOPOLIS AL 36732	PHONE #334-289-1008 FAX # 334-289-8009	OX 1X 2EX 2X 3G 3GY 3X 9X	12/31/97	
340034	S E C 310 E HALLS MILL ROAD MOBILE AL 36693-5639	PHONE #205-666-0828 FAX # 205-666-7064	OX 1X 2EX 2X 3G 3GY 3M 3X 9X	12/31/97	
*312207	S E C 803 ELY ROAD P O BOX 15667 PENSACOLA FL 32516-7013	PHONE #904-476-1077 FAX # 904-476-6357	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
760777	SACRAMENTO INDUSTRIAL SUPPLY 330 COMMERCE CIRCLE PO BOX 13917 SACRAMENTO CA 95813	PHONE #916-929-0200 FAX # 916-929-0226	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	
*340513	SAMSON INDUSTRIAL CO AKA SAVANNAH RUBBER & GASKET 1550 WEST BAY ST SAVANNAH GA 31401	PHONE #912-332-2613 FAX # 912-334-3126	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
365676	SAMSON INDUSTRIAL CORP 1259 NORNELL DRIVE AUGUSTA GA 30901	PHONE #706-722-2242 FAX # 706-722-0777	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
241628	SAMSON INDUSTRIAL CORP 413 BLUFF ROAD P O BOX 13514 COLUMBIA SC 29201-0514	PHONE #803-322-1000 FAX # 803-322-1114	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
363062	SAMSON INDUSTRIAL CORP 205 BRIGHTON BLVD FLORENCE SC 29501	PHONE #803-441-4411 FAX # 803-441-4719	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
334037	SAMSON INDUSTRIAL CORP DBA JACKSONVILLE RGR & GSKT 321 HAMMOND BLVD JACKSONVILLE FL 32254	PHONE #904-784-7864 FAX # 904-781-5648	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
375915	SAMSON INDUSTRIAL CORP AKA MACON RUBBER & FASTENER 4585 BROADWAY MACON GA 31206	PHONE #912-744-1230 FAX # 912-744-1529	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
705020	SANTA ROSA BEARING CO 1100 SANTA ROSA AVE SANTA ROSA CA 95403	PHONE #707-545-7904 FAX # 707-522-1828	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
*485818	SCAN-PAC INDUSTRIAL SALES 9250 N PORT WASHINGTON RD MEQUON WI 53092	PHONE #414-241-3850 FAX # 414-241-8478	OX 3G 3GY 3X 4PM	12/31/97	S

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374421	SEAL CO ENTERPRISES INC 925 N MERIDIAN OKLAHOMA CITY OK 73107	PHONE #405-947-3307 FAX # 405-949-9003		OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97		
*181602	SEAL CO ENTERPRISES INC 1598 NORTH 107TH EAST AVE TULSA OK 74116	PHONE #918-836-0441 FAX # 918-836-5169		OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97		
*179861	SEAL WETHOODS INC 11915 SHOEMAKER AVENUE PO BOX 2604 SANTA FE SPRINGS CA 90670	PHONE #310-944-0291 FAX # 310-946-9439		OX 3G 3GY 3X	12/31/97		S
*845396	SEAL PRODUCTS INC 3312 ENGLISH AVE INDIANAPOLIS IN 46201-4327	PHONE #317-633-7277 FAX # 317-633-7279		OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97		
*377044	SEAL SOURCE INC UNIT 1 6215 N.E. AMBASSADOR PL PORTLAND OR 97220	PHONE #503-281-0020 FAX # 503-281-0763		1X	12/31/97		S
*352807	SEAL TEC 4702 ECTON DRIVE SUITE A MARIETTA GA 30066	PHONE #770-591-0425 FAX # 770-591-3668		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*	
*242974	SEAL-PAC PROFESSIONAL SVCS INC 6201 BAYWAY DRIVE BAYTOWN TX 77520	PHONE #713-424-2574 FAX # 713-470-2446		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
*162651	SEALCO INC 283 N FULLERTON AVE ELMHURST IL 60126	PHONE #630-833-6000 FAX # 630-833-1192		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97		
*352930	SEALCRAFT CORP 1 WELLS ST CIRCLE WALTERSBORO SC 29488	PHONE #803-538-2324 FAX # 803-538-2683		OX 2EX 2X 3G 3GY 3X	12/31/97		S
*378950	SEALING & PACKING SYSTEMS INC 2125 S JAMES RD COLUMBUS OH 43232	PHONE #614-239-7811 FAX # 614-239-7850		2EX	12/31/97		S
037606	SEALING DEVICES INC EBCO PARK 1225 PENINSULA DRIVE ERIE PA 16505	PHONE #814-832-9977 FAX # 814-832-6526		OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97		
*037556	SEALING DEVICES INC 4200 ELM AVE LANCASTER NY 14086-9751	PHONE #716-684-7600 FAX # 716-684-0780		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
792549	SEALING DEVICES INC 3120 WENRY CLAY BLVD LIVERPOOL NY 13088	PHONE #315-427-8425 FAX # 315-427-2026		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
210839	SEALING DEVICES INC 35 BENAR PARK ROCHESTER NY 14624	PHONE #716-426-4730 FAX # 716-426-4793		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97		
*278526	SEALING SOLUTIONS INC 3920 ADVANCE LANE COLMAR PA 18915	PHONE #215-297-8000 FAX # 215-297-8004		1RX 2X	12/31/97		

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*370577	SEALS & PACKAGING 714 S SHERMAN ST SUITE F RICHARDSON TX 75081	PHONE #214-280-0688 FAX # 214-280-2879		1X 2X 3GY 4X	12/31/97		S
*376421	SEALS UNLIMITED 17330 SW BASELINE RD BEAVERTON OR 97006	PHONE #503-690-6644		3M	12/31/97		S
*015982	SEALYYS CORP 1906 WASHINGTON ST LOUIS MO 63103	PHONE #314-231-7726 FAX # 314-231-7727		OX 1X 2X 3G 3GY 3X	12/31/97		
376699	SEPCO INDUSTRIES INC BEARING & PT GROUP 11646 INDUSTRIPLER BLVD BATON ROUGE LA 70809	PHONE #504-759-8077 FAX # 504-759-1448		1X 2EX 2X 4PM 9X	12/31/97		S
376640	SEPCO INDUSTRIES BEARING & PT GROUP 222 S TREADWAY ABILENE TX 79602	PHONE #915-672-5626 FAX # 915-676-9826		1X 2EX 2X 4PM 9X	12/31/97		S
376590	SEPCO INDUSTRIES INC BEARING & PT GROUP 608 ABBROW AUSTIN TX 78752	PHONE #512-459-1285 FAX # 512-454-9219		1X 2EX 2X 4PM 9X	12/31/97		S
276298	SEPCO INDUSTRIES INC BEARING & PT GROUP 315 SOUTH LOOP 201 BATON ROUGE TX 77520	PHONE #713-427-7545 FAX # 713-427-7531		1X 2EX 2X 4PM 9X	12/31/97		S
337196	SEPCO INDUSTRIES INC BEARING & PT GROUP 5550 HIGHLAND AVE BEAUMONT TX 77705	PHONE #409-832-8950 FAX # 409-832-3782		1X 2EX 2X 4PM 9X	12/31/97		S
376707	SEPCO INDUSTRIES INC BEARING & PT GROUP 110 N. DR BROUSSARD LA 70318	PHONE #318-837-9436 FAX # 318-837-3704		1X 2EX 2X 4PM 9X	12/31/97		S
337519	SEPCO INDUSTRIES INC BEARING & PT GROUP 113 RHOES BLVD G & W CONROE TX 77301	PHONE #409-233-9612 FAX # 409-233-9613		1X 2EX 2X 4PM 9X	12/31/97		S
376558	SEPCO INDUSTRIES INC BEARING & PT GROUP 4718 BALDWIN BLVD CORPUS CHRISTI TX 78408	PHONE #512-882-8297 FAX # 512-882-2160		1X 2EX 2X 4PM 9X	12/31/97		S
372860	SEPCO INDUSTRIES INC BEARING & PT GROUP 6613 EAST HWY 332 FREEDPORT TX 77561	PHONE #409-233-1191 FAX # 409-233-8605		1X 2EX 2X 4PM 9X	12/31/97		S
376715	SEPCO INDUSTRIES INC BEARING & PT GROUP 320 TIME SAYER AVE MARANATHA LA 70123	PHONE #504-723-7100 FAX # 504-733-3310		1X 2EX 2X 4PM 9X	12/31/97		S

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376541	SEPCO INDUSTRIES INC BEARING & PT GROUP 4302 CREEKHOMT HOUSTON TX 77091	PHONE #713-688-5551 FAX # 713-688-5530	1X 2EX 2X 4PM 9X	12/31/97	S		
376525	SEPCO INDUSTRIES INC BEARING & PT GROUP 113 N 14TH STREET HOUSTON TX 77041	PHONE #713-937-0330 FAX # 713-937-0574	1X 2EX 2X 3M 4PM 9X	12/31/97	S		
335646	SEPCO INDUSTRIES INC BEARING & PT GROUP 3619 HEMPSTEAD HWY HOUSTON TX 77040	PHONE #713-460-4000 FAX # 713-460-4402	1X 2EX 2X 4PM 9X	12/31/97	S		
335596	SEPCO INDUSTRIES INC BEARING & PT GROUP 2603 LA BRANCH ST HOUSTON TX 77004	PHONE #713-652-0021 FAX # 713-652-0477	1X 2EX 2X 4PM 9X	12/31/97	S		
376657	SEPCO INDUSTRIES INC BEARING & PT GROUP 2020 N LOOP 12 IRVING TX 75061	PHONE #214-438-3063 FAX # 214-579-0757	1X 2EX 2X 4PM 9X	12/31/97	S		
376582	SEPCO INDUSTRIES INC BEARING & PT GROUP 1108 E GIBSON JASPER TX 75951	PHONE #409-384-4637 FAX # 409-384-3139	1X 2EX 2X 4PM 9X	12/31/97	S		
335604	SEPCO INDUSTRIES INC BEARING & PT GROUP 113 N 14TH STREET LAPORTE TX 77571	PHONE #713-471-6241 FAX # 713-471-6088	1X 2EX 2X 4PM 9X	12/31/97	S		
376624	SEPCO INDUSTRIES INC BEARING & PT GROUP 1712 AVE M LEVELLAND TX 79336	PHONE #806-894-2978 FAX # 806-894-7796	1X 2EX 2X 4PM 9X	12/31/97	S		
376574	SEPCO INDUSTRIES INC BEARING & PT GROUP 207 W HILL LIVINGSTON TX 77351	PHONE #409-327-4334 FAX # 409-327-7010	1X 2EX 2X 4PM 9X	12/31/97	S		
376673	SEPCO INDUSTRIES INC BEARING & PT GROUP 1803 W COLTON LONGVIEW TX 75607	PHONE #903-757-4000 FAX # 903-757-2063	1X 2EX 2X 4PM 9X	12/31/97	S		
376681	SEPCO INDUSTRIES INC BEARING & PT GROUP 480 REGAL ROW LUFKIN TX 75904	PHONE #409-634-7721 FAX # 409-634-7728	1X 2EX 2X 4PM 9X	12/31/97	S		
375914	SEPCO INDUSTRIES INC BEARING & PT GROUP 3900 WEST LOOP 338 ODESSA TX 79764	PHONE #915-337-5401 FAX # 915-337-3472	1X 2EX 2X 4PM 9X	12/31/97	S		
376244	SEPCO INDUSTRIES INC BEARING & PT GROUP 1401 S E 29TH STREET OKLAHOMA CITY OK 73129	PHONE #405-470-1481 FAX # 405-470-2702	1X 2EX 2X 4PM 9X	12/31/97	S		

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376566	SEPCO INDUSTRIES INC BEARING & PT GROUP 3453 IM 35 NORTH SAN ANTONIO TX 78219	PHONE #210-271-9512 FAX # 210-271-9519	1X 2EX 2X 4PM 9X	12/31/97	S		
376665	SEPCO INDUSTRIES INC BEARING & PT GROUP 1206 GRIMMETT DR SHREVEPORT LA 71107	PHONE #318-227-0751 FAX # 318-227-9207	1X 2EX 2X 4PM 9X	12/31/97	S		
376723	SEPCO INDUSTRIES INC BEARING & PT GROUP 94 BAYOU BEND P O BOX 1231 SULPHUR LA 70664	PHONE #318-625-7111 FAX # 318-625-7221	1X 2EX 2X 4PM 9X	12/31/97	S		
376616	SEPCO INDUSTRIES INC BEARING & PT GROUP 7304 E 35TH ST TULSA OK 74145-3224	PHONE #318-442-0041 FAX # 318-442-9332	1X 2EX 2X 4PM 9X	12/31/97	S		
376632	SEPCO INDUSTRIES INC BEARING & PT GROUP 8497 JACKSBORO HWY MICHITA FALLS TX 76301	PHONE #817-744-3234 FAX # 817-744-3210	1X 2EX 2X 4PM 9X	12/31/97	S		
371492	SERVICE BEARING & TRANSMISSION 103 JACKSON STREET BATAVIA NY 14020	PHONE #716-344-1143 FAX # 716-344-1390	1RS 2X	12/31/97			
320705	SERVICE BEARING & TRANSMISSION 206 OLIVER STREET NORTH TONAWANDA NY 14120	PHONE #716-693-9657 FAX # 716-693-9757	1RS 2X	12/31/97			
341347	SERVICE BEARING & TRANSMISSION 926 M STATE STREET CLEAN NY 14740	PHONE #716-373-1704 FAX # 716-373-4420	1RS 2X	12/31/97			
755140	SHIELDS RUBBER CORPORATION DIV OF LENIS-GOETZ CO INC 2130 COLONIAL AVE ERIE PA 16508	PHONE #814-838-6561 FAX # 814-833-2590	OK 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97			
336172	SHREVEPORT RUBBER & GASKET CO 8103 INWOOD AVENUE SHREVEPORT LA 71106	PHONE #318-861-1052 FAX # 318-863-0489	OK 1X 2X 3G 3GY 3X 4X 9X	12/31/97			
334847	SIGNAL INDUSTRIAL PRODUCTS 1601 COMBAT ST CHATTANOOGA TN 37408	PHONE #423-756-4980 FAX # 423-267-9586	1X 2X	12/31/97	S		
375527	SKI GASKET 1600 WEST ACONA UNIT 32 LAKE HAVASU CITY AZ 86403	PHONE #520-680-4387 FAX # 520-680-4388	3G 3GY 3X	12/31/97	S		
684977	SMITH THOMPSON INC 12501 SE SECOND STREET AMARILLO TX 79105-2249	PHONE #806-372-4751 FAX # 806-372-6444	OK 1X 9X	06/30/97	S		
329888	SOUTHWEST BEARING CORP 8808 EMPRESS ROW DALLAS TX 75247	PHONE #214-631-2255 FAX # 214-636-6917	1RS 2X	12/31/97			

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354605	THRALD DISTRIBUTION INC 2110 HUBBARD AVE DECATUR IL 62526	PHONE #217-877-1613 FAX # 217-877-0178		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97	S
366021	THRALD DISTRIBUTION INC 3601 MORTON DR PO BOX 447 EAST MOLINE IL 61244	PHONE #309-755-7333 FAX # 309-755-1854		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
369009	THRALD DISTRIBUTION INC 1330 40TH ST N W FARGO ND 58102	PHONE #701-277-9085 FAX # 701-277-1942		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
363069	THRALD DISTRIBUTION INC 7701 OPPORTUNITY DRIVE FORT WAYNE IN 46825	PHONE #219-489-7494 FAX # 219-489-6971		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	06/30/97	
372896	THRALD DISTRIBUTION INC 11600 COURTHOUSE BLVD INVER GROVE HTS MN 55077	PHONE #612-437-1710 FAX # 612-437-1771		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 7X 9X	12/31/97	
365981	THRALD DISTRIBUTION INC 3201 PLANK RD PO BOX 277 KEOKUK IA 52632	PHONE #319-524-1003 FAX # 319-524-6817		OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
363077	THRALD DISTRIBUTION INC 2625 S 30TH STREET LAFAYETTE IN 47905	PHONE #317-474-3416 FAX # 317-474-8321		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97	
181545	THRALD DISTRIBUTION INC 4250 MCFARLAND ROAD LOVES PARK IL 61111-4406	PHONE #815-282-3100 FAX # 815-282-6688		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
366765	THRALD DISTRIBUTION INC 2817 37TH STREET N W MANDAN ND 58554	PHONE #701-663-2444 FAX # 701-663-2554		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
343871	THRALD DISTRIBUTION INC 429 N BODEN ST MILWAUKEE WI 53207-0200	PHONE #414-481-0001 FAX # 414-481-6444		OX 1X 3G 3GY 3M 3X 4X 9X	12/31/97	
354589	THRALD DISTRIBUTION INC 8515 N UNIVERSITY PEORIA IL 61615	PHONE #309-693-9550 FAX # 309-693-5564		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97	S
266114	THRALD DISTRIBUTION INC 3500 INDUSTRIAL DR PERU IL 61354	PHONE #815-224-3600 FAX # 815-224-2973		3G 3GY 3X	12/31/97	
366773	THRALD DISTRIBUTION INC 2750 RANCHOVIEW LANE NORTH PLYMOUTH MN 55447-1998	PHONE #612-359-1300 FAX # 612-359-5790		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
354597	THRALD DISTRIBUTION INC 2309 E COOK AVE SPRINGFIELD IL 62703	PHONE #217-523-4523 FAX # 217-523-0033		OX 1X 2EX 3G 3GY 3M 3X 4X 9X	12/31/97	S
366781	THRALD DISTRIBUTION INC 1917 16TH AVE WEST VIRGINIA MN 55792	PHONE #218-741-2220 FAX # 218-741-9113		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
366955	THRALD PROCESS SERVICES INC HIGHWAY 92 SOUTH CANNON FALLS MN 55009	PHONE #507-263-2281 FAX # 507-263-2285		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	

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366948	THRALD PROCESS SERVICES INC 4419 STATE STREET RIVERDALE IA 52722	PHONE #319-359-3851 FAX # 319-359-4144		OX 3G 3GY 3M 3X 4X	12/31/97	S
*017418	THUENLYN INDUSTRIAL PROD INC 354 WEST MAIN ST MILWAUKEE MI 53186	PHONE #414-547-1789 FAX # 414-547-6493		9X	12/31/97	S
*367946	TORRINGTON SUPPLY CO 100 NORTH ELM ST PO BOX 2838 WATERBURY CT 06723-2838	PHONE #203-754-3441 FAX # 203-753-4317		OX 9X	12/31/97	S
339358	TRANS BEARING CO 57 NATIONAL ROAD PO BOX 355 EDISON NJ 08818-0355	PHONE #908-287-1780 FAX # 908-287-1770		1RS 2X	12/31/97	
299982	TRANS BEARING CO 1647 OLD MILL RD WALL NJ 07719-0400	PHONE #908-681-2343 FAX # 908-681-5882		1RS 2X	12/31/97	
*342154	TRI STATE BEARING INC 118 E 25TH STREET MINNEAPOLIS MN 55406	PHONE #612-721-2443 FAX # 612-721-7634		1RS 2X	12/31/97	
*371419	TRI-STATE BEARING & SUPPLY CO 1100 MIDLAND AVE BLDG D SADDLERBROOK NJ 07663	PHONE #201-794-3838 FAX # 201-794-3237		1RS 2EX 2X	12/31/97	
*271585	TRIANGLE PACKING & SPECIALTY PO BOX 1939 NEEDERLAND TX 77627	PHONE #409-722-8727 FAX # 409-722-7439		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
551492	TRIPLEX INC 1408 ROBERT E LEE PO BOX 1368 EL DORADO AR 71730	PHONE #501-862-6456 FAX # 501-862-6038		OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	
363726	TRIPLEX INC 1926 HWY 223 PO BOX 959 FREEPORT TX 77541	PHONE #409-233-2481 FAX # 409-233-1763		OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
799635	TRIPLEX INC 1131 MOOLWORTH ST HOUSTON TX 77020	PHONE #713-672-7521 FAX # 713-672-7461		OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
361220	TRIPLEX INC 4407 HIGHWAY 347 NEEDERLAND TX 77627	PHONE #409-727-1671 FAX # 409-722-3182		OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
343913	TRIPLEX INC 1993 MATES ISLAND CIRCLE SHREVEPORT LA 71107	PHONE #318-227-1011 FAX # 318-227-0106		OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	S
326512	TRIPLEX INC 203 S LOGAN TEXAS CITY TX 77590	PHONE #409-948-1709 FAX # 409-948-1700		OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97	

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*41225	TROY BELTING & SUPPLY CO 70 COMHOES ROAD MATERVLIET NY 12189	PHONE #518-272-4920 FAX # 518-272-0531	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*36356	TURPEN & ASSOC INC 3148 S 108TH E AVENUE SUITE 100 TULSA OK 74146	PHONE #918-469-0044 FAX # 918-665-0007	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
271676	U S BEARINGS & DRIVES 1801 FRANKLIN ST BELLINGHAM WA 98225	PHONE #360-676-2282 FAX # 360-671-8221	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	
366666	U S BEARINGS & DRIVES 30440 DRIVE 69 PO BOX 880 GOSHEN CA 93227	PHONE #209-651-3651 FAX # 209-651-3230	1RS 2X 4X	12/31/97	
378364	U S BEARINGS & DRIVES BUILDING 1090 6001 S POWER ROAD MESA AZ 85206	PHONE #602-988-2483 FAX # 602-988-2421	1RS 2EX 2X	12/31/97	
336230	U S BEARINGS & DRIVES 2612 MURPHY ST MISSOULA MT 59802	PHONE #406-549-6451 FAX # 406-549-3870	1RS 2X	12/31/97	
366674	U S BEARINGS & DRIVES 2309 TENAYA DR #E MODESTO CA 95354-3925	PHONE #209-578-3651 FAX # 209-549-8160	1RS 2X	12/31/97	
350033	U S BEARINGS & DRIVES 3905 W. VANBUREN/SUITE 2 & 3 PHOENIX AZ 85009	PHONE #602-263-2331 FAX # 602-352-0845	1RS 2EX 2X	12/31/97	
337436	U S BEARINGS & DRIVES 1033 S.E. MAIN PORTLAND OR 97214	PHONE #503-239-5021 FAX # 503-238-3170	1RS 2X	12/31/97	
297853	U S BEARINGS & DRIVES 2250 DELACRUZ BLVD SANTA CLARA CA 95050	PHONE #408-727-4979 FAX # 408-727-3299	1RS 2X	12/31/97	
*335935	U S BEARINGS & DRIVES 4425 SOUTH 134TH PLACE BUILDING D SEATTLE WA 98168	PHONE #206-241-1171 FAX # 206-241-2197	1RS 2X	12/31/97	
378372	U S BEARINGS & DRIVES SUITE 117 1301 E AJO WAY TUCSON AZ 85713	PHONE #520-822-4761 FAX # 520-884-9480	1RS 2EX 2X	12/31/97	
374959	U S BEARINGS & DRIVES 1704 BROADWAY VANCOUVER WA 98663	PHONE #360-750-1444 FAX # 360-750-1443	1RS 2X	12/31/97	
329300	UKIAH BEARING & GEAR CO DIY SANTA ROSA BEARING 1064 N. STATE STREET UKIAH CA 95482	PHONE #707-448-0291 FAX # 707-448-1421	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	

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*376079	ULTRA PURE PRODUCTS 844 N. GLENVILLE DRIVE RICHARDSON TX 75081	PHONE #214-437-4802	3G 3GY 3X 9X	12/31/97	*
*346254	UNION BEARING & TRANS CO INC 505 BRYANT ST DENVER CO 80204	PHONE #303-825-1540 FAX # 303-825-1599	2X	12/31/97	
*783399	UNITED SEAL & RUBBER CO INC 1025 L AMILER INDUSTRIAL DR ATLANTA GA 30360	PHONE #404-729-8880 FAX # 404-729-8992	OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97	*
*318105	UNIVERSAL BEARING & CHAIN P O BOX 705 325 S MAIN STREET CARLSBAD NM 88220	PHONE #505-887-2213 FAX # 505-885-9502	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	
365320	UTAH BEARING 390 NORTH 1000 WEST LOGAN UT 84321	PHONE #801-753-7310 FAX # 801-753-6416	1RS 2X	12/31/97	
365304	UTAH BEARING & FABRICATION 1400 HALL AVE OGDEN UT 84404	PHONE #801-627-2630 FAX # 801-392-7219	1RS 2X	12/31/97	
365338	UTAH BEARING & FABRICATION 555 SOUTH COMMERCE 1325 WEST OREM UT 84058	PHONE #801-229-1955 FAX # 801-229-1948	1RS 2EX 2X	12/31/97	
*365296	UTAH BEARING & FABRICATION 2072 SOUTH PIONEER RD SALT LAKE CITY UT 84104	PHONE #801-972-4073 FAX # 801-975-9221	1RS 2X	12/31/97	
*364356	VALLEY BEARING & SUPPLY 1224 N HIGHWAY 283 MONTE VISTA CO 81144	PHONE #719-852-4033 FAX # 719-852-4034	1X 2X 3M	12/31/97	S
*362558	VALLEY IND RUBBER PRODUCTS CO 3 SOUTH COMMERCE WAY BETHLEHEM PA 18017	PHONE #610-974-8990 FAX # 610-974-8999	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
*317396	VALLEY OF BIRMINGHAM 2787 HIGHWAY 11 P O BOX 877 PELHAM AL 35124	PHONE #205-663-6961 FAX # 205-663-1763	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
*920470	VALLEY PRODUCTS CO 1025 BROOK ST SE PO BOX 1434 DECATUR AL 35602	PHONE #205-353-0144 FAX # 205-353-6884	OX 1X 3G 3GY 3M 3X 4X 9X	12/31/97	*
*278323	VALLEY RUBBER & GASKET 1994 LOPES ROAD CORDELIA CA 94585	PHONE #707-244-8783 FAX # 707-864-0169	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	*
*215182	VALLEY RUBBER & GASKET CO VALLEY CRYSTON WAY SACRAMENTO CA 95827-2102	PHONE #916-363-8885 FAX # 916-363-1960	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97	
350017	VALLEY RUBBER & GASKET CO VALLEY FRONTIER WAY STOCKTON CA 95215-9670	PHONE #209-944-0791 FAX # 209-944-0166	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97	

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CUST #	COMPANY / CONTRACT ADDRESS	PHONE	FAX	PRODUCT LINES	EXP. DATE	PAPER RCVD.			
*354019	VALLEY RUBBER & GASKET CO 563 ANDERSON STREET WINNEMUCCA NV 89445	PHONE #702-623-1330 FAX # 702-623-6636		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97				
*375287	VALLEY RUBBER AND GASKET 3733 SUITE A BAGLEY AVENUE FRESNO CA 93725	PHONE #209-499-4900 FAX # 209-499-6909		OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97				
255893	VALTEC AIRCRAFT SUPPLY ESSEX INDUSTRIAL PARK ESSEX CT 06426	PHONE #860-767-8211 FAX # 860-767-2918		1RS 2X	12/31/97				
*185579	VENTURA HYDRAULIC & MACHINE WK 1555 CALLENS ROAD VENTURA CA 93003	PHONE #805-656-1760 FAX # 805-644-3800		1X 4PM	12/31/97				
039123	VICTORIA BEARING & IND SPLY CO 1708 N WHEELER VICTORIA TX 77901	PHONE #512-575-7478 FAX # 512-576-5842		OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97				
360339	VICTORIA BEARING FT WORTH INC 1814 MONY STREET FORT WORTH TX 76102	PHONE #817-877-0330 FAX # 817-332-1020		2X	12/31/97				
342071	VICTORIA BEARING OF DALLAS INC 4656 LESTON SUITE 507 DALLAS TX 75247	PHONE #214-634-0921 FAX # 214-634-1365		1RS 2X	12/31/97				
304246	VIRGINIA SEALING PRODUCTS INC 7520 HARVEST RD PRINCE GEORGE VA 23875	PHONE #804-541-0812 FAX # 804-452-1251		OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97				
348748	VOLUNTEER HOSE & GASKET 1905 HOLENSVILLE ROAD NASHVILLE TN 37211	PHONE #615-242-0461 FAX # 615-244-6168		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97				
*343145	W C DUCOMB COMPANY INC 5700 MT ELLIOTT DETROIT MI 48211	PHONE #313-921-4924 FAX # 313-921-3049		1RS 2X	12/31/97				
346593	W C DUCOMB COMPANY INC 48893 WEST ROAD MILWAUKEE WI 53233	PHONE #810-380-3810 FAX # 810-380-6435		1RS 2X	12/31/97				
*012815	WARREN FLUID POWER 2301 S PLATTE RIVER DR DENVER CO 80223	PHONE #		1X	12/31/96				
805200	WEB SEAL INC 99 BARNES HILL ROAD MORSEHEADS NY 14865	PHONE #607-739-0318 FAX # 607-739-0318		OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97				
*942946	WEB SEAL INC 15 OREGON STREET ROCHESTER NY 14605	PHONE #716-546-1320 FAX # 716-546-5746		OX 1X 2X 3G 3GY 3X 4X 9X	12/31/97				
*211763	WENCOR WEST/KITCO INC 1675 N MOUNTAIN SPRINGS PKWY BOZEMAN MT 59717	PHONE #801-489-2614 FAX # 801-489-9777		OX 1X 2X 3GY 3M 3X	12/31/97				

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CUST #	COMPANY / CONTRACT ADDRESS	PHONE	FAX	PRODUCT LINES	EXP. DATE	PAPER RCVD.			
*47812	WESTERN BEARING & SUPPLY 1517 MAIN AVE FARGO ND 58102	PHONE #701-237-1110 FAX # 701-237-6110		1RS 2X	12/31/97				
*948414	WESTERN GASKET & PACKING CO 3007 FRUITLAND AVE LOS ANGELES CA 90058	PHONE #213-583-4751 FAX # 213-588-5275		3G 3GY 3M 3X	12/31/97				
*377713	WESTERN HOSE & SUPPLY 3750 DALBERGIA STREET SAN DIEGO CA 92113	PHONE #619-234-1100 FAX # 619-231-2783		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97				
*951558	WHEELING RUBBER PRODUCTS INC 2110 MAIN STREET PO BOX 6408 WHEELING WV 26008	PHONE #304-233-1280 FAX # 304-233-9630		OX 1X 2EX 2X 3G 3GY 3X 4X 9X	12/31/97				
345827	WHISLER BEARING CO 3299 N CASCADE COLORADO SPRINGS CO 80907	PHONE #719-475-7217 FAX # 719-475-2918		1RS 2X	12/31/97				
*377937	WHISLER BEARING CO 101 N MAPLE BOX 1336 RAPID CITY SD 57709	PHONE #605-342-8822 FAX # 605-342-8804		2X 3G	12/31/97				
375980	WILSON SUPPLY 700 NORTH I.H. 35 DILLEY TX 78617	PHONE #210-945-1641 FAX # 210-945-1822		2X	12/31/97				
372847	WISCONSIN BEARING 2730 MOLESKE ROAD MARINETTE WI 54143	PHONE #715-732-1714 FAX # 715-732-1272		1RS 2X	12/31/97				
966036	WISCONSIN BEARING CO 2222 NORDALE DRIVE P.O. BOX 1215 APPLETON WI 54912	PHONE #414-731-4121 FAX # 414-734-2138		1RS 2EX 2X	12/31/97				
310136	WISCONSIN BEARING CO 1814 N LINCOLN RD ESCANABA MI 49829	PHONE #506-784-4110 FAX # 506-784-1726		OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97				
365193	WISCONSIN BEARING CO 695 E LILLIAN DRIVE FOND DU LAC WI 54935	PHONE #414-322-7300 FAX # 414-329-2505		1RS 2X	12/31/97				
967158	WISCONSIN BEARING CO 220 LOMBARDI AVE GREEN BAY WI 54307-2056	PHONE #414-437-4531 FAX # 414-437-1025		1RS 2X	12/31/97				
959262	WISCONSIN BEARING CO 1500 WOODWOOD ST ISHPENDING MI 49849	PHONE #506-485-5555 FAX # 506-485-4383		1RS 2X	12/31/97				
354407	WISCONSIN BEARING CO 1305 W 1ST AVE JANESVILLE MI 53546	PHONE #608-754-4183 FAX # 608-754-4233		1RS 2X	12/31/97				
351908	WISCONSIN BEARING CO 208 W 1ST STREET LA CROSSE WI 54601	PHONE #608-785-1200 FAX # 715-848-7133		1RS 2X	12/31/97				

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967406	WISCONSIN BEARING CO 2125 SOUTH STOUGHTON RD MADISON WI 53716	PHONE #608-221-3328 FAX # 608-221-8933	IRS 2X	12/31/97			
094615	WISCONSIN BEARING CO 310 E 23RD ST MILWAUKEE WI 53214	PHONE #414-649-2400 FAX # 414-649-2423	IRS 2X	12/31/97			
959254	WISCONSIN BEARING CO 2816 N HENLOCK MILWAUKEE WI 53223	PHONE #414-365-8780 FAX # 414-365-8787	IRS 2X	12/31/97			
374215	WISCONSIN BEARING CO 365 ENTERPRISE DRIVE NEENAH WI 54956	PHONE #414-729-9429 FAX # 414-729-9490	IRS 2X	12/31/97			
376814	WISCONSIN BEARING CO 1615 LA DAWN DR P O BOX 870 PORTAGE WI 53901	PHONE #608-742-5129 FAX # 608-742-3287	IRS 2X	12/31/97			
373050	WISCONSIN BEARING CO M-6889 US 2 P O BOX 166 QUINNESEC WI 49876	PHONE #906-774-1100 FAX # 906-774-1706	OX 1X 2EX 2X 3G 3GY 3M 3X 4X 9X	12/31/97			
967133	WISCONSIN BEARING CO 2410 NORTHOOD CT P O BOX 1175 RACINE WI 53403	PHONE #414-554-0110 FAX # 414-554-1212	IRS 2X	12/31/97			
299768	WISCONSIN BEARING CO 1671 MENOMINEE PO BOX 1088 RHINELANDER WI 54501	PHONE #715-362-3020 FAX # 715-362-2505	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97			
090118	WISCONSIN BEARING CO 365 ENTERPRISE DRIVE SHEBOYGAN WI 53083	PHONE #414-208-5600 FAX # 414-208-5618	IRS 2X	12/31/97			
360293	WISCONSIN BEARING CO M222 N1687 WESTHOOD DRIVE UNIT C MILWAUKEE WI 53186-1153	PHONE #414-896-3880 FAX # 414-896-3890	IRS 2X	12/31/97			
767699	WISCONSIN BEARING CO 510-25TH AVENUE N. WISCONSIN RAPIDS WI 54494	PHONE #715-421-1450 FAX # 715-421-1764	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97			
*111773	WM G BOALES ASSOCIATES INC 24385 JOHN R MADISON HEIGHTS MI 48071	PHONE #313-398-1060 FAX # 313-398-4454	9X	12/31/97			
365346	WYOMING BEARING 405 MCNAMARK DRIVE PO BOX 1867 ROCK SPRINGS WY 82901	PHONE #307-382-3122 FAX # 307-382-3928	IRS 2X	12/31/97			
*369686	YESCO INDUSTRIAL SUPPLY 252 SIGNAL MOUNTAIN ROAD CHATTANOOGA TN 37405	PHONE #615-756-7325 FAX # 615-756-6022	OX 1X 2EX 2X 3G 3GY 3X 4X 9X	06/30/97 *			

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CUST #	COMPANY / CONTRACT ADDRESS	PHONE	PRODUCT LINES	EXP. DATE	PAPER	RCVD.	
*342132	YORK GASKET & SEAL TECH INC 106A STEPHAN STREET P O BOX 709 FAIRFIELD PA 17320	PHONE #717-642-6900 FAX # 717-642-6433	OX 1X 2X 3G 3GY 3M 3X 4X 9X	12/31/97			

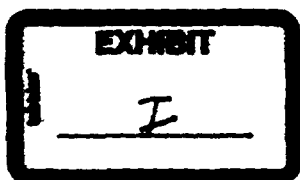
This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or printed text on the paper.This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is a vertical margin line on the left side, creating a narrow left margin. The paper appears to be from a notebook or a standard ruled document. There is no handwriting or printed text on the page.

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CUSTOMER CONTRACT DISTRIBUTORS - STATE/CITY W/PL CODES

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March 20, 1974





ASBESTOS INFORMATION ASSOCIATION

1660 L Street, N.W. / Washington, D.C. 20036 / (202) 223-4885

PLAINTIFF'S
EXHIBIT

7404.0

BOARD OF DIRECTORS MEETING

March 20, 1974

Army & Navy Club

Washington, D. C.

A meeting of the Board of Directors was held pursuant to notice, March 20, 1974, at 9:30 A.M., at the Army & Navy Club, Washington, D. C..

The following Directors were present:

George Barge
W. H. Beasley
C. Nelson Coddling
Thomas A. Dougherty
A. H. Fay
Joseph Hall
A. R. Hocker
John H. Marsh
C. G. Morgan
Martin Sendeki
F. J. Solon, Jr.
William C. Thurber
J. K. Whittaker

Atlas Asbestos Company
Cement Asbestos Products Company
Jim Walter Corporation
Certain-teed Products Corporation
National Gypsum Company
GAF Corporation
The Flintkote Company
Raybestos-Manhattan, Inc.
North American Asbestos Corporation
Congoleum Industries, Incorporated
Johns-Manville Corporation
Union Carbide Corporation
Nicolet Industries, Inc.

Also present: R. H. Mereness, Executive Director, AIA/NA;
Carol W. Grant, AIA/NA; Jill Cummings, Cadwalader, Wickersham &
Taft, Legal Counsel.

Minutes

Mr. Marsh, president, called attention to the Minutes of December 6, 1973, noting that the preparation of an "industry profile" through the gathering of information by questionnaire, which was approved by the Board, had not been accomplished. Mr. Marsh stated that it was his decision to delay this action due to the urgency of other business.

On motion, the Minutes of the December 6, 1973 Board of Directors meeting were approved as submitted.

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Federal Government Affairs

The Misses Seeley and Simon of Government Research Corporation reported on status of current Federal Government activities relating to the asbestos industry. A digest of their comments follows:

Occupational Safety and Health Administration (OSHA)

Revised Asbestos Standard- OSHA is revising its asbestos standard and has called on AIA/NA to submit in-put before formulating revision. In answer to a question regarding timing of AIA/NA in-put, Mr. Mereness stated that Mr. O'Neill was satisfied with AIA/NA's schedule and Mr. Marsh pointed out that if the Technical Committee needs more time to assemble information, OSHA has advised that they will gladly grant it ... that they appreciate "it will take a lot of work".

After AIA/NA submits its recommendations, OSHA will draft a standard in-house, submit it to consultants for review, conduct plant surveys to test feasibility and finally propose a revised standard in keeping with the rule-making procedure. The process will take at least six months. A new standard cannot be expected before 1975. Who will serve as consultants is not known.

NIOSH has not yet been officially asked by OSHA to provide information relating to the re-writing of the standard. NIOSH has studies on asbestos textile industry, and NIOSH's Dr. Joseph K Wagoner claims that data has been developed to show the textile industry can meet a 2-fiber (or lower) standard.

OSHA State Programs- It is good to keep an eye on what OSHA is doing with State programs. To date, OSHA has approved 25 State plans. No one is particularly pleased with the program. Chamber of Commerce believes State plans are being required to be overly stringent. AFL-CIO thinks plans aren't strong enough and seeks to block implementation. (The AFL-CIO, its Industrial Union Dept., and the Illinois State AFL-CIO have filed suit in U. S. District Court for District of Columbia to have approval of all existing State plans rescinded and to prevent states from receiving funds to develop or implement their plans. Where The Act requires approved State plans to be "at least as effective as" Federal regulations, the suit charges that none of the 25-approved plans meets that requirement.) OSHA is undergoing a number of personnel changes.

Occupational Safety and Health Legislation- Many bills have been introduced on The Hill to change the Occupational Safety and Health Act. Both The House and The Senate plan to hold oversight hearings this session to look at OSHA. House hearings started March 19. It is unlikely that any legislation will be coming

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this year, largely because both House and Senate committees are strongly pro-labor, and the AFL-CIO, in general, views the introduced bills as legislation that would weaken The Act.

Workmen's Compensation Legislation- So far, only regional hearings on the Williams-Javits bill (S. 2008), designed to drum up support for the bill, have been conducted. Rep. Peter Frelinghuysen, author of the "white lung" bill, has announced his plans to retire at the end of this session.

It was noted that NIOSH is working on a criteria document on silica and is currently thoroughly involved in problems of vinyl chloride. A discussion of the rule-making process and OSHA procedures followed. Mr. Marsh noted that labor compliance personnel have been helpful and cooperative with the industry. Mr. Fay noted a Workmen's Compensation meeting is scheduled in New York State, April 25-26. Dr. Selikoff is expected to testify. It was recommended that the Association cover the meeting.

Environmental Protection Agency- There is little direct activity within EPA working toward the establishment of a water-borne asbestos standard. EPA set air emissions standards on asbestos fibers a year ago and is now working on revisions and expanding the standards. EPA has considered drafting: (1) a drinking water standard for asbestos, (2) controlling asbestos fibers from A/C pipe; and (3) setting waterborne fiber controls on asbestos manufacturing operations. EPA has refrained from setting a standard in these areas because it believes health data are insufficient.

In December, The Center for Science in the Public Interest wrote to Russell Train, Administrator of EPA, asking for a ban on the use of A/C pipe in public water systems. Mr. Train's response of late January was "medical literature does not support nor refute the thesis that ingested asbestos fibers are harmful".

Effluent guidelines were finalized on February 26, and go into effect April 29. They apply to seven product sub-categories: A/C pipe, A/C sheet, asbestos paper (starch and elastomeric binders), asbestos millboard, asbestos roofing, asbestos floor tile.

There are four types of water pollution controls: (1) performance standards or pollution abatement requirements for existing plants, which must be achieved by 1977; (2) performance standards or allowable discharges from existing plants, which must be achieved by 1983; (3) performance standards for new plants discharging into navigable waters; (4) performance standards for new plants discharging into municipal treatment plants.

EPA has proposed a standard for a fifth category: existing

plants that dump into municipal plants.

~~The standards do not specify controls on fiber content of discharge. The preamble to the standard was that with certain exceptions, companies should take special consideration of disposal sites to prevent migration of fibers into the air, and ground or surface waters. This is not a regulation, rather a recommendation or admonition.~~

The consulting firm of Sverdrup and Parcel is completing field work on Phase II of the asbestos industry guidelines. A draft is due late March. Phase II will cover: gaskets, packing gland materials, friction materials, wet weaving process, and coated asbestos textiles. The proposed guidelines will probably not be issued before mid-summer. Mr. Marsh noted Arthur D. Little Co. is working on the economic impact of Phase II considerations as they did on Phase I. AIA/NA members have assisted in this effort.

EPA seeks to set limits on the amounts of toxic pollutants which can be discharged by industry into water. So far, asbestos has not been included. One environmentalist group would have asbestos included, as well as 24 other substances or categories of substances.

Mr. Fay said EPA is now collecting water samples in connection with the effluent program.

Under pressure from environmental groups, EPA proposed, on December 27, 1973, its first set of toxic water pollutant standards. These cover manufacturing processes that involve the discharge of one of the following: aldrin-dieldrin, benzinidine, cadmium, cyanide, endrin, mercury, PCB's DDT-DDD-DDE, and toxaphene. Controls are expressed in terms of allowable weights of the substance depending on types of receiving water. Benzinidine is the only carcinogen. Only one of the three substances controlled under EPA's hazardous standards program, mercury, is on the list. Asbestos and beryllium are not. The environmentalists would like them included.

EPA used four criteria in choosing the above substances. Two of these are most significant from the asbestos point of view: (1) sufficient data must be available showing actual or potential environmental threat from discharge; (2) sufficient data must be available for setting an effluent standard, that is, sufficient knowledge concerning the amounts of a substance in an industrial effluent. It has been interpreted that asbestos doesn't qualify because there is insufficient data to show an actual or potential environmental threat if discharged.

Environmental groups filed suit before these standards

were officially proposed, arguing that EPA had relied on unlawfully restrictive selection criteria in choosing the nine substances. Their argument was that asbestos and a number of other substances, such as lead, arsenic, barium, silver, are toxic to fish and humans and should be controlled, whether or not there is "sufficient" data. EPA filed to dismiss the suit. The groups are National Resources Defense Council, Sierra Club, Environmental Defense Fund, Persuasion in the Public Interest, and the Audubon Society.

The outlook is that EPA will continue to consider waterborne limits on asbestos but unless sufficient health data are developed, Federal controls appear unlikely.

On the Reserve Mining Trial- Trial will end April 1 or thereabout. A negotiated settlement will be made. The Judge's opinion on health question could be unfavorable to asbestos industry. The Judge has indicated that the Government has won on both the health question and the question of whether Reserve could afford to dispose of tailings on land. (This is the central issue, since Reserve has argued it will go out of business if ordered to go on land, ruining the economy of the Mesabe Iron Range).

Depositions from owners of Reserve -- Armco and Republic -- revealed that Reserve had prepared some on-land plans, that Reserve witnesses had lied to the Judge in saying that no plans existed, and that Reserve attorneys had directed the witnesses to falsify.

The trial recessed while Reserve presents an on-land plan and while attorneys on both sides attempt to negotiate a settlement on an on-land system. Reserve's main bargaining point is its possible agreement not to appeal the case. Since early February, the Judge has said that he believes Reserve is creating a significant health threat from both its air and water discharges.

On February 26, the Judge made his strongest statement in that he believed there was no threshold level for asbestos-type fibers and that there was no minimum dosage that was safe. He said he was working to "fashion a remedy" on the health question that will come in his judgement at the end of the trial. His health findings will, undoubtedly, fuel environmental and health groups' efforts and receive major play by the news media even though scientific community may question outcome.

Mr. Fay commented on a meeting with EPA officials in Durham, N. C., March 1. Messrs. Fay, Weaver of Raybestos-Manhattan, and Mereness attended the meeting requested by EPA to discuss EPA's concern about "second level" fabricators and processors of the asbestos industry and how EPA can respond to the demands of the

Environmental Defense Fund. Tailing piles and waste disposal were particular items of concern. Mr. Mereness noted that the group had been to GAF in Vermont and wished to visit mines in Canada which, he said, he was helping to arrange. Mr. Marsh stated that the Association and its individual members have a responsibility to "secondary level" fabricators and processors.

Miss Seeley reported no public information on the AFL-CIO IUD suit against the Labor Dept. since the case was heard in April of last year.

Financial Report

Mr. Marsh discussed the annual financial report and a newly-proposed Association budget; both were distributed to Board members. He said he would discuss financial matters in detail, but first wished to introduce Mr. Frank C. Frantz of Frank C. Frantz & Co., newly-appointed accounting firm for the Association, for remarks. Mr. Frantz stated that his company handles approximately 20 tax-exempt organizations. Questionnaires on which to base 1974 membership dues have been sent to member companies. Mr. Frantz stated that accounting will be handled on an accrual basis and through a data-processing system. Quarterly reports will be prepared, and monthly print-outs will be available. The aim, he said, of his company, is to act in an advisory capacity to the Association, therefore it will not render an opinion (audit) on the financial statements issued. If an audit is desired, a second firm can satisfy the requirement, either one selected by the new accounting firm or the Association.

AIA Plans and Programs

Mr. Marsh reviewed the Association's history and its contributions to the asbestos industry, listing among accomplishments the writing of much of the OSHA standard, the membrane filter study, the public awareness study, active liaison with government agencies, and with AIA/NA counterpart organizations in the U.K. and Canada, research grants to Drs. Murphy and Borow, and a range of public information/relations activities. In the latter instance, he noted damaging articles in the press aimed at the industry and misleading commentary as to the asbestos-health relationship which the Association has attempted to rebut. He spoke of industry's concern with regulations born in a time of public alarm, problems of hiring and keeping employees under such conditions and loss of business that could result from mis-led public attitudes with regard to the use of asbestos. He spoke of the effort to produce compliance manuals, testimony before Federal and State hearings and work with the Food and Drug Administration. He made a comparison of the budgets of the U.K. and Canadian asbestos associations and the scope of

their work as related to AIA/NA and noted the small investment of U. S. industry compared to that in U.K. and Canada. He said that the problem in the U. S. is much more severe because of Dr. Selikoff's multi-million dollar program, pressures of news media, and environmentalist groups and general public attitudes as compared with foreign countries.

Mr. Marsh said about a year ago he concluded that the Association must broaden its effort; that AIA/NA must have ready access to scientific, medical, and technical expertise for prompt and accurate answers to government, news media, and pressure groups. In addition, he said, the executive director or secretary must be freed from the burden of office routine so that he could address himself to such vital matters as close liaison with Government officials, visiting member companies, initiating public relations programs, internal materials, etc.. He said he wished at that time to provide an assistant for the executive director, form a competent technical committee whose members would give time to the work of the Association, and obtain a medical advisor. Events took place, he said, which placed those plans into a waiting period with the resignation of the executive secretary. Consideration of assigning the Association's work to the public relations firm of Hill and Knowlton, where Mr. Swetonic was going, and which had rendered service to the Association in the past, was made. A second option was to move the Association's office to Washington, hire a new executive director, and retain the expertise of Mr. Swetonic through a retainer relationship with Hill and Knowlton. This latter choice was made. Mr. Marsh said without the valuable help of Mr. Swetonic during the transition period, the Association could have been discredited. He said the organization is now viable and has great opportunities for AIA/NA alone has the expertise of the industry needed by Government agencies, and the Association is recognized as a spokesman for the industry. He said AIA/NA has the opportunity to assist in the writing of standards and regulations being developed by Federal and State agencies and the opportunity to provide pressure groups, interested persons, legislative groups and the press with objective and factual information concerning the asbestos industry. "Now," he said, "we must discuss our priorities and how we should organize to accomplish our objectives". A lengthy discussion followed in context of an outline submitted by the executive director.

On Government relations, public relations, and international relations, it was stated that the Association has a good base but much is needed to be done in a continuing forceful fashion.

On membership, Mr. Coddington said the Association should decide on a definition of the industry and the definition should include producers and users. He said there should be an organized campaign to get more firms into the Association, and a steering

committee should recommend guidance where the Association should be going and what the Association should be doing within a budget that can be supported.

The subject of "How clean is the total industry" was spoken to by various members, with the thought that "a Tyler, Texas" situation is extremely damaging to the whole industry even though an isolated situation and a non-member. Mr. Whittaker referred to his recommendation at the December Board meeting to promote visits among member plants. Mr. Solon commented that the Association's proposed "industry profile" should contain information as to compliance with standards and regulations which could be derived from reports from members on number of dust stations maintained, fiber levels achieved, etc.. Monitoring the industry efforts in compliance with standards and regulations was discussed. Mr. Mereness proposed that a "code of ethics" for the industry should be formulated and subscribed to as prerequisite to membership in the Association. Mrs. Cummings offered

Mrs. Cummings was asked to

A motion was made, seconded, and approved to establish a "code of ethics". Mr. Whittaker was asked if he would request Mr. Gabrielson, president of Nicolet, to consider preparation of a "code" which would be a "subscription to principle" and a symbol of accreditation. Mr. Solon stated that there is information available to show the industry's good faith and status in compliance with regulations. He accepted the responsibility of investigating a procedure for member reporting on status of industry compliance on a voluntary basis. Mr. Hall spoke of the importance of the Association having such information to provide the Government and prospective members. Mr. Fay spoke of the use of such information for public information purposes for the good of the industry, and it was agreed that this could be a product of the effort but the initial intent would be internal. It was noted by Mr. Whittaker that OSHA has access to this kind of information, therefore collecting it for the industry's benefit would not be an infringement on propriety.

Mr. Marsh reviewed the 1974 budget and stated that the budget paper was a working paper and would probably be revised to meet the costs of a viable program but costs would be carefully watched, and no "fancy" items were contemplated.

Luncheon Speaker

Mr. Robert A. Clifton, Asbestos Commodity Specialist for the Bureau of Mines, spoke of the Bureau's program and asked for industry assistance in compiling information for BuMines Mineral Industry survey. Mr. Clifton distributed a proposed survey

questionnaire and inquired of members if the information being asked is of the kind which can be obtained from industry.

Mr. Clifton pointed out that under the Information Act of The Congress, confidentiality of source information is maintained and sources are not revealed in the data collection and use procedure.

Mr. Hooker asked how the BuMines mailing list is determined. Mr. Clifton said that he had a list of 40 and that he had obtained an importer's mailing list indicating destinations of asbestos. Also, the census of manufacturers from the U. S. Dept. of Commerce is another source. He said he arrives at an annual asbestos consumption figure by using import and export information.

Old Business

The contract with the Hill and Knowlton firm was discussed, noting that it expires in August.

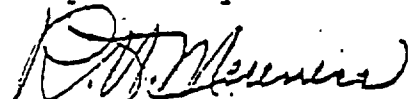
It was announced that Dr. Joseph Goodman of Charleston, S.C. would serve as advisor to AIA/NA for medical portion of OSHA standard-making. New membership and possible changes to dues structuring were tabled for future review.

New Business

The date for the next Board of Directors meeting was set for June 13th in Washington, D. C., 9:00 A.M., at a place to be announced.

The meeting adjourned at approximately 2:30 P.M..

Respectfully submitted,



R. H. Mereness
Executive Director - Secretary

25 March 1974

March 25, 1976

EXECUTIVE COMMITTEE MEETING

Thursday, March 25, 1976

Lionville, Pennsylvania

Introductory Note: The Executive Committee in its role as advisory body for Association sponsored Industry Task Force, OSHA Asbestos Standard, chaired by Guy G. Gabrielson, Jr., met at the headquarters of the consultant firm, Roy F. Weston, Inc., near Lionville, PA on March 25 to review the technological feasibility and economic impact studies of the Weston firm prior to formal meeting of the Executive Committee. Mr. Jerry L. Hebb of Weston and his associates, reviewed their findings. Richard Carter, Esq. of Johns-Manville Corp. attended this meeting. All members of the Executive Committee were present excepting Messrs. Barge and Workman.

Mr. Hebb suggested that the Committee consider further retention of Roy F. Weston, Inc until standard is promulgated on 2-man days per month 24 days per year basis to be used as directed at rate:

Mr. Dougherty requested that Mr. Hebb submit his proposal in writing. He stated he would advise the chairman of the task force when this was accomplished. Mr. Hebb stated he would return all data submitted by participating companies in the technological feasibility and economic impact study during the work following this meeting. Mr. Gabrielson stated he felt that Weston had an obligation to retain data developed (not proprietary to participating companies) for reference in the event the company is called upon for testimony at OSHA hearings. This was agreed upon by the Committee and Mr. Hebb. Mr. Dougherty also suggested Mr. Hebb might consider fees with regard to development of the asbestos standard for construction industry. Mr. Dougherty congratulated Mr. Hebb and the Weston organization for the work they had accomplished.



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The meeting was called to order at 3:45 P.M. in the headquarters, Roy F. Weston, Inc., West Chester, Pennsylvania.
Present were:

Thomas A. Dougherty

Certain-teed Products Corp.
President, AIA/NA

A. H. Fay

National Gypsum Company

N. W. Hendry

Johns-Manville Corp.

John H. Marsh

Raybestos-Manhattan, Inc.

William C. Thurber

Union Carbide Corp.

C. Fred Workman

Nicolet, Inc.

R. H. Mereness

AIA/NA Executive Director

Absent:

George Barge

Atlas Asbestos Co.

Others:

Guy G. Gabrielson, Jr.

Nicolet, Inc.

Chairman, Asbestos Regulation
Task Force

Jerry L. Hebb

Roy F. Weston, Inc., Consultants

Richard Carter, Esq.

Johns-Manville Corp.

Minutes

Minutes of previous meeting February 3, 1976 were approved as submitted.

Financial Report

Industry Task Force Submission to OSHA

It was moved and approved to submit the industry task force presentation on the proposed revision to the OSHA asbestos standard including overall the comments and recommendations prepared by Mr. Gabrielson, the detailed comments and recommendations on the proposed standard prepared by the Standards and Technical Committee, the statement on medical-science issues raised in the proposal prepared by Dr. Weill, and the technological feasibility and economic impact studies prepared by Roy F. Weston, Inc. to the board of directors for approval for submission to OSHA by the deadline for comment April 9, 1976. It was agreed that Weston facilities would be used to prepare all documents and effect all mailings to participants. Letter of transmittal and actual submission of presentation (in quadruplicate) to OSHA, April 9 will be accomplished by the Executive Director following accumulation of endorsements by all participants.

Shoup vs. Johns-Manville et al.Proposal for Retaining Special Counsel

Mr. Gabrielson's proposal in writing to retain special counsel to serve as repositior for all cases involved in asbestos-health litigation and otherwise advise in such matters was discussed. It was agreed this proposal would be presented to directors and a ballot prepared and forwarded to members for approval of proposal. Deadline for balloting established April 30, 1976.

Agenda for Board Meeting

Agenda for board meeting, Holiday Inn, Philadelphia International Airport was reviewed. Mr. Dougherty announced that importance of major issues and time constraints considered, the agenda would be of necessity be restricted to the OSHA submission, review of Shoup case, and proposal for special counsel. A special film presentation would be made by Mr. Hendry at the board luncheon.

Other Business

Mr. Fay advised he, as committee representative for Industry Economics and Technology, prepared a list of all companies supplying equipment for filtering, bag houses, electro-static precipitators, etc., from Pollution Control Directory. The material was distributed. A program for evaluating and distributing this kind of

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information is a task of the Standards and Technical Committee.

Next Meeting

Adjournment

Next meeting of the Committee is April 15 in the Association headquarters. There being no further business the meeting was adjourned at 10:45 P.M.

A handwritten signature in dark ink, appearing to read "R. H. Mereness", is written over the typed name.

R. H. Mereness
Executive Director

5 April 1976

100825

June 10, 1976

BOARD OF DIRECTORS MEETING

June 10, 1976

Stouffer's National Center Hotel

Arlington, Virginia

Pursuant to notice, a meeting of the Board of Directors was held June 10, 1976, in Stouffer's National Center Hotel, Arlington, VA.

The following Directors were present:

John Autry
(for Dimitry Poutiatine)
George Barge
Joseph M. Ciskowski
William Clark
Thomas A. Dougherty
Dennis E. Eldred
William Fassuliotis
A. H. Fay
Clarence A Herbst, Sr.
John W. Hollingsworth
A. R. Hooker
C. G. Morgan
Robert B. Pilmer
J. L. Rainey
Kurt Schwarz
Martin J. Sendeki
D. Tijumelis
(for T. K. Lindquist)
C. Fred Workman

Johns-Manville Corp.
Atlas Asbestos Company (Montreal)
Jim Walter Research Corp.
Asten-Hill Ltd.
Certain-teed Corporation
Vermont Asbestos Group
GAF Corporation
National Gypsum Co.
Resinoid Engineering Corp.
Dresser Ind. (Magcobar Div.)
The Flintkote Company
North American Asbestos Corp.
Garlock of Canada, Ltd.
Amatex Corp.
Supradur Manufacturing Co.
Congoleum Industries, Inc.
Borg Warner Corp. (Borg & Beck Div.)
Nicolet, Inc.

Also present: Guy G. Gabrielson, Jr., Nicolet, Inc., Chairman, Asbestos Regulation Task Force; William B. Hoffman, National Gypsum Company; C. F. Wilson, Esq., Jim Walter Research Corp.; Joseph A. Artabane, Esq., Cadwalader, Wickersham & Taft; R. H. Mereness, Executive Director, AIA/NA; and B. J. Pigg, Administrative Assistant, AIA/NA.



100235

Introduction

The meeting was called to order at 9:01 A.M. Mr. Dougherty stated that Mr. Noel W. Hendry, Johns-Manville Corp., had advised his assignment to General Manager, Mining Division, a position that would preclude his further active service on the Board. On motion, Mr. Dimitry Poutiatine was elected to succeed Mr. Hendry as the Johns-Manville representative. Mr. Dougherty expressed appreciation for the outstanding contribution Mr. Hendry had made to the Association.

Minutes

On motion, minutes for the preceeding meeting, March 26, 1976 were approved as submitted.

Financial Report

Mr. Barge reviewed the financial report

Nominating Committee

Mr. Dougherty explained the requirement for election of Association officers at the annual meeting in September. The following were appointed to serve on the nominating committee: George Barge (chairman), W. H. Beasley, J. L. Rainey, and Kurt Schwarz.

Remarks of the Executive Director

The physical layout of the new Association headquarters were described noting that adequate space was now available for meetings of 15-20 people and that there was significant work and storage space for present and anticipated needs.

Attention was invited to the Court order in folders dismissing the Association as a defendant in the case of Shoup vs. Johns-Manville Products Corp. et al.

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Weston, Inc., firm that prepared the technological feasibility and economic impact study in support of the Association's response to OSHA on the proposed asbestos standard, proposed they be retained on a consulting (minimum contract) basis at a cost of \$8,000 per annum. The Executive Committee at a meeting May 25, 1976 considered and declined this proposal. Weston has been so advised.

The CONSAD Research Corp's Inflationary Impact Statement (IIS) on the proposed revision to the asbestos standard has yet to be submitted in final form to OSHA. Submission is due in 2-3 weeks. "Best information" now indicates public hearing on the standard will not be before September. Contract for necessary IIS on forthcoming proposed asbestos standard for construction industry has not been let by OSHA. CONSAD has submitted a preliminary work statement.

A report was given of an EPA news conference held April 30 concerning asbestos in drinking water of selected U.S. cities in study conducted by McCrone Associates. A listing of all federal government contracts for asbestos-health studies is being prepared.

Among on-going special projects mentioned were: revision of "Asbestos and Health" booklet; development of a recommended work practices booklet on asbestos containing sealants and gaskets; revision of the pamphlet, "Asbestos and Brake Linings"; and publication of J-M prepared "Recommended Safety Practices for Handling Asbestos Fiber" and "Asbestos Occupational Health Guide" under AIA/NA signature. Directors were encouraged to make use of the pamphlets and other informational/educational materials available from the Association, including recently prepared excerpts (forwarding letter, summary and recommendations, and medical statement) from the Association's response to OSHA on the proposed revision to the asbestos standard. All are available in quantity.

Several news clippings were brought to the attention of Directors as examples of continuing adverse reporting on asbestos usage. Mention was made of the recently announced merger proposal for the National Association of Manufacturers and U.S. Chamber of Commerce. AIA/NA enjoys good working relationships with these organizations.

Ratification of Actions

Mr. Dougherty stated the ballot response of members to the proposed establishment of an AIA/NA sponsored program for legal assistance (hereinafter known as Legal/Medical Research Program) in defense of litigation alleging injury because of exposure to asbestos fiber as presented to Directors at meeting March 26 was highly favorable. In addition, he set forth the reasons for increased office space requirements for the Association and that the Executive Director had negotiated a five-year lease

effective as of June 1 with his approval. He explained the necessity for ratification of these actions and read the following statement:

"Resolved that all the actions of the officers, agents and attorneys for the corporation with the date hereof are ratified and confirmed in all respects regarding the following: the formation of a program to develop a legal and medical bank of information for use of the membership and the authorization of the Executive Committee to form a Legal/Medical Research Committee to oversee the program and, secondly, to execute the lease for the new office premises."

Comments and/or questions were invited. On motion, the above resolution was approved.

Mr. Dougherty announced that the following had agreed to serve on the Legal/Medical Research Committee:

Guy G. Gabrielson, Jr., Nicolet, Inc, Chairman
Dennis H. Markuson, Johns-Manville Corp.
C. F. Wilson, Jim Walter Corp.
Wolfgang A. Guenther, Raybestos-Manhattan, Inc.
John H. Chidester, Brunswick Fabricators, Inc.
C. J. Pontz, Certain-teed Corp.

Legal/Medical Research Program

Mr. Gabrielson noted title "Legal/Medical Research Program" better defined the work and objectives for this effort than "Legal Assistance Program" as originally identified. He referred to the sequence of events leading to formalization of this program with Cadwalader, Wickersham & Taft and stated

Mr. Gabrielson said Philip E. Enterline, Ph.D., Professor of Biostatistics, University of Pittsburgh, had agreed to work on this project. Dr. Enterline has recommended Ian T. T. Higgins, M.D., of the University of Michigan as a participant and stated that a doctoral candidate at the University of Pittsburgh would be available to assist. Mr. Gabrielson said Dr. Weill concurred in the Enterline-Higgins team. Dr. Enterline estimated completion of the paper by year end at cost of about \$6,000. Estimated cost of the overall program remains at \$50,000.

A discussion period followed. Mr. Gabrielson said it would facilitate the work of Mr. Alcorn

Mr. Dougherty expressed appreciation to Mr. Gabrielson for his outstanding contribution to the development and establishment of this important program of the Association.

Report on Meeting of Asbestos Subgroup,
OSHA Advisory Committee on Construction
Safety and Health, June 2-3, 1976
San Diego, CA

In addition to an Association team of Mr. Gabrielson, Dr. Weill and Dr. Rhodes, a team from Johns-Manville including Dr. Kotin, Dr. Chase, Milt Trosper, and Dick Carter attended the meeting and made presentations. Reporting on the meeting, Mr. Gabrielson said we can not afford to ignore what happens in the construction industry; there is a need for a uniform asbestos standard for both manufacturing and construction industries. The need has world-wide implications. He commented on the identity of the subgroup members and OSHA representatives. The methodology used by the subgroup was to review the proposed general industry standard item by item and attempt to ascertain applicability to the construction industry in conjunction with their recommendations as submitted to OSHA of September last. The subgroup reaffirmed their position that a 2-fiber p/cc asbestos standard should be established for the construction industry and "tailored" or eliminated sections of the general standard that were thought unrealistic for the construction industry. The subgroup will present its recommendations to the full OSHA Advisory Committee on Construction Safety and Health which in turn will formally submit to the Ass't Sec'y of Labor (OSHA). Meeting of full committee to hear subgroup report was announced in Federal Register of June 11 to be held June 29-30, Washington, D. C. AIA/NA memo dated June 14 refers.

Mr. Gabrielson said he considered the greatest opportunity for an impact on an asbestos standard for the construction industry would not come until a formal proposal is issued by OSHA after reviewing the Committee report. He said the Association should start its response planning now. In this connection, he had recommended and the executive committee approved establishment of an Ad Hoc Committee for Construction under co-chairmanship of Dr. H. B. Rhodes. Dr. Rhodes is authorized to seek additional committee members, in consultation with the Standards & Technical Committee and other experts in the construction industry, and recommend full committee membership to the Executive Committee. Mr. Dougherty invited nominations from directors for membership on the AIA/NA Ad Hoc Committee for Construction.

Revision to Asbestos Standard

Mr. Gabrielson reviewed development to date and current status of OSHA's proposed revision to the asbestos standard. He pointed out that AIA/NA had recommended deferral of issuance of the general industry standard until promulgation of a regulation for the construction standard. OSHA officials have indicated that this is not politically feasible. He said the issue of seeking an injunction against OSHA to force a delay of the general industry standard until a regulation for the construction industry is promulgated had been raised by Johns-Manville Corp. The Executive Committee had concluded that AIA/NA would not seek such injunction, the consensus being that uncertainties confronting the general industry should be resolved as soon as possible because of the adverse effect now taking place in customer relations and the length of time which would undoubtedly be required for legal proceedings. A legal challenge could be made subsequent to issuance of the general industry standard. Association decision and reasons therefore will be transmitted to Johns-Manville by Mr. Gabrielson.

Mr. Gabrielson also addressed public hearing technicalities and Association planning. Several persons were mentioned, in addition to Mr. Gabrielson, as possible participants to include Drs. Kotin and Weill, U.K. experts, Dr. Gerald R. Chase and Dr. H. B. Rhodes. He will coordinate with Dr. Kotin in the development of a presentation to avoid duplication. Mr. Gabrielson made reference to an important meeting with Mr. H.D.S. Hardie, Chairman, Asbestos Information Committee (U.K.) for June 21 in Washington, D. C. as it pertains to the hearing presentation. Mr. Dougherty added that the Executive Committee was of the opinion that the industry should strive to present a responsible impression at the hearing and demonstrate concern for the well-being of both employees and customers.

Association Membership/By-Laws

Mr. Dougherty said the Executive Committee had given consideration to possible revision of the Association By-Laws in order that associate and affiliate memberships could be authorized if desired by Directors. As a first step in providing this authorization, a modification to the Certificate of Incorporation of file in the State of Delaware to provide for more than one class of membership is required. In addition, he explained that the statement of purpose in the Certificate of Incorporation is in need of updating. Mr. Artabane outline

It was the consensus of the group that the addition of classes to membership would be beneficial to industry interests and the well being of the Association.

Formal consideration of possible changes to the By-Laws could be made at the meeting of members in September.

Activity Area Reports

A. Education and Training - The Executive Director encouraged utilization of the new J-M film, "Working with Asbestos" and the distribution of other materials available from the Association.

B. Standards & Technical - Next meeting of the Standards & Technical Committee is June 23-24 in the Association office.

C. Financial Affairs - Mr. Barge referred to previous decisions which resulted in significant changes to the 1976 budget. At the Association's meeting, February 4, 1976, an addition

In view of above fiscal changes, a revised budget for 1976 to so reflect was proposed and approved by motion. (Copy of revised 1976 budget is attached.)

D. Membership - Mr. Workman reported the current Association membership is 33. Two companies have resigned within last month; One is due to misunderstanding of dues structure and is a candidate for associate membership, and the other resigned for personal business reasons. The latter was current in dues payment and has contributed toward AIA/NA expenses in responding to the proposed revision to the asbestos standard.

A total of _____ had been contributed to this effort to
~~date. He encouraged Directors to assist in recruitment of~~
new members in the Association.

E. Medical/Standing Committee, International Asbestos Information Conference - Mr. Marsh was not present due to his attendance as Association representative at a meeting of the Standing Committee, International Asbestos Information Conference. The Executive Director read a statement received from Mr. Marsh by telephone on June 8 concerning the current adverse publicity against the industry in the United Kingdom.

F. Labor Relations - Mr. Dougherty said he had nothing new to report except to raise the matter of labor attendance at the upcoming annual Industry-Government Conference. He and the Executive Director will call on Mr. John H. Sheehan, AFL-CIO, and explore the possibility of his attendance and participation. Mr. Roy J. Steinfurth, International Association of Heat & Frost Insulators and Asbestos Workers will also be invited.

G. Industry Economics and Technology - Mr. Fay said he has been in contact with Mr. Thurber and suggested inclusion of certain technological items in the agenda for the conference in September. A listing of manufacturers of dust control equipment continues in preparation and will be available for distribution in the near future.

Third Annual Industry - Government
Conference, Sept. 8-9, 1976

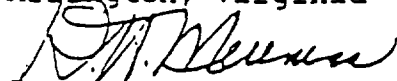
Mr. Dougherty presented a proposed program format which would include: dust control, monitoring, industrial hygiene, European view of the industry, marketing forecast, asbestos-health update, AIA/NA Legal/Medical Research program. Dr. Corn (OSHA) and Mr. Train (EPA) will be invited as luncheon speakers.

Plant Physicians Conference

Mr. Dougherty said the Association continues to plan for this conference. He explained that work on responding to the proposed revision to the asbestos standard had delayed its scheduling, however, a time and place would be determined following public hearing on the standard.

Adjournment

There being no further business the meeting was adjourned at 2:10 P.M. Next regular meeting of directors is scheduled for September 8, 1976 to be followed by the annual meeting and the Third annual Industry-Government Conference at Stouffer's National Center Hotel, Arlington, Virginia


R. H. Mereness
Executive Director
June 16, 1976

June 10, 1976

BOARD OF DIRECTORS MEETING

June 10, 1976

Stouffer's National Center Hotel

Arlington, Virginia

Pursuant to notice, a meeting of the Board of Directors was held June 10, 1976, in Stouffer's National Center Hotel, Arlington, VA.

The following Directors were present:

John Autry (for Dimitry Poutiatine)	Johns-Manville Corp.
George Barge	Atlas Asbestos Company (Montreal)
Joseph M. Ciskowski	Jim Walter Research Corp.
William Clark	Asten-Hill Ltd.
Thomas A. Dougherty	Certain-teed Corporation
Dennis E. Eldred	Vermont Asbestos Group
William Fassuliotis	GAF Corporation
A. H. Fay	National Gypsum Co.
Clarence A Herbst, Sr.	Resinoid Engineering Corp.
John W. Hollingsworth	Dresser Ind. (Magcobar Div.)
A. R. Hooker	The Flintkote Company
C. G. Morgan	North American Asbestos Corp.
Robert B. Pilmer	Garlock of Canada, Ltd.
J. L. Rainey	Amatex Corp.
Kurt Schwarz	Supradur Manufacturing Co.
Martin J. Sendeki	Congoleum Industries, Inc.
D. Tijumelis (for T. K. Lindquist)	Borg Warner Corp. (Borg & Beck Div.)
C. Frad Workman	Nicolet, Inc.

Also present: Guy G. Gabrielson, Jr., Nicolet, Inc., Chairman, Asbestos Regulation Task Force; William B. Hoffman, National Gypsum Company; C. F. Wilson, Esq., Jim Walter Research Corp.; Joseph A. Artabane, Esq., Cadwalader, Wickersham & Taft; R. H. Mereness, Executive Director, AIA/NA; and B. J. Pigg, Administrative Assistant, AIA/NA.



100235

Introduction

The meeting was called to order at 9:01 A.M. Mr. Dougherty stated that Mr. Noel W. Hendry, Johns-Manville Corp., had advised his assignment to General Manager, Mining Division, a position that would preclude his further active service on the Board. On motion, Mr. Dimitry Poutiatine was elected to succeed Mr. Hendry as the Johns-Manville representative. Mr. Dougherty expressed appreciation for the outstanding contribution Mr. Hendry had made to the Association.

Minutes

On motion, minutes of the preceeding meeting, March 26, 1976 were approved as submitted.

Financial Report

Mr. Barge reviewed the financial report

Nominating Committee

Mr. Dougherty explained the requirement for election of Association officers at the annual meeting in September. The following were appointed to serve on the nominating committee: George Barge (chairman), W. H. Beasley, J. L. Rainey, and Kurt Schwarz.

Remarks of the Executive Director

The physical layout of the new Association headquarters were described noting that adequate space was now available for meetings of 15-20 people and that there was significant work and storage space for present and anticipated needs.

Attention was invited to the Court order in folders dismissing the Association as a defendant in the case of Shoup vs. Johns-Manville Products Corp. et al.

100236

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The CONSAD Research Corp's Inflationary Impact Statement (IIS) on the proposed revision to the asbestos standard has yet to be submitted in final form to OSHA. Submission is due in 2-3 weeks. "Best information" now indicates public hearing on the standard will not be before September. Contract for necessary IIS on forthcoming proposed asbestos standard for construction industry has not been let by OSHA. CONSAD has submitted a preliminary work statement.

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Ratification of Actions

Mr. Dougherty stated the ballot response of members to the proposed establishment of an AIA/NA sponsored program for legal assistance (hereinafter known as Legal/Medical Research Program) in defense of litigation alleging injury because of exposure to asbestos fiber as presented to Directors at meeting March 26 was highly favorable. In addition, he set forth the reasons for increased office space requirements for the Association and that the Executive Director had negotiated a five-year lease

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Comments and/or questions were invited. On motion, the above resolution was approved.

Mr. Dougherty announced that the following had agreed to serve on the Legal/Medical Research Committee:

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Dennis H. Markuson, Johns-Manville Corp.
C. F. Wilson, Jim Walter Corp.
Wolfgang A. Guenther, Raybestos-Manhattan, Inc.
John H. Chidester, Brunswick Fabricators, Inc.
C. J. Pontz, Certain-teed Corp.

Legal/Medical Research Program

Mr. Gabrielson noted title "Legal/Medical Research Program" better defined the work and objectives for this effort than "Legal Assistance Program" as originally identified. He referred to the sequence of events leading to formalization of this program with Cadwalader, Wickersham & Taft and stated

Mr. Gabrielson said Philip E. Enterline, Ph.D., Professor of Biostatistics, University of Pittsburgh, had agreed to work on this project. Dr. Enterline has recommended Ian T. T. Higgins, M.D., of the University of Michigan as a participant and stated that a doctoral candidate at the University of Pittsburgh would be available to assist. Mr. Gabrielson said Dr. Weill concurred in the Enterline-Higgins team. Dr. Enterline estimated completion of the paper by year end at cost of about \$6,000. Estimated cost of the overall program remains at \$50,000.

A discussion period followed. Mr. Gabrielson said it would facilitate the work of Mr. Alcorn

Mr. Dougherty expressed appreciation to Mr. Gabrielson for his outstanding contribution to the development and establishment of this important program of the Association.

Report on Meeting of Asbestos Subgroup,
OSHA Advisory Committee on Construction
Safety and Health, June 2-3, 1976
San Diego, CA

In addition to an Association team of Mr. Gabrielson, Dr. Weill and Dr. Rhodes, a team from Johns-Manville including Dr. Kotin, Dr. Chase, Milt Trosper, and Dick Carter attended the meeting and made presentations. Reporting on the meeting, Mr. Gabrielson said we can not afford to ignore what happens in the construction industry; there is a need for a uniform asbestos standard for both manufacturing and construction industries. The need has world-wide implications. He commented on the identity of the subgroup members and OSHA representatives. The methodology used by the subgroup was to review the proposed general industry standard item by item and attempt to ascertain applicability to the construction industry in conjunction with their recommendations as submitted to OSHA of September last. The subgroup reaffirmed their position that a 2-fiber p/cc asbestos standard should be established for the construction industry and "tailored" or eliminated sections of the general standard that were thought unrealistic for the construction industry. The subgroup will present its recommendations to the full OSHA Advisory Committee on Construction Safety and Health which in turn will formally submit to the Ass't Sec'y of Labor (OSHA). Meeting of full committee to hear subgroup report was announced in Federal Register of June 11 to be held June 29-30, Washington, D. C. AIA/NA memo dated June 14 refers.

Mr. Gabrielson said he considered the greatest opportunity for an impact on an asbestos standard for the construction industry would not come until a formal proposal is issued by OSHA after reviewing the Committee report. He said the Association should start its response planning now. In this connection, he had recommended and the executive committee approved establishment of an Ad Hoc Committee for Construction under co-chairmanship of Dr. H. B. Rhodes. Dr. Rhodes is authorized to seek additional committee members, in consultation with the Standards & Technical Committee and other experts in the construction industry, and recommend full committee membership to the Executive Committee. Mr. Dougherty invited nominations from directors for membership on the AIA/NA Ad Hoc Committee for Construction.

Revision to Asbestos Standard

Mr. Gabrielson reviewed development to date and current status of OSHA's proposed revision to the asbestos standard. He pointed out that AIA/NA had recommended deferral of issuance of the general industry standard until promulgation of a regulation for the construction standard. OSHA officials have indicated that this is not politically feasible. He said the issue of seeking an injunction against OSHA to force a delay of the general industry standard until a regulation for the construction industry is promulgated had been raised by Johns-Manville Corp. The Executive Committee had concluded that AIA/NA would not seek such injunction, the consensus being that uncertainties confronting the general industry should be resolved as soon as possible because of the adverse effect now taking place in customer relations and the length of time which would undoubtedly be required for legal proceedings. A legal challenge could be made subsequent to issuance of the general industry standard. Association decision and reasons therefore will be transmitted to Johns-Manville by Mr. Gabrielson.

Mr. Gabrielson also addressed public hearing technicalities and Association planning. Several persons were mentioned, in addition to Mr. Gabrielson, as possible participants to include Drs. Kotin and Weill, U.K. experts, Dr. Gerald R. Chase and Dr. H. B. Rhodes. He will coordinate with Dr. Kotin in the development of a presentation to avoid duplication. Mr. Gabrielson made reference to an important meeting with Mr. H.D.S. Hardie, Chairman, Asbestos Information Committee (U.K.) for June 21 in Washington, D. C. as it pertains to the hearing presentation. Mr. Dougherty added that the Executive Committee was of the opinion that the industry should strive to present a responsible impression at the hearing and demonstrate concern for the well-being of both employees and customers.

Association Membership/By-Laws

Mr. Dougherty said the Executive Committee had given consideration to possible revision of the Association By-Laws in order that associate and affiliate memberships could be authorized if desired by Directors. As a first step in providing this authorization, a modification to the Certificate of Incorporation of file in the State of Delaware to provide for more than one class of membership is required. In addition, he explained that the statement of purpose in the Certificate of Incorporation is in need of updating. Mr. Artabane outline

Page 5
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formal consideration of possible changes to the By-Laws could be made at the meeting of members in September.

Activity Area Reports

A. Education and Training - The Executive Director encouraged utilization of the new J-M film, "Working with Asbestos" and the distribution of other materials available from the Association.

B. Standards & Technical - Next meeting of the Standards & Technical Committee is June 23-24 in the Association office.

C. Financial Affairs - Mr. Barge referred to previous decisions which resulted in significant changes to the 1976 budget. At the Association's meeting, February 4, 1976, an addition

In view of above fiscal changes, a revised budget for 1976 to so reflect was proposed and approved by motion. (Copy of revised 1976 budget is attached.)

D. Membership - Mr. Workman reported the current Association membership is 33. Two companies have resigned within last month; One is due to misunderstanding of dues structure and is a candidate for associate membership, and the other resigned for personal business reasons. The latter was current in dues payment and has contributed toward AIA/NA expenses in responding to the proposed revision to the asbestos standard.

A total of had been contributed to this effort to date. He encouraged Directors to assist in recruitment of new members in the Association.

E. Medical/Standing Committee, International Asbestos Information Conference - Mr. Marsh was not present due to his attendance as Association representative at a meeting of the Standing Committee, International Asbestos Information Conference. The Executive Director read a statement received from Mr. Marsh by telephone on June 8 concerning the current adverse publicity against the industry in the United Kingdom.

F. Labor Relations - Mr. Dougherty said he had nothing new to report except to raise the matter of labor attendance at the upcoming annual Industry-Government Conference. He and the Executive Director will call on Mr. John H. Sheehan, AFL-CIO, and explore the possibility of his attendance and participation. Mr. Roy J. Steinfurth, International Association of Heat & Frost Insulators and Asbestos Workers will also be invited.

G. Industry Economics and Technology - Mr. Fay said he has been in contact with Mr. Thurber and suggested inclusion of certain technological items in the agenda for the conference in September. A listing of manufacturers of dust control equipment continues in preparation and will be available for distribution in the near future.

Third Annual Industry - Government
Conference, Sept. 8-9, 1976

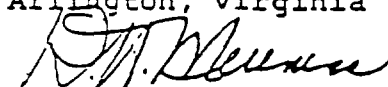
Mr. Dougherty presented a proposed program format which would include: dust control, monitoring, industrial hygiene, European view of the industry, marketing forecast, asbestos-health update, AIA/NA Legal/Medical Research program. Dr. Corn (OSEA) and Mr. Train (EPA) will be invited as luncheon speakers.

Plant Physicians Conference

Mr. Dougherty said the Association continues to plan for this conference. He explained that work on responding to the proposed revision to the asbestos standard had delayed its scheduling, however, a time and place would be determined following public hearing on the standard.

Adjournment

There being no further business the meeting was adjourned at 2:10 P.M. Next regular meeting of directors is scheduled for September 8, 1976 to be followed by the annual meeting and the Third annual Industry-Government Conference at Stouffer's National Center Hotel, Arlington, Virginia


R. H. Mereness
Executive Director
June 16, 1976

100242

June 10, 1976

BOARD OF DIRECTORS MEETING

June 10, 1976

Stouffer's National Center Hotel

Arlington, Virginia

Pursuant to notice, a meeting of the Board of Directors was held June 10, 1976, in Stouffer's National Center Hotel, Arlington, VA.

The following Directors were present:

John Autry
(for Dimitry Poutiatine)
George Barge
Joseph M. Ciskowski
William Clark
Thomas A. Dougherty
Dennis E. Eldred
William Fassuliotis
A. H. Fay
Clarence A Herbst, Sr.
John W. Hollingsworth
A. R. Hooker
C. G. Morgan
Robert B. Pilmer
J. L. Rainey
Kurt Schwarz
Martin J. Sendecki
D. Tijumelis
(for T. K. Lindquist)
C. Fred Workman

Johns-Manville Corp.
Atlas Asbestos Company (Montreal)
Jim Walter Research Corp.
Asten-Hill Ltd.
Certain-teed Corporation
Vermont Asbestos Group
GAF Corporation
National Gypsum Co.
Resinoid Engineering Corp.
Dresser Ind. (Magcobar Div.)
The Flintkote Company
North American Asbestos Corp.
Garlock of Canada, Ltd.
Amatex Corp.
Supradur Manufacturing Co.
Congoleum Industries, Inc.
Borg Warner Corp. (Borg & Beck Div.)
Nicolet, Inc.

Also present: Guy G. Gabrielson, Jr., Nicolet, Inc., Chairman, Asbestos Regulation Task Force; William B. Hoffman, National Gypsum Company; C. F. Wilson, Esq., Jim Walter Research Corp.; Joseph A. Artabane, Esq., Cadwalader, Wickersham & Taft; R. H. Mereness, Executive Director, AIA/NA; and B. J. Pigg, Administrative Assistant, AIA/NA.



100235

Introduction

The meeting was called to order at 9:01 A.M. Mr. Dougherty stated that Mr. Noel W. Hendry, Johns-Manville Corp., had advised his assignment to General Manager, Mining Division, a position that would preclude his further active service on the Board. On motion, Mr. Dimitry Poutiatine was elected to succeed Mr. Hendry as the Johns-Manville representative. Mr. Dougherty expressed appreciation for the outstanding contribution Mr. Hendry had made to the Association.

Minutes

On motion, minutes for the preceeding meeting, March 26, 1976 were approved as submitted.

Financial Report

Mr. Barge reviewed the financial report

Nominating Committee

Mr. Dougherty explained the requirement for election of Association officers at the annual meeting in September. The following were appointed to serve on the nominating committee: George Barge (chairman), W. H. Beasley, J. L. Rainey, and Kurt Schwarz.

Remarks of the Executive Director

The physical layout of the new Association headquarters were described noting that adequate space was now available for meetings of 15-20 people and that there was significant work and storage space for present and anticipated needs.

Attention was invited to the Court order in folders dismissing the Association as a defendant in the case of Shoup vs. Johns-Manville Products Corp. et al.

100236

Weston, Inc., firm that prepared the technological feasibility and economic impact study in support of the Association's response to OSHA on the proposed asbestos standard, proposed they be retained on a consulting (minimum contract) basis at a cost of \$8,000 per annum. The Executive Committee at a meeting May 25, 1976 considered and declined this proposal. Weston has been so advised.

The CONSAD Research Corp's Inflationary Impact Statement (IIS) on the proposed revision to the asbestos standard has yet to be submitted in final form to OSHA. Submission is due in 2-3 weeks. "Best information" now indicates public hearing on the standard will not be before September. Contract for necessary IIS on forthcoming proposed asbestos standard for construction industry has not been let by OSHA. CONSAD has submitted a preliminary work statement.

A report was given of an EPA news conference held April 30 concerning asbestos in drinking water of selected U.S. cities in study conducted by McCrone Associates. A listing of all federal government contracts for asbestos-health studies is being prepared.

Among on-going special projects mentioned were: revision of "Asbestos and Health" booklet; development of a recommended work practices booklet on asbestos containing sealants and gaskets; revision of the pamphlet, "Asbestos and Brake Linings"; and publication of J-M prepared "Recommended Safety Practices for Handling Asbestos Fiber" and "Asbestos Occupational Health Guide" under AIA/NA signature. Directors were encouraged to make use of the pamphlets and other informational/educational materials available from the Association, including recently prepared excerpts (forwarding letter, summary and recommendations, and medical statement) from the Association's response to OSHA on the proposed revision to the asbestos standard. All are available in quantity.

Several news clippings were brought to the attention of Directors as examples of continuing adverse reporting on asbestos usage. Mention was made of the recently announced merger proposal for the National Association of Manufacturers and U.S. Chamber of Commerce. AIA/NA enjoys good working relationships with these organizations.

Ratification of Actions

Mr. Dougherty stated the ballot response of members to the proposed establishment of an AIA/NA sponsored program for legal assistance (hereinafter known as Legal/Medical Research Program) in defense of litigation alleging injury because of exposure to asbestos fiber as presented to Directors at meeting March 26 was highly favorable. In addition, he set forth the reasons for increased office space requirements for the Association and that the Executive Director had negotiated a five-year lease

effective as of June 1 with his approval. He explained the necessity for ratification of these actions and read the following statement:

"Resolved that all the actions of the officers, agents and attorneys for the corporation with the date hereof are ratified and confirmed in all respects regarding the following: the formation of a program to develop a legal and medical bank of information for use of the membership and the authorization of the Executive Committee to form a Legal/Medical Research Committee to oversee the program and, secondly, to execute the lease for the new office premises."

Comments and/or questions were invited. On motion, the above resolution was approved.

Mr. Dougherty announced that the following had agreed to serve on the Legal/Medical Research Committee:

Guy G. Gabrielson, Jr., Nicolet, Inc, Chairman
Dennis H. Markuson, Johns-Manville Corp.
C. F. Wilson, Jim Walter Corp.
Wolfgang A. Guenther, Raybestos-Manhattan, Inc.
John H. Chidester, Brunswick Fabricators, Inc.
C. J. Pontz, Certain-teed Corp.

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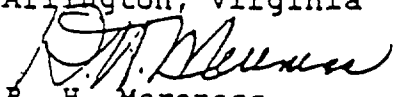
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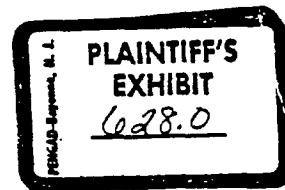

R. H. Mereness
Executive Director
June 16, 1976

December 8, 1976



ASBESTOS INFORMATION ASSOCIATION

1835 K Street, N.W., Washington, D.C. 20008 • (202) 223-4865



EXECUTIVE COMMITTEE MEETING

Thursday, December 8, 1976

Washington, D.C.

The meeting was called to order at 9:05 A.M. in the Association office. Present were:

Thomas A. Dougherty
George Barge
Guy G. Gabrielson, Jr.
John Marsh
Dimitry Poutiatine
Robert H. Mereness

Certain-teed Corp., President, AIA/NA
Atlas Asbestos Co.
Nicolet, Inc.
Raybestos-Manhattan, Inc.
Johns-Manville Corporation
Executive Director, AIA/NA

Others:

B. J. Pigg

Administrative Assistant, AIA/NA

Minutes

On motion, minutes of previous meeting, November 11, 1976 were approved as submitted.

Financial Report

Financial Report for calendar year (fiscal) 1976 as of November 30, 1976 was reviewed. Mr. Barge said that the report did not reflect any unanticipated expenditures. The payment of \$12,144 to Equitable Environmental Health, Inc. for September billing in connection with Phase I of the Association's contracted study on the construction industry was the principal reason for an increase in negative variance which had been steadily declining under accrual accounting. He noted that the 1976 budget has not been revised to include this project.

Income from the special assessment (at 12% of dues to meet current contracted study obligations) has been received with one exception. Total income from the special assessment is expected to be \$49,100.

JHM 14949

As of November 30, the Association had total assets of \$136,486; liabilities of \$39,134; and a net worth of \$97,352. The financial report was accepted as submitted.

3.

1977 Proposed Budget

Attention was invited again to the Association's proposed budget for 1977. The Committee had reviewed the proposed budget in detail at its November 11 meeting.

Mr. Poutiatine made reference to a paper dated November 2 prepared by Mr. H.D.S. Hardie concerning a formula for supporting the activities of the U.K.'s Asbestos Information Committee. Mr. Marsh said he was familiar with the document and discussed its content.

The Committee agreed that the 1977 budget requiring membership dues of \$370,000 should be proposed to the Directors in meeting December 9. Other income would bring total receipts for budget purposes to \$385,850 with total disbursements reflecting the same amount.

Consideration was given to the 1977 dues structure for members in light of the proposed budget and anticipated revision of Association By-Laws which would permit an associate membership category. It was agreed that the following dues formulae would be presented to the Directors.

I. Regular Members

a) Dues for users of raw asbestos fiber will be based on a millage rate of dollar value of asbestos fiber consumed (freight excluded) in previous calendar year with a minimum of \$2,000 per annum.

b) Dues for miners of asbestos fiber will be on a millage rate of dollar value asbestos fiber sold in North America during previous calendar year with a minimum of \$2,000 per annum. The millage rate will be one tenth of the rate established for consumers of raw fiber.

c) Dues for sellers of asbestos fiber will be \$2,000 per annum, the minimum rate for all members.

II. Associate Members

Dues will be at a flat rate of \$500 per annum.

Millage rates will be determined by the Association's accountant following receipt of pertinent information from members obtained through use of a confidential questionnaire.

JHM 14950

The Executive Director was requested to advise the Association's accountant that the questionnaire to members which requests asbestos fiber consumption during 1976 should be mailed the first week of January 1977. Dues billing for first quarter 1977 will be at the same rate as fourth quarter 1976 with adjustment in remaining three quarters for new computation.

Mr. Dougherty suggested that nonmember firms who receive the Association's "News & Notes" should be advised periodically of AIA/NA's work on behalf of the total industry and the expense involved. Mr. Barge said this should be accomplished every six months. Mr. Gabrielson proposed that individual firm contributions of \$500 be sought. It was agreed that nonmember firms should be encouraged to make a financial contribution to the Association. A program to implement this decision will be initiated by the Executive Director.

The proposed budget for 1977, as developed by Mr. Barge, was approved for presentation to Directors.

Remarks of the Executive Director

The Executive Director said he had been advised by a reliable OSHA spokesman that certification of the Inflationary Impact Statement (IIS) as prepared by CONSAD Research Corp. was being delayed until receipt of Research Triangle Institute's economic impact analysis of the construction industry in order to permit concurrent review of these studies within Department of Labor. RTI's report is due January 31, 1977. In regard RTI's progress, the project director, Dr. David Le Sourd, has stated that the format and method of presentation for their study is being rewritten at the direction of OSHA. He said, however, they believe key information to complete their study is in hand but much work remains to be accomplished in analysis of information and document preparation.

Reference was made to OSHA's response to the AIA/NA letter prepared by Dr. Rhodes of November 1 which called attention to discrepancies in the transcript of the June 29-30, 1976 meeting of the Advisory Committee on Construction Safety and Health concerning medical surveillance. OSHA has revised the transcript as recommended by the Association and so advised by letter.

In EPA, current emphasis is on implementation of the new Toxic Substances Control Act. It is not expected that provisions of Act will affect asbestos in foreseeable future. Immediate concern is directed to chemical substances. EPA will make decision by December 1977 whether to propose standards for control of "asbestos" emissions from taconite plants based on current ongoing studies. Revised National Drinking Water Regulations

JHM 14951

to establish treatment techniques or maximum contaminant levels are scheduled for issuance in May 1977.

MESA's Federal Metal and Non-metal Mine Safety Advisory Committee has recommended change for current 5f/ml to 2fp/ml with probable effective date late 1977. Since public advisory committee proceedings were "open", a public hearing on this proposal is not necessary nor planned. The newly established Bureau of Mines Metalurgy Research Center, College Park, MD involved with asbestos particle identification was discussed.

It was reported that the staff report on the petition filed with the Consumer Product Safety Commission (CPSC) by Natural Resources Defense Council, Inc. and the Consumer's Union of U.S.A., Inc., for promulgation of rule banning certain asbestos-containing patching compounds is now under review by the CPSC solicitor.

A report on the highlights of the following two meetings of interest was given: National Research Council's Symposium of Public Information on Cancer Prevention on December 2-3 in Washington, D. C., and Society for Occupational and Environmental Health annual meeting on December 6 in Washington, D. C. It was noted that the workers right to know if he is exposed to a carcinogen or other health risk is prevailing but implementation of information programs is difficult. AIA/NA was cited for its information program in the asbestos industry.

Report of the Chairman, Asbestos Regulation Task Force

Mr. Gabrielson said he had nothing further to add to the status review of the proposed revision to the manufacturing standard. With regard to the construction industry study being conducted by Equitable Environmental Health, Inc. (EEH) for the Association, he said certain key data in Phase I is lacking, but that it will be obtained during Phase II now in progress. As to cooperation of members with EEH in the conduct of the study, he observed that those in the floor tile segment of the industry have been the least responsive. Mr. Gabrielson expressed some disappointment with the results of EEH's study thus far, but in general he said, he was satisfied and felt the company now has a better feel for the complexities of its task and the amount of work required for thorough research and analysis. He reported that the Association would be billed by EEH in the amount of \$19,300 for October expenses, \$29,000 for November, and \$12,000 is expected for December. The Executive Director was requested to pay the October bill upon receipt and the November bill (expected to be issued third week of December) after December 31, 1976.

JHM 14952

Mr. Gabrielson reviewed current status of the Legal-Medical Research Program. He said that a productive meeting had occurred on December 3 with Dr. Enterline (University of Pittsburgh), Messrs. Alcorn and Officer (Cadwalader, Wickersham & Taft) and himself. In regard to Dr. Enterline's project, work on bronchogenic cancer portion is complete with exception of about 20 German papers now pending translation and review. A large segment of the mesothelioma study is also complete. Mr. Gabrielson explained that the literature review by Dr. Enterline would now include asbestosis in order to determine when this disease was accepted as related to different products, industries or processes. Expansion of the study to include asbestosis had been urged by Messrs. Carter and Markusson of J-M since it was considered that a chronology in this area would be useful in litigation of asbestosis-related cases by the industry. In addition, the decision has been made to include literature review of other types of cancer, e.g., laryngeal and gastrointestinal. Mr. Gabrielson said Dr. Enterline has completed most of the literature review for the period 1933 - 1968 and his best estimate is that the entire project is 50% complete to date. The finished work product will consist of : (1) complete file of all papers reviewed; (2) critical quotations from each paper in three-ring binders; (3) card file index with brief summary of each paper; and (4) a scholarly paper.

Mr. Gabrielson said special counsel had commenced the interview process of physicians around the country who might qualify as expert witnesses in ~~any injunctive proceeding or~~ ^{any} other litigation. Two types of witnesses may be required in order that both condition of plaintiff and state of the medical art could be addressed. Mr. Gabrielson stated he was unable to provide an estimate for completion of the legal phase of this program; however, expenses on an accrual basis may approximate \$10,000 for the remainder of 1976.

Reference was made by Mr. Gabrielson to his letter to Directors dated November 12 which addressed an Association captive insurance program. This subject will be discussed as an agenda item at Directors meeting December 9. Messrs. March and Poutiatine said their respective companies were in favor of pursuing a feasibility study of the matter. Mr. Poutiatine added that Walter Curtner, J-M's manager of insurance, was available to assist the Association as may be required.

Agenda for Board of Directors Meeting

The proposed agenda for the Directors meeting December 9 was approved with minor changes.

JHM 14953

Activity Area Reports

Mr. Dougherty suggested that financial affairs and medical/international affairs continue to be areas of responsibility for Messrs. Barge and Marsh respectively. Responsibility for the Committee's guidance and direction in other activity areas was suggested to be handled on an ad hoc basis.

Other Business

Mr. Dougherty said Mr. Feierabend had advised his promotion within his company and move to Columbus, Ohio, would necessitate his resignation from the Executive Committee. He said the Abex Corporation representative on AIA/NA Board of Directors would be formally advised. Mr. Dougherty expressed appreciation for the outstanding contribution of Mr. Feierabend to the Association's work. Following discussion, it was agreed that Mr. Schwarz, Vice President, Supradur Manufacturing Corp., would be invited to serve on the Executive Committee.

The subject of potential associate members in the Association was again discussed to include contact by member companies, use of "News & Notes" with an appropriate letter speaking to the work and financial commitments of the Association, and contact with firms who endorsed or were recipients of the AIA/NA response to OSHA on the proposed revision to the asbestos standard (manufacturing).

The next regular meeting of the Executive Committee will be held in the Association office commencing at 9:00 A. M., Thursday, January 13, 1977.

Adjournment

There being no further business, the meeting was adjourned at 4:25 P.M.


R. H. Mereness
Executive Director

December 13, 1976

JHM 14954

December 9, 1976



ASBESTOS INFORMATION ASSOCIATION

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PLAINTIFF'S
EXHIBIT

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BOARD OF DIRECTORS MEETING

December 9, 1976

Mayflower Hotel

Washington, D. C.

Pursuant to notice, a meeting of the Board of Directors was held December 9, 1976, in the Mayflower Hotel, Washington, D. C. The meeting was called to order at 9:03 A.M.

The following Directors were present:

Harry Babilon
(for William C. Clark)
George Barge
W. H. Beasley
John H. Chidester
Thomas A. Dougherty
Dennis E. Eldred
William Fassuliotis
E. H. Feierabend
Guy G. Gabrielson, Jr.
Clarence A. Herbst, Sr.
John W. Hollingsworth
John H. Marsh
James J. McHugh
(for George Vogel)
Joseph T. Mooney
James J. O'Dowd
(for J. M. Ciskowski)
Robert B. Pilmer
Dimitry Poutiatine
H. B. Rhodes, Ph.D.
(for W. C. Thurber)
John Riopelle
Kurt Schwarz
E. R. Zacharias

Asten-Hill Limited

Atlas Asbestos Co.
Cement Asbestos Products Co.
Brunswick Fabricators, Inc.
Certain-teed Corp.
Vermont Asbestos Group
GAF Corporation
Abex Corporation
Nicolet, Inc.
Resinoid Engineering Corp.
Dresser Industries (Magcobar Div.)
Raybestos-Manhattan, Inc.
National Assn. of Filter Mfgs., I

Monsey Products Co.
Jim Walter Research Corp.

Garlock of Canada, Ltd.
Johns-Manville Corp.
Union Carbide Corp.

The Bendix Corporation
Supradur Manufacturing Corp.
Molded Materials Co.

Also present: B. J. Iwarsson, Abex Corp.; Alfred E. Netter, Supradur Manufacturing Corp.; William H. Vockroth, Monsey Products Co.; R. H. Mereness, Executive Director, AIA/NA; Adrian May, Esq.; Wendell B. Alcorn, Jr., Esq. & Thomas O'Connell, Esq., Cadwalader, Wickersham & Taft; Richard T. Davis, CPA, Frank C. Frantz & Co.; and B. J. Pigg, Administrative Assistant, AIA/NA.

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JHM 15967

Introduction

Mr. Dougherty welcomed attendees and acknowledged new directors and other persons representing member companies in the absence of designated representatives. He said Mr. Feierabend of Abex Corporation had advised of his promotion within his company and change of address necessitated his withdrawal from the Board. His replacement as Abex representative in the Association will be advised. Mr. Dougherty thanked Mr. Feierabend for his interest and support of the Association in his capacities as director and Executive Committee member. It was announced that Huxley Development Corp. had joined the Association. Mr. Adam Novak will be the firm's representative in the Association.

Minutes

On motion, minutes of the preceding meeting, September 3, 1976 were approved as submitted.

Financial Report

Mr. Barge reviewed the financial report for the eleven-month fiscal period ending November 30, 1976. He invited attention to the two major expenditures during November of \$12,143 and \$8,920 for work in connection with the Association's construction industry study and legal-medical research program respectively. Mr. Barge said, on an accrual basis, he estimates that expenditures and income (including receipts from recent special assessment (13%) of membership dues) for 1976 would approximate the same total, i.e., \$369,000 income vs. \$371,000 expenditures. Total income from the special assessment is expected to be \$49,100. Mr. Barge stated that he expected the Association's net worth beginning balance for 1976 of \$57,000 would be essentially the same for 1977 after all obligations in 1976 are paid.

As of Nov. 30, 1976 the Association had total assets of \$136,486; liabilities of \$39,134; and a net worth of \$97,352. On motion, the financial report was accepted as submitted.

International Asbestos Information Conference (IAIC) Hamburg, W. Germany, Nov. 3-5, 1976

Mr. Marsh said he would speak to international events of the past 12 years which pertain to the asbestos industry, the establishment of the International Asbestos Information Standing Committee, the recommended work program of the Committee, the means for achieving this work, and the actions taken at the International Asbestos Information Conference in Hamburg, Nov. 3-5, 1976. He referred to a number of international meetings beginning in 1964 dealing with the biological effects of asbestos. He said there had been very little if any U.S. industry representatives at some of the early meetings but U.S. industry interest began to change commencing with a meeting in Lyon, France in 1972 following formation of AIA/NA. He stated at a meeting in Paris in 1974, attended by himself and the Executive Director, AIA/NA, it

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was agreed that a continuing international body representing the industry should be established. An Ad Hoc working group was formed to study the matter and, upon its recommendations, a Standing Committee of International Conference of Asbestos Associations was established on July 9, 1975 with AIA/NA being a charter member, representing the U.S. Mr. Marsh then read excerpts from a report of the Standing Committee's activities in 1975 and 1976 and outlined future work of the Committee as presented at the Hamburg meeting. (Note: A report of the Hamburg meeting, including the foregoing report, was forwarded to members by AIA/NA Memo. of 11/24/76.)

Mr. Marsh reviewed actions taken at the Hamburg meeting affecting the newly defined International Asbestos Information Conference and distributed a pertinent report. (Copy attached for directors not present at meeting.) He spoke of advantages to the industry that stem from the international organization and emphasized the "indivisibility of the industry problem," i.e., adverse situations occurring in one country invariably impact on other countries. A discussion followed and Mr. Marsh provided further assessment of the work and importance of the international body. Mr. Dougherty expressed appreciation to Mr. Marsh for his excellent report and thanked him for his representation of AIA/NA in the deliberations of the international group. At the Hamburg Conference Mr. Marsh was designated a member of the IAIC Executive Committee.

Association Captive Insurance Co.

Mr. Gabrielson invited attention to his letter to Directors dated November 12 which addressed the concept of an AIA/NA captive insurance company. He spoke to problems confronting the industry in regard to cancellation of product liability insurance coverage, increases in product liability insurance premiums and higher deductible features. He explained that there is reason to believe that some customers of Association members view the product liability problem as an indication that an impartial judge, i.e., the insurance companies, has come to the conclusion that asbestos is a more hazardous material than industry has told them. Unavailability of such insurance could also accelerate the search for substitute materials.

Mr. Gabrielson said the Executive Committee had concluded that it might be desirable to contract for a feasibility study to further explore the concept of AIA/NA incorporating its own captive insurance company. He outlined the concept stating that he was not an expert in insurance matters and suggested the following questions for resolution by the Board: (1) would the Directors be interested in a captive insurance company for purposes of obtaining their respective company product liability insurance? (2) do directors think that creation of an AIA/NA captive insurance company would be of interest to their customers, slow the search for alternative materials, and thereby be of assistance in the marketplace? He stated that the Executive Committee had recommended that the Association retain a consultant to conduct a study covering the

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said the gathering of this data was important to the industry as the results could lend support to a recommendation for limiting the applicability of an asbestos standard for the construction industry. When data is obtained from contractors it should be telephoned to EEH, (Dr. Philip LeClare - (516) 364-8500).

Mr. Gabrielson then commented on cooperation received by EEH with the manufacturing industry in gathering essential information. He said a gap existed in data pertaining to the flooring industry. Mr. Gabrielson urged AIA/NA members in this segment of the industry to supply EEH with the requested data at the earliest possible date, otherwise, the lack of data in this area will have an adverse impact on the total effort.

Mr. Gabrielson said the Association is deeply indebted to Dr. Rhodes, Union Carbide Corp. and co-chairman of the AIA/NA Ad Hoc Committee for Construction, for his selfless and tireless contribution to this complex and demanding project. (Dr. Rhodes also serves as chairman of the AIA/NA Standards & Technical Committee.)

A general discussion followed concerning problem areas and anticipated results of the EEH study.

Revision of Association By-Laws

Mr. Dougherty reviewed the background for which the Executive Committee felt revision of Association By-Laws was in order. He referred to consideration of this matter at the June 10 and September 8 Directors meetings. He said some administrative corrections are necessary, ambiguities exist, and Association membership is now restricted to one class. A draft revision of the By-Laws was forwarded to Directors by AIA/NA Memo dated 10/22/76. AIA/NA Memo of Nov. 15 advised that a vote on revision of the By-Laws would be taken at the Dec. '9 meeting of directors. Following discussion, and on motion, the proposed revision to Association's By-Laws was unanimously approved, a quorum of Directors being present.

Legal-Medical Research Program

Mr. Gabrielson reminded Directors that the primary purpose of the Legal/Medical Research Program is to improve the quality of defenses for asbestos companies involved in third party liability suits in tort. He explained briefly the specific research work now ongoing in the legal area by Cadwalader, Wickersham & Taft and Philip Enterline, Ph.D., University of Pittsburgh, in review of medical literature.

Wendell Alcorn, Esq., Cadwalader, Wickersham & Taft, special counsel to the Association was introduced. Mr. Alcorn reviewed his background and interest in asbestos-related litigation cases.

He said that the asbestos industry has served as a guinea pig

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of American jurisprudence with respect to occupational diseases. He spoke in detail to the liability problem confronting the industry and the history of this problem as it has evolved through the courts. Mr. Alcorn said he expected three or four additional memoranda of law prepared by his office for members and associate members of the Legal-Medical Research Committee would be available by Dec. 31. (Two memoranda have already been distributed.) Reference was made to progress in developing a clearing house of information on asbestos-related cases that have been litigated in the United States to date. Mr. Alcorn spoke to the interface of his work with that of Dr. Enterline.

The Executive Director invited attention to the list of members and associate members on the AIA/NA Legal/Medical Research Committee and suggested that Association members who have not designated a committee member for purposes of providing a contact with special counsel should consider doing so by advising the Executive Director who would notify special counsel, in turn. In regard to Dr. Enterline's project, Mr. Gabrielson said work on the bronchogenic cancer portion of the literature review is complete with exception of about 20 German papers now pending translation and review. A large segment of the mesothelioma literature review is also complete. Mr. Gabrielson explained that a decision to include asbestosis in the literature review had been made to determine when this disease was related to different products, industries or processes. In addition, the decision has been made to include literature review of other types of cancer sometimes related to asbestos exposure, e.g., laryngeal and gastrointestinal. Mr. Gabrielson said Dr. Enterline has completed most of the literature review for the period 1933-1963 and that he estimates the total project is 50% complete. The final product will consist of (1) complete file of all papers reviewed; (2) critical quotations from each paper; (3) card file index with brief summary of each paper; and (4) a scholarly paper.

Mr. Gabrielson said special counsel had commenced with interviews with various physicians suggested by Dr. Weill for recognized knowledge in asbestos-related disease who might qualify as expert witnesses in any injunctive proceeding initiated by the Association or in other litigation. It was suggested that two types of witnesses may be required in court cases in order that both condition of plaintiff and state of the medical art could be addressed.

1977 Proposed Budget

Mr. Barge reviewed in detail the Association's proposed budget for fiscal (calendar) year 1977. He explained that total dues income for 1977 should be \$370,000 to support regular operating expenses plus special projects now approved and under-way or proposed. (Legal-Medical Medical Research Program -- \$25,000; EEH technological feasibility and economic impact

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study -- \$116,000; Captive Insurance Company Feasibility Study - \$11,200.) Membership and travel associated with the International Asbestos Information Conference will approximate \$19,000. The \$370,000 figure represents an increase of about 14% over total dues (including the recent 18% special assessment) paid by members in 1976 which amounted to \$323,000.

Mr. Barge noted that the proposed budget reflected identical totals for receipts and disbursements. He said he envisioned that the Association's current net cash reserve of about \$57,000 would meet the needs of good business practices.

Following discussion, and on motion, the Association's budget for 1977 as proposed, was approved. (Attachment)

Mr. Dougherty proposed that the following dues formula for fiscal (calendar) 1977 be approved by Directors:

1. Regular Members

a) Dues for users of raw asbestos fiber will be based on a millage rate of dollar value of asbestos fiber consumed (freight excluded) in previous calendar year with a minimum of \$2,000 per annum.

b). Dues for miners of asbestos fiber will be on a millage rate of dollar value asbestos fiber sold in North America during previous calendar year with a minimum of \$2,000 per annum. The millage rate will be one tenth of the rate established for consumers of raw fiber.

c) Dues for sellers of asbestos fiber will be \$2,000 per annum, the minimum rate for all members.

Millage rates will be determined by the Association's accountant following receipt of pertinent information from members obtained through use of a confidential questionnaire.

2. Associate Members

Dues will be a flat rate of \$500 per annum.

Section 2.03 Associate Membership Qualifications.

Any firm or corporation which meets the Qualifications set forth in Section 2.01 and is involved in a secondary or consumer industry as defined herein is eligible for an associate membership:

A) Secondary Industries -- those industries that continue the manufacturing process with an intermediate product (one in which the fiber has previously been modified in a primary industry) and further processes, modifies or fabricates to produce either another

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intermediate product or a finished product;

B) Consumer Industries -- those industries that purchase a finished asbestos-containing product and apply, install, erect or consume the asbestos-containing product without further physical modification of the product. (By-Laws)

Following discussion and on motion, the dues formula as proposed by Mr. Dougherty were approved.

Canadian Situation

Mr. Pilmer referred to a recent determination by the Workmen's Compensation Board in Ontario relating asbestos with gastrointestinal cancer as a compensable disease. He suggested that this ruling might have a significant impact on workmen's compensation boards elsewhere in Canada and the U.S.

Mr. Barge spoke to the recently published report of the Beaudry commission in Quebec. The three-member commission, headed by Judge René Beaudry, was named to study health conditions in the asbestos industry. The impact that the report will have on legislation is not known. He said thus far no public statement has been made by the Government of Quebec as to its planned reaction to the Beaudry Report; however, the Report has been used as a basis for extensive adverse reporting in the press regarding the industry. Among recommendations in the Report are : (1) an average permissible level of exposure to asbestos dust of 2fp/cc should be established, with certain qualifications pertaining to measuring methods, and (2) employment in the asbestos industry be so ruled as to prohibit the hiring of people who are tobacco users. Mr. Barge said the report concerns itself with exposure to chrysotile and the statement is made, "As far as crocidolite and amosite -- the committee is of the opinion that the use of these two types of fiber must be totally banned. No exposure should be tolerated for any worker." Mr. Barge also spoke of the possible impact of recent elections in Quebec and concerns with "nationalization" of the asbestos industry.

Remarks of the Executive Director

In the interest of time, the Executive Director said he would confine his remarks to a brief review of the asbestos situation within Federal regulatory agencies, excepting OSHA which was reported on by Mr. Gabrielson.

In EPA, current emphasis is on implementation of the new Toxic Substances Control Act. It is not expected that provisions of Act will affect asbestos in the immediate future. Emphasis

is directed to chemical substances. EPA will make decision by December 1977 whether to propose standards for control of "asbestos" emissions from taconite plants based on current ongoing studies. Revised National Drinking Water Regulations to establish treatment techniques or maximum contaminant levels are scheduled for issuance in May 1977.

MESA's Federal Metal and Nonmetal Mine Safety Advisory Committee has recommended change for current 5fp/ml to 2fp/ml with probable effective date late 1977. Since public advisory committee proceedings were "open", a public hearing on this proposal is not necessary or planned. The newly established Bureau of Mines Metalurgy Research Center, College Park, Maryland, involved with asbestos particle identification was discussed. This unit is providing material for the HEW-NIEH ongoing four-year oral feeding study of animals to investigate ingestion of asbestos fiber.

It was reported that a report on the petition filed with the Consumer Product Safety Commission (CPSC) by Natural Resources Defense Council, Inc. and the Consumer's Union of the U.S.A., Inc. for promulgation of a rule banning certain asbestos-containing patching compounds is now under review by the CPSC solicitor. AIA/NA submitted comments to CPSC on the matters being investigated.

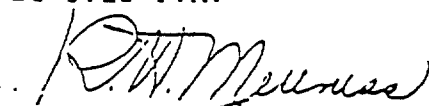
Establishment of the new category of associate membership in the Association provides a means of greater effectiveness in fulfilling the Association's objectives. Directors were encouraged to make contacts within the industry to advise of the Association's work, promoting membership in either regular or associate category as appropriate. Upon being advised of possible membership interest, AIA/NA staff will provide follow-up communication.

Other Business

The next regular meeting of Directors is scheduled for March 10, 1977, at Stouffer's National Center Hotel, Arlington, Virginia, commencing at 9:00 A.M.

Adjournment

There being no further business the meeting was adjourned at 3:12 P.M.



R. H. Mereness
Executive Director (Secretary)

December 14, 1976
Enclosures
RHM:v

JHM 15975

January 13, 1977

EXECUTIVE COMMITTEE MEETING

Thursday, January 13, 1977

Washington, D. C.

The meeting was called to order at 9:02 A.M. in the Association office. Present were:

Thomas A. Dougherty	Certain-teed, President, AIA/NA
George Barge	Atlas Asbestos Company
Guy G. Gabrielson, Jr.	Nicolet, Inc.
John H. Marsh	Raybestos-Manhattan, Inc.
J. L. Rainey	Amatex Corporation
James F. Reis	Johns-Manville Corporation
(for Dimitry Poutiatine)	
Kurt Schwarz	Supradur Manufacturing Co.
Others:	
Walter Curtner	Johns-Manville Corp.
Robert H. Mereness	Executive Director, AIA/NA
B. J. Pigg	Administrative Assistant, AIA/NA

Introduction

Mr. Dougherty welcomed Mr. Schwarz who was attending his initial meeting as member of the Executive Committee. Mr. Schwarz replaced Mr. Feierabend who recently resigned due to a promotion within his company and move to Columbus, Ohio. Mr. Dougherty also acknowledged Messrs. Reis and Curtner, Johns-Manville Corp. Mr. Reis represented Mr. Poutiatine. Mr. Curtner had been invited to participate in discussion of the agenda item, Association Captive Insurance Company.



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Minutes

On motion, minutes of previous meeting, December 9, 1976, were approved except for the following correction: The first sentence of paragraph 2, page 5, is corrected to read, "Mr. Gabrielson said special counsel had commenced the interview process of physicians around the country who might qualify as expert witnesses in third party liability litigation."

Financial Report

General

Mr. Dougherty referred to significant developments within the last month that adversely impact on the asbestos industry. He cited the unexpected NIOSH study to OSHA of December 15 which recommended further reduction of the standard for occupational exposure to asbestos to 0.1 f/cc; the New Jersey State Senate Committee report issued December 10 which recommended legislative ban of 16 specific carcinogenic chemicals (including asbestos) in a program to reduce state cancer incidence; and, public school closings in New Jersey because of suggested high levels of asbestos fibers in the air. He suggested that these occurrences are cause

for the Association to take a hard look at its objectives and program of work. Mr. Dougherty also said he had recently learned that the U.K. trade union council had made three recommendations to a subcommittee studying the asbestos-health problem in that country. These recommendations were : (1) establish permissible level of exposure at .2 f/cc; (2) phase out all asbestos-containing products in 10 years; and (3) extend present controls on crocidolite fiber to ban any product containing this fiber. It was stated that a U.K. asbestos industry representative had advised that the U.K. asbestos industry had been hopeful of a government standard of 1 f/cc standard. It now appears more likely that the British standard will be determined between .2 and 1f/cc. Mr. Marsh discussed aspects of a cumulative standard in the U.K. He said that the subcommittee's final recommendation would no doubt effect OSHA's deliberations on change to the U.S. asbestos standard.

Mr. Schwarz pointed to need for the public to appreciate exposure differential among asbestos workers, e.g., an employee introducing raw asbestos fiber in a manufacturing process as opposed to a shingle applicator with no exposure. Mr. Reis felt attempt to educate 215 million Americans might be too ambitious a program but perhaps more success could be achieved by communicating with contractors, applicators, and directors of public utilities. Mr. Dougherty suggested that companies might invite local physicians to tour their plants in order that prior and present work place conditions might be recognized. He also said he expected to meet with organized labor representatives on January 24 in an effort to improve the appreciation and understanding of labor as concerns their attitude toward the asbestos industry. A discussion followed.

Mr. Dougherty raised the questions whether the Association should submit comments on the New Jersey State Senate Committee report. It was agreed that AIA/NA should be active in this matter, giving consideration to including reference to Dr. Selikoff's previous public statement that there is no need to ban asbestos-containing products in any statement prepared for the state authorities. Mr. Marsh cautioned that the Association be alert when preparing comments to avoid complications encountered by the Asbestos Textile Institute in past correspondence of a similar nature with the New York Academy of Sciences.

Remarks of the Executive Director

The Executive Director invited attention to the Association's revised Bylaws which were approved at directors meeting December 9. He said the required amendment to Certificate of Incorporation has been filed with Secretary of State of Delaware. These actions complete the necessary steps to permit associate membership in the Association. An appropriate letter to implement this program is under preparation; the assistance of Committee members was requested

concerning identification of prospective associate members. Mr. Barge suggested that ASBESTOS Magazine be reviewed periodically as a source for prospective members.

It was mentioned that Nippon Asbestos, Ltd., New York City, had inquired about associate membership in AIA/NA. The company manufactures asbestos-containing products in Japan, but sells these products in North America. Following discussion, it was agreed that the revised Bylaws, under strict definition of secondary and consumer industries, would restrict Nippon to regular membership. The Executive Director was requested to advise the company accordingly.

Reference was made to need for issuance of change #2 to the Association's handbook, "Asbestos- Federal Regulations." Since EPA has advised that a change to their national emission standard concerning spraying of asbestos will be issued shortly, it is proposed to delay change #2 to the handbook in order that EPA amendments can be incorporated. (Further information on the anticipated EPA amendments are provided in the succeeding paragraph.)

In view of the situation created by asbestos sprayed ceilings in New Jersey, which has created a scare problem in other locations, Florida, Wyoming, etc., EPA is now preparing amendments to the national emission standard in regard to spraying of asbestos. The term, "structural member," will be redefined to be inclusive, that is, any structural part not just "load bearing." Publication in Federal Register is expected in two weeks. It will cover all types of spray-on asbestos materials in excess of 1%, to include decorative spray, waterproofing, coatings and sealants, and accoustical, in addition to fire proofing and insulation. Also, provisions for demolition or renovation will be included. To expedite action on proposal, certain questions will be asked in the Federal Register. EPA normally conducts detailed investigation prior to publication of proposal, but because of immediate need to regulate spray-on materials, interested parties will be requested to submit information on: materials being sold or used containing asbestos greater than 1% by weight; substitute products and their availability; and, technical and economic impact of regulation on broader area of sprayed-on asbestos-containing products. No public hearing is to be held.

On ceiling problem, inter-agency discussion is ongoing to determine agency responsibility, i.e, OSHA or EPA. Issue is whether a ceiling is a work site or the "environment."

EPA's many studies on asbestos continue. Currently, community air in area of stone quarries -- there are about 6,000 of which 25% are limestone -- is being studied. EPA has also identified 18 taconite operations of which 10 have been reported to have asbestiform fibers.

It was noted that the Consumer Product Safety Commission (CPSC) has not yet acted on the petition filed by National Resources Defense Council, Inc. and the Consumer's Union of U.S.A., Inc. for promulgation of rule banning certain asbestos-containing patching compounds. CPSC's in-house study on the petition has been completed and it has been forwarded (via the CPSC solicitor) for review by the commissioners. Both AIA/NA and J-M's comments have been considered in development of the Commission's study, it is understood.

Attention was invited to AIA/NA memo. of December 22 which forwarded the announcement as published in the Federal Register on December 9 that the Department of Transportation is examining the possible need for developing and issuing a packaging standard for asbestos. Comments were requested to DOT by March 14. The matter was scheduled for further discussion at the February 10 Executive Committee meeting.

The Executive Director said that reintroduction of legislation to transfer MESA to OSHA can be expected early in the new Administration. A position paper on this matter prepared by OSHA for the Transition Team, along with others, is included in folders.

In regard to OSHA, no announcement has been made as to the continuance or replacement of Dr. Corn. John J. Sheehan of the Steelworkers of America, (AFL-CIO) and Professor Eula Bingham, University of Cincinnati, have been mentioned as possible successors.

NIOSH Study, "Re-examination and Update of Information on the Health Effects of Occupational Exposure to Asbestos"

The Executive Director reviewed the background which initiated the study, i.e., a request from OSHA signed by Marshall L. Miller which, in effect, was intended to provide data related to the October 1975 OSHA proposal to further reduce the occupational exposure to asbestos from 2 f/cc to 0.5 f/cc. He said Grover Wrenn, Chief, Division of Health Standards Development, OSHA, indicated surprise in receiving the study there having been no interagency discussion. Wrenn said that it is not possible, in a practical sense, to enforce compliance at either 0.5 f/cc or 0.1 f/cc at this time.

The forwarding memorandum for the NIOSH study addressed to Dr. Corn, Assistant Secretary of Labor (OSHA) and Dr. Cooper, Assistant Secretary for Health, Dept. of HEW, were distributed. The OSHA memorandum by Marshall Miller to NIOSH, referred to above, has been requested and will be distributed to Committee members upon receipt.

Mr. Barge commented that the 0.1 f/cc recommendation by NIOSH might work to OSHA's advantage in justifying the 0.5 f/cc standard proposal.

Mr. Marsh reviewed a critique of the NIOSH study by Dr. Lewinsohn, Medical Director, Raybestos-Manhattan, Inc. which identified certain deficiencies from a scientific viewpoint in that the recommendation for a 0.1 f/cc is not based on epidemiological or biological facts. Mr. Marsh remarked, however, that the final decision for an asbestos standard may be more politically than scientifically based.

Mr. Gabrielson said his initial reaction to the NIOSH study was one of severe depression. He spoke in philosophical terms as to our society being prone to "fads" and suggested that the asbestos industry now appears to be a victim of this phenomenon. He identified three significant and powerful "fads" as being current: (1) occupational health; (2) environmental cleanliness; and, (3) attack on cancer. Mr. Gabrielson explained it was his opinion that neither publicity campaigns nor scientific response could put into public acceptable perspective these kinds of self identifying, emotional issues which must run their course. He said the assertion in the NIOSH document that there is no proof of what a safe level of exposure to asbestos is comprises the only significant scientific content. The balance of the document constitutes a policy statement. As to the Association's reaction to the NIOSH study, he felt that aggressive effort should continue in the quest for a reasonable and practicable standard for the industry. This posture, at the least, should buy time and time will afford opportunity for an appeal to intelligent people in organized labor, government and the courts.

Report of the Chairman, Asbestos Regulation Task Force

Mr. Gabrielson said there was no change in the status of OSHA's proposed revision to the manufacturing standard. The Inflationary Impact Statement prepared by CONSAD Research Corp. has yet to be certified by the Department of Labor.

With regard to the construction industry study being conducted by Equitable Environmental Health, Inc., Mr. Gabrielson said we are at an important juncture. A fair amount of dust count data has been collected thus far from field studies and from literature. He stated the data reflects very low levels of occupational exposure which is encouraging. He further said this result had produced considerable debate regarding the development of an AIA/NA position. Mr. Gabrielson urged the Committee to thoroughly consider the issues and advise him on approach. He explained in detail his initial concept of the study as suggested to EEH before the receipt of dust count data. This concept would have resulted in creation of an exposure index grid based on numerical values assigned to various asbestos-containing materials used in construction. The concept was favorably received by EEH, however, Dr. Rhodes feels that

the approach might be interpreted as being arbitrary and unscientific. Dr. Rhodes had suggested an alternate approach which, Mr. Gabrielson explained, would identify five classes of exposure in terms of product and operation performed to be defined by monitoring after adoption of a standard, (outline attached).

In regard to his initial concept, Mr. Gabrielson said he did not now feel too confident because he did not think it could be implemented in the time allowed. Thus, he found himself groping for a good and defensible position to be taken by the Association which would allow the industry to remain viable in the construction field. He reiterated his request for Committee thinking on this problem. He said issuance of the recent NIOSH study and increased public attention to asbestos problems had influenced him to conclude that a stronger rather than conciliatory position should be taken. Mr. Gabrielson stated that his current thinking is based on the assumption that data collected by EEH will continue to show relatively low levels of exposure. He reviewed in detail his revised position (copy enclosed) which would be applicable to only non-fixed places of employment at which specified work is performed. A discussion followed. It was agreed that the stronger approach as described by Mr. Gabrielson would appropriately characterize the Association's position in responding to OSHA with regard to an asbestos standard for the construction industry.

Association Captive Insurance Company

Mr. Curtner, manager of insurance, J-M, discussed difficulties associated with establishment of captive insurance companies. In considering establishment of an association captive insurance company he mentioned differences in respective company risks which militate against a "pool" concept. He reviewed pertinent statutes covering captive insurance companies as they exist in Bermuda and Colorado. Mr. Gabrielson presented the rationale that led to ATA/NA consideration of a captive insurance company for its members. He said he assumed that a captive company could be set up in such a way so that each insured bears his own risks rather than operating under a pool concept. A discussion followed. At the request of the Committee, Mr. Curtner agreed to further investigate this matter, define scope of a feasibility study and, in coordination with Mr. Gabrielson, seek a contract proposal. Mr. Dougherty expressed appreciation to Mr. Curtner for his remarks and willingness to assist the Association.

Audiovisual Presentation

A 30-minute audiovisual presentation, "Asbestos-Fighting a Killer," on occupational use of asbestos was shown. The Executive Director had obtained the presentation from the Oil, Chemical and Atomic Workers Union.

Other Business

Mr. Dougherty mentioned that Johns-Manville planned a meeting in Denver January 27 to explore a legislative alternative to third party litigation in asbestos disease cases. A number of chief executive officers of member companies were being invited to the meeting. The Association's Executive Director and Special Counsel had also received invitations to the meeting. It was considered that the Association's interests in the substance of the meeting would be covered by member company attendees.

The next regular meeting of the Executive Committee will be held in the Association office commencing at 9:00 A.M., Thursday, Feb. 10, 1977.

Adjournment

There being no further business, the meeting was adjourned at 3:40 P.M.


E. H. Mereness
Executive Director

17 January 1977

RHM:v

Enclosures

100774

February 10, 1977



ASBESTOS INFORMATION ASSOCIATION

1835 K Street, N.W., Washington, D.C. 20006 • (202) 223-4885

EXECUTIVE COMMITTEE MEETING

Thursday, February 10, 1977

Washington, D. C.

The meeting was called to order at 9:00 A.M. in the Association office. Present were:

Thomas A. Dougherty
Guy G. Gabrielson, Jr.
John H. Marsh
Dimitry Poutiatine
Jack L. Rainey
Kurt Schwarz

Certain-teed Corp., AIA/NA President
Nicolet, Inc.
Raybestos-Manhattan, Inc.
Johns-Manville Corporation
Amatex Corporation
Supradur Manufacturing Corp.

Others:

Robert H. Mereness
B. J. Pigg

AIA/NA Executive Director
AIA/NA Administrative Assistant

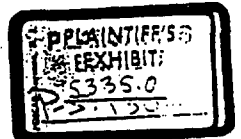
Minutes

On motion, minutes of previous meeting, January 13, 1977, were approved as submitted.

Financial Report

In the absence of Mr. Barge, Committee member for financial affairs, Mr. Dougherty requested the Executive Director to report on finances. A preliminary year end 1976 report and a report for the month ending January 31, 1977, were reviewed. The year end statement noted a net worth of \$4,340. Billings for the Equitable Environmental Health, Inc. study paid in 1976 exceeded expected payments due in the period by \$25,004. Billings from EEH in 1977 under contract terms should be considerably less than the \$100,000 budgeted bringing the total figure for payments to EEH in line with the contract sum of \$150,000 and thus permitting return of monies to the nearly exhausted reserve. It was noted that expenses that expenses in support of the Legal-Medical Research program in 1976 had exceeded the \$25,000 budget by \$11,788. The expenditures were explained in terms of the extensive work being done in the new program in 1976. A final year end 1976 statement will be presented to the Committee at its next meeting prior to submission to the board of directors on March 10.

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Expenditures against contingency fund/special projects in 1976 were given as follows: Roy F. Weston, Inc. -- \$94,418.06; Equitable Environmental Health, Inc. -- \$91,344.64; miscellaneous expense -- \$4,928.40 (industry meeting, reproduction of excerpts from report to OSHA). Total disbursements were \$190,691.10. Total expenses incurred in 1976 in support of the Legal-Medical Research program came to \$39,578.68. Budgeted amounts for these two line items were \$100,000 and \$25,000 respectively. It was noted that the 1976 budget was not revised to include an estimated expenditure of \$40,000 for Phase I of the EEH study. A special assessment was approved and realized to defray the cost of the estimated Phase I expense.

Mr. Dougherty said that best estimates of costs for completion of the EEH study and the ongoing Legal-Medical Research program should be available for directors at the March 10 meeting. When originally proposed to the directors, the estimated costs of these two programs were \$150,000 and \$50,000, respectively.

The financial report for the month ending January 31, 1977, was in keeping with budget and accepted as presented.

Remarks of the Executive Director

In accordance with approved plans to increase support of the Association's work and in keeping with changes to the Bylaws to permit associate memberships 143 letters were mailed to prospective firms during the period Jan 1 -- Feb. 4. Letters were sent to those non-members who had endorsed and/or contributed to the Association's response to OSHA on the proposed revision to the manufacturing standard or otherwise communicated with AIA/NA. It was reported two letter response had been received -- one company requesting associate membership; one company advising that it had committed its management to "finding a way to get along without asbestos fiber." A third company telephoned to advise of interest in membership but, being a small user of asbestos fiber, the minimum dues of \$2,000 were prohibitive.

Pursuant to decision reached at January 13 Executive Committee meeting, it was stated that Nippon Asbestos, Ltd. has been advised that its prospective membership in the Association would be under regular classification as the firm uses raw fiber in its manufacturing, though marketing only asbestos-containing products in North America. It was stated that the former membership chairman, Mr. Workman, had provided an extensive list of prospective member companies of which the AIA/NA office had only minimal information. Mr. Poutiatine said he would be pleased to assist in screening the list. It was advised that certification of Inflationary Impact Statement prepared by CONSAD Research Corporation on proposed revision to asbestos manufacturing standard has been further delayed. A 60-day extension, from Feb. 1, to included analysis of the feasibility of recent NIOSH recommendation of 0.1 f/cc

1100

JHM/3113A

was awarded to CONSAD by OSHA. Clayton Environmental Consultants, Southfield, MI, is subcontractor for technical analysis and measurement studies.

Significant ramifications of OSHA's recently announced draft proposal concerning identification, classification and regulation of toxic materials posing a potential occupational cancer risk to workers outlined at Jan. 27 meeting of standards subgroup, National Advisory Committee on Occupational Safety and Health (NACOSH) were noted. It was reported that the subgroup will consider the draft proposal in public meeting on Feb. 17 at the Dept. of Labor building in Washington. The proposed policy, designed to speed up OSHA's rulemaking on carcinogens, would eliminate repetitive debate on certain basic issues and establish three categories for classifying substances as carcinogens, i.e., confirmed, suspected, and a third grouping for which more scientific data are needed. Mr. Marsh invited attention to a portion of the proposal concerning exposure limits which could have major impact on the asbestos industry. Specifically, it is stated that category I toxic materials be reduced to the lowest level feasible, and where "suitable substitutes are found to exist which are less hazardous to workers, the Secretary (of Labor) shall prohibit occupational exposure for such specific applications." A discussion followed. Through "News & Notes" Association members were advised of the Feb. 17 meeting. Association staff will be at the meeting. It was stated that Dr. Kotin of J-M was on the program to express his views.

Reference was made to OSHA's advance notice of proposed rulemaking on hazardous materials labeling published in the Federal Register, Jan. 28 requesting comments by March 29. At this juncture, impact on the industry appears negligible since labelling requirements in the asbestos standard and those thus far proposed by OSHA's advisory committee on hazardous materials labelling are similar. The Association's Standards & Technical Committee will consider this matter at its meeting, March 7.

Anticipated amendments to EPA's national emission standard in regard to spraying of asbestos as reported at Executive Committee meeting January 13 have been delayed due to some expansion of definitions in the standard and additional guidance for demolition work, e.g., decorative material which contains asbestos. Amendments are expected to be published in the Federal Register within 30 days.

Special Counsel has been requested to obtain information from pertinent government agencies on studies and grants regarding asbestos, making reference to the Freedom of Information Act.

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Mr. Dougherty raised the point as to the advisability of making an office call on Dr. Bingham in the near future, assuming she is named as Assistant Secretary of Labor (OSHA). Mr. Gabrielson expressed his opinion that a call should be made following a reasonable settling in period after the new assistant secretary takes office.

A review of recent bills introduced in state legislatures affecting asbestos was given with special emphasis on New Jersey. A public hearing on a Cancer Control Act which would ban asbestos along with 15 other substances will be held February 18 in Trenton, N. J. Messrs. Gabrielson and Marsh indicated they would be present at the meeting. Mr. Dougherty requested the Executive Director to attend. Mr. Ed Fenner of J-M and AIA/NA's Standards and Technical Committee was cited for his interviews with news media representatives on the reported "peril to students" from asbestos flaking from ceilings in New Jersey.

Guidance and suggestions were requested of the Committee for appropriate activities for the Association's industry and public information and education program.

Report of the Chairman, Asbestos Regulation Task Force

Mr. Gabrielson said he had nothing to add to the remarks of the Executive Director on OSHA's activities on the proposed revision to the manufacturing standard.

As to the construction industry study being conducted by Equitable Environmental Health, Inc. (EEH), Mr. Gabrielson said work was proceeding in an aggressive manner. Efforts are now underway to draft a recommended standard for the construction industry. This is a difficult task, especially in the absence of a governmental proposal, Mr. Gabrielson stated. He said EEH is using the October 9, 1975 proposed revision to the manufacturing standard as a basis for costing out a construction standard and has requested guidance on an alternate approach. Such an alternative has been developed, with exception of a medical surveillance program. Mr. Gabrielson described the views of EEH physicians (Drs. Cooper and Utijian) on the latter, and said he has engaged in detailed discussions on this subject. He spoke to the advantage of endorsement of an Association position on medical surveillance by EEH's medical representatives. Mr. Gabrielson said he had incorporated a recommended schedule for medical examinations in the draft proposal which he was hopeful would be acceptable. He referred to estimated expenditures for such a program and said, if the Association's proposals were to be adopted, the costs would be substantially lower than those required to defray what has been proposed by OSHA in the manufacturing standard. The Association proposal would apply only to workers

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exposed to over a 2f/cc, TWA, with peak or ceiling limit of 10 f/cc. In this connection, he said, EEH dust count data obtained to date indicate that most exposures are quite low.

A worksheet depicting the Association's proposed standard for the construction industry was distributed. Mr. Gabrielson said he proposed a review of the proposal by the Ad Hoc Committee for Construction at a meeting in the near future. He said that, while he had mixed feelings about contribution construction association representatives might make, it would be worthwhile to obtain endorsement of AIA/NA's position by this group. A discussion followed concerning responsibility for payment of costs of a medical surveillance program under provisions of a construction industry standard. The involvement of and likelihood of cost payments by the federal government, employers and manufacturers of asbestos-containing construction materials were presented. It was felt that the federal government would not assume cost responsibility. It was agreed that in the draft proposal to be reviewed by the Ad Hoc Committee on Construction responsibility for medical surveillance costs would be assigned to employers.

Mr. Gabrielson said EEH had completed their field sampling program and are in reasonably good shape on calculation of numbers of people exposed, hours per day, etc. Data has been obtained on the principal applications of asbestos-containing materials in construction. Rough draft of the economic phase of the study is being written. The next meeting with EEH is scheduled for February 15 in New York City.

Mr. Gabrielson commented on the regulatory problems confronting the industry in general and in particular the draft proposal by OSHA on carcinogens previously mentioned. A discussion followed. It was agreed that the Association should maintain its course, complete the studies now in progress, and seek the attainment of reasonable and practicable standards.

Meeting With Organized Labor

Mr. Dougherty recalled that he had mentioned at the Committee's January 13 meeting a meeting with representatives of the United Cement, Lime & Gypsum Workers on January 24 in Washington, D. C. He said this meeting had been rescheduled for March 8 in Chicago. Purpose of meeting was described as an effort toward enhancement of labor and industry appreciation of mutual problems and concerns in the federal regulatory area. Mr. Dougherty said he would attend the meeting and extended an invitation to committee members to accompany him.

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Legal-Medical Research Program

Mr. Gabrielson said Wendell Alcorn, Special Counsel to the Association, had recently met in Philadelphia with an attorney for plaintiffs in a number of asbestos cases. Alcorn said the attorney maintained a comprehensive, indexed file of asbestos-related litigation cases. Mr. Gabrielson said it was a principal objective of our assignment to Special Counsel to compile and analyze asbestos related litigation cases so that any defense counsel would be appropriately prepared. Speaking to the medical research project he said he did not foresee any pleasant surprises being found as a result of the literature review. He noted increased reference to asbestos and cancer after 1964. Nonetheless, Mr. Gabrielson stated he felt the medical research project would be an extremely valuable reference tool for defense counsel and would add credibility to industry's concerns regarding asbestos-health issues. Special Counsel expects to complete interviewing of physicians who may be candidates as expert witnesses in third party litigation by the end of February. The next meeting of the Legal-Medical Research Committee was announced for Monday, Feb. 28 at the Union League Club, New York City, commencing at noon. As to status of work, Mr. Gabrielson said he considered the medical phase to be on schedule but the legal phase to be behind. The February 28 meeting will provide opportunity to obtain updated status for presentation to directors at meeting.

Association Captive Insurance Company

Mr. Gabrielson reported that Mr. Walter Curtner, manager of insurance, J-M Corp., had written to define the scope of a captive insurance company feasibility study. Letters from Mr. Gabrielson have been sent to three prospective firms to submit proposals. Mr. Gabrielson said that time would probably not permit response for a full report to directors on March 10 as was hoped.

Report on International Asbestos Information Conference

Mr. Marsh distributed a written report of the Executive Committee meeting of the IAIC, held in London on Feb. 1. The report included a review of current developments affecting the industry outside the U.S.A. Mr. Schwarz commented on prohibitive regulations in Sweden as they relate to manufacturing of products as opposed to their use. Mr. Marsh also distributed copies of a communication from Dr. McCullagh, Asbestos Association of Australia, to Mr. Cross, Director General, IAIC, proposing an international workshop on fiber counting techniques. The Executive Director was requested to forward copies to members of the AIA/NA Standards and Technical Committee.

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Mr. Marsh mentioned a press release by the International Agency for Research on Cancer on "Asbestos and Cancer -- a New Evaluation," and a hand-out membership listing of the U.K. Government Enquiry Committee into Asbestos.

Mr. Poutiatine referred to a meeting of major asbestos-cement manufacturers in London on January 11 sponsored by Eternit at which asbestos exposure standards and asbestos usage problems of nations throughout the world were discussed. He stated only 15 nations have asbestos exposure standards. He said the industrial group was unanimous in its support of the IAIC that they had agreed to seek a 2 fiber /cc standard for all types of asbestos; and to communicate with governments and labor unions in the interests of the industry. Mr. Poutiatine said the meeting served to promote a free exchange of information and appreciation of problems confronting the industry.

Legislative Alternate to Third Party Litigation Meeting

Mr. Dougherty reviewed the J-M sponsored meeting of asbestos industry representatives in Denver on Jan 27 at which a legislative alternative to third party litigation in asbestos disease cases was proposed. About 25 companies were represented. In addition to himself, Messrs. Gabrielson and Marsh of the Association attended the meeting. Objectives of the proposed legislation would include:

- (1) prohibit third party litigation;
- (2) cover all asbestos disease which is occupationally related, including family members of workers; and
- (3) establish a funding system for support of the legislation. It was proposed that the first three years funding would be provided by the federal government and afterward by the asbestos industry and the tobacco industry.

After fully outlining the proposal, Mr. Dougherty said he felt there was considerable concern as to success in involving the tobacco industry. He said there were many questions as to what would consist as medical evidence for claimants. He said attendees at the meeting were invited to consider the proposal as presented and submit suggestions and indication of support to J-M. Mr. Dougherty said he viewed this subject, at this point, as a matter for individual companies to consider rather than the Association as a representative body.

Advance Notice for Proposed Federal Rulemaking

The Executive Director reviewed the Dept. of Transportation's advance notice of proposed rulemaking published in the Federal Register, Dec. 9, 1976, which requested comments on the possible need for developing and issuing packaging standards for certain

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materials, including asbestos. Following discussion, it was agreed that no action would be taken at this time by the Association.

Agenda for Directors Meeting, March 10

Mr. Dougherty said it would be beneficial for the agenda for board meetings to be provided directors in advance. For the March 10 meeting it was agreed that the agenda would, as a minimum, include the following items: report on OSHA standards and AIA/NA work in response thereto; Legal-Medical Research Program; Association Captive Insurance Company; IAIC; Financial Report; Remarks of Executive Director; Canadian Situation; and OSHA's draft proposal for a carcinogenic substances policy. It was also agreed that Dr. Kotin, Senior Vice President for Health, Safety and Environment, J-M Corp., should be invited to attend the March 10 meeting and be the luncheon speaker. Dr. Kotin would be requested to speak to the OSHA proposed policy on carcinogens and such other matters of concern to directors as he chose. The Executive Director was requested to draft an appropriate letter for signature of Mr. Dougherty (Note: letter was mailed February 10).

Other Business

The next regular meeting of the Executive Committee will be held at Stouffer's National Center Hotel, Arlington, VA, commencing at 2:00 P.M., Wednesday, March 9, 1977.

Adjournment

There being no further business, the meeting was adjourned at 2:50 P.M.


R. H. Mereness
Executive Director

RHM:v

15 February 1977

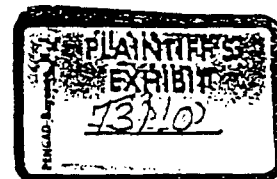
JHM 13119

February 17, 1978



ASBESTOS INFORMATION ASSOCIATION

1745 Jefferson Davis Highway, Crystal Square 4, Suite 509
Arlington, Virginia 22202 • (703) 979-1150



731

FEB 17 1978

Memorandum For:

TECHNICAL COMMITTEE

Subject:

Meeting, Wednesday, March 1, 1978

Please be reminded that, as announced last meeting, January 25, the AIA/NA Technical Committee will next meet in the Association's office, Wednesday, March 1, 1978, commencing at 9:00 AM. It is expected that the meeting will adjourn by 3:00 PM.

A tentative agenda for the meeting is attached. Suggestions for additional items are invited. Minutes of the January 25th meeting are also attached.

Chairman Fenner emphasizes the importance of this meeting as the Association seeks to provide all assistance necessary to finalizing AIA/NA's alternative for an OSHA construction standard.

Please use the enclosed form to notify us of your attendance and hotel arrangements as might be required.

E.H. Mereness
Executive Director

cc: Executive Committee
Standards Advisory Committee

Enclosures

JHM

12925



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AIA/NA TECHNICAL COMMITTEE

Association Office

1 March 1978

Tentative Agenda

- I Welcome
- II Minutes of Previous Meeting, January 25, 1978
- III Review of Federal and State Regulatory Actions and Initiatives
- IV Generic Cancer Policy Proposals by Regulatory Agencies
- V EEH Study - AIA/NA Alternative for OSHA Construction Industry Standard
 - A. Work Practice documents
- VI Committee Projects and Assignments
 - A. Engineering controls for asbestos dust
 - B. Sources for dust control equipment
 - C. Labeling, material data sheets
 - D. Employee training program
- VII Meetings of Interest
- VIII Other Business
 - A. Next meeting
- IX Adjournment

JHM

12926



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MINUTES

AIA/NA TECHNICAL COMMITTEE

JANUARY 25, 1978

The meeting was called to order by the Chairman in the Association office at 9:05 A.M.

Present were:

E. M. Fenner	J-M Corporation
James G. Heil	CertainTeed Corporation
Martin G. Kemplin	Nicolet, Inc.
William H. Mortonson	The Flintkote Co.
H. B. Rhodes, Ph.D.	Union Carbide Corporation
Raymond F. Treml	Molded Materials Inc.
I. H. Weaver	R/M Inc.
James Weber	The Bendix Corporation
Frank Zimmerman	National Gypsum Co.
R. H. Mereness	AIA/NA Staff
B. J. Pigg	AIA/NA Staff

A copy of the meeting agenda is attached.

Review of Minutes of Last Meeting

Dr. Rhodes discussed the present status of the California situation. Included were the personnel changes in the State Department of Health and Union Carbide's activities in lobbying for a modification of the Presley bill.

It was reported that the hearing and comment dates relative to the generic standard for occupational exposure to carcinogenic substances had been changed. The hearing is now scheduled for May 16 and written testimony will be received until February 28.

Dr. Rhodes commented on the present status of the construction industry study being performed by Equitable Environmental Health, Inc. Further actions, that may be required of the Technical Committee will be advised following meetings of the Ad Hoc Committee on Construction, AIA/NA's Standards Advisory Committee and status review of the Executive Committee.

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Federal & State Regulatory Action

Mr. Mereness reviewed Federal and State regulatory actions and initiatives.

He discussed the contract from OSHA to RTI Inc. to consolidate the findings of CONSAD and RTI into one report. The committee was provided with a contract statement of work.

Mr. Fenner reviewed the OSHA draft proposal for labeling materials used in the workplace and requested any comments by Committee members suggested for forwarding to OSHA by AIA be advised to him within one week.

For additional information on this subject, see attached outline of Executive Director's remarks.

Role of Technical Committee

The following subjects were discussed:

Area of Responsibility - The Technical Committee will work with and assist the Executive Committee, Board of Directors, and association committees in all technical matters relating to the work of the Association.

Membership - Mr. Mereness agreed that continued representation is necessary from Congoleum Industries, Inc., The Flintkote Co. and Garlock. He will arrange with the company directors for representatives to the Technical Committee.

EEH Study - Dr. Rhodes reported that a meeting is scheduled at the Association's office tomorrow (Thursday, January 26) with representatives of EEH, Inc. to discuss improving their report.

Monitoring - Dr. Rhodes reported highly satisfactory response to the monitoring program. There are 23 laboratories who have agreed to collect samples and perform analyses and 18 additional laboratories who will do analysis work. Mr. Mereness reported that the status of OSHA's participation had not been resolved.

Work Practices - It was agreed that the Technical Committee would do no further work until the Executive Committee approved the concept of the Association's preparation for submission to OSHA of a proposed construction industry standard based on work practices. This program will be presented to the Executive Committee for approval at their next meeting. The existing recommended work practices will not be modified pending

issuance of new standards.

Meetings of Interest

Refer to attached outline of Executive Director's remarks.

Next Meeting

The next meeting was scheduled for Wednesday, March 1 at 9:00 AM in the Association's office.

Adjournment

The meeting was adjourned at 2:30 PM.

Please inform the Chairman of any errors or omissions in these minutes..



Edmund M. Fenner
Chairman, AIA/NA Technical Committee

JHM 12929

25 January 1978

TECHNICAL COMMITTEE
MEETING

EXECUTIVE DIRECTORS REMARKS

I - Review of Federal & State Regulatory Actions & Initiatives:

A. OSHA's Proposed Revision to Asbestos Standard(s)
Consolidation of CONSAD-RTI studies - due end
April (copy of work statement in folders)

B. OSHA's Generic Cancer Policy Proposal

(1) Dr. Bingham announced on January 24 extension
of time period for response - new dates are:

Comments: public: 2/23/78 (was 1/30/78)
OSHA's witnesses: 4/4/78 (was 3/15/78)
public supplemental: 4/25/78
(new provision)

Public hearing: 5/16/78 (was 4/4/78)

(2) Work of American Industrial Health Council

(3) Consideration of AIA/NA Response

C. Report on State Initiatives for Asbestos Regulation
(copy of report in folders) - refer Rhodes' work
ongoing in California.

D. CPSC

(1) Ban of consumer patching compounds containing
intentionally added respirable free-form asbestos
issued 12/15/77.

(2) Proposed carcinogen policy drafted by CPSC staff -
was presented to Commission 1/18/78.

(3) Report on status of A. T. Kearney study, originally
expected to be completed 1/15/78.

E. EPA

(1) Paper on asbestos related programs in folders
(Presented by Dr. Breen, SOEH Conference, 12/7/77)

(2) Regulation for Inventory Reporting Under TSCA Issued
12/23/77 - asbestos, as previously reported, will be
automatically included in inventory as a naturally
occurring chemical substance.

JHM 12931

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II - Meetings of Interest:

- (1) Report on SOEH Meeting, Mayflower Hotel, Washington, D.C.
(12/4 - 12/7/77)
- (2) Symposium on Risk/Benefit Decisions and the Public
Health (FDA sponsored) - U.S. Air Force Academy,
Colorado Springs, Colo., 2/15 - 2/17/78.
- (3) N.Y. Academy of Sciences International Conference on
Asbestos (6/24 - 6/27/78)

JHM 12932

Draft of letter prepared by Wendell Alcorn to be used in response to inquiries concerning Enterline study and "state of the art" memorandum.

You previously indicated interest in obtaining certain materials relating to the "state of the art" defense in asbestos-related disease litigation. The materials we have were prepared at the expense of the Asbestos Information Association for the benefit of its members and the industry at large.

Since your company is a member of the asbestos industry but not a member of AIA/NA the materials on bronchogenic cancer prepared by Phil Enterline, Ph.D., E.N. Higgins, M.D., and their staffs will be made available to you at a cost of \$2,000.00. That amount was determined by AIA's Board of Directors to be a fair contribution to the overall costs incurred. If you wish to obtain a set of the materials, we would also ask that you request it with respect to a particular, pending lawsuit for which you expect the information to be of valuable assistance. We view the materials as work product, to be distributed only in the context of an existing attorney-client privilege. All rights are reserved and reproduction can be made only with the express permission and consent of AIA/NA.

If you wish to acquire a copy of the aforesaid materials, please remit a draft payable to Asbestos Information Association/ North America in the amount of \$2,000.00. The draft should be sent to me. I shall then see that you receive a duplicate copy of the information, consisting of three volumes of papers

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Pg. 2

and representing over a year's work by Dr. Enterline and his colleagues, who acted under our general direction and supervision.

In addition to the above, you may wish to receive a copy of our "State of the Art" draft memorandum, dated June, 1977. It has been distributed to AIA and represents our latest effort at restating legal principles involved in the defense. The memorandum will not be finalized until another, separate study is submitted by Dr. Enterline on the disease asbestosis, and that submission is not expected before March, 1978. The charge for the draft memorandum, as well as the final version, would be duplication costs plus a charge for legal time actually incurred in supplying the memorandum to you. The draft memorandum should also be requested by you for anticipated use in connection with a specific, pending lawsuit. The memorandum would be supplied in the context of the attorney-client privilege that has been established between you and our firm.

Please let us know if you have any further questions. We shall be pleased to meet with you or otherwise discuss the subject of this letter and any specific problems of concern to you.

Very truly yours,

W.B.A., jr.

JHM 12934

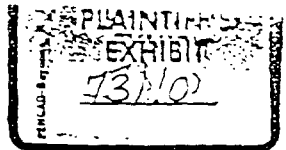
March 1, 1978



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731



FEB 17 1978

Memorandum For:

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Subject:

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E.H. Mereness
Executive Director

cc: Executive Committee
Standards Advisory Committee

Enclosures

JHM

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Arlington, Virginia 22202 • (703) 979-1150

ALA/NA TECHNICAL COMMITTEE

Association Office

1 March 1978

Tentative Agenda

- I Welcome
- II Minutes of Previous Meeting, January 25, 1978
- III Review of Federal and State Regulatory Actions and Initiatives
- IV Generic Cancer Policy Proposals by Regulatory Agencies
- V EEH Study - AIA/NA Alternative for OSHA Construction Industry Standard
 - A. Work Practice documents
- VI Committee Projects and Assignments
 - A. Engineering controls for asbestos dust
 - B. Sources for dust control equipment
 - C. Labeling, material data sheets
 - D. Employee training program
- VII Meetings of Interest
- VIII Other Business
 - A. Next meeting
- IX Adjournment

JHM

12926



ASBESTOS INFORMATION ASSOCIATION

1745 Jefferson Davis Highway, Crystal Square 4, Suite 509
Arlington, Virginia 22202 • (703) 979-1150

MINUTES

AIA/NA TECHNICAL COMMITTEE

JANUARY 25, 1978

The meeting was called to order by the Chairman in the Association office at 9:05 A.M.

Present were:

E. M. Fenner	J-M Corporation
James G. Heil	CertainTeed Corporation
Martin G. Kemplin	Nicolet, Inc.
William H. Mortonson	The Flintkote Co.
H. B. Rhodes, Ph.D.	Union Carbide Corporation
Raymond F. Trembl	Molded Materials Inc.
I. H. Weaver	R/M Inc.
James Weber	The Bendix Corporation
Frank Zimmerman	National Gypsum Co.
R. H. Mereness	AIA/NA Staff
B. J. Pigg	AIA/NA Staff

A copy of the meeting agenda is attached.

Review of Minutes of Last Meeting

Dr. Rhodes discussed the present status of the California situation. Included were the personnel changes in the State Department of Health and Union Carbide's activities in lobbying for a modification of the Presley bill.

It was reported that the hearing and comment dates relative to the generic standard for occupational exposure to carcinogenic substances had been changed. The hearing is now scheduled for May 16 and written testimony will be received until February 28.

Dr. Rhodes commented on the present status of the construction industry study being performed by Equitable Environmental Health, Inc. Further actions, that may be required of the Technical Committee will be advised following meetings of the Ad Hoc Committee on Construction, AIA/NA's Standards Advisory Committee and status review of the Executive Committee.

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Federal & State Regulatory Action

Mr. Mereness reviewed Federal and State regulatory actions and initiatives.

He discussed the contract from OSHA to RTI Inc. to consolidate the findings of CONSAD and RTI into one report. The committee was provided with a contract statement of work.

Mr. Fenner reviewed the OSHA draft proposal for labeling materials used in the workplace and requested any comments by Committee members suggested for forwarding to OSHA by AIA be advised to him within one week.

For additional information on this subject, see attached outline of Executive Director's remarks.

Role of Technical Committee

The following subjects were discussed:

Area of Responsibility - The Technical Committee will work with and assist the Executive Committee, Board of Directors, and association committees in all technical matters relating to the work of the Association.

Membership - Mr. Mereness agreed that continued representation is necessary from Congoleum Industries, Inc., The Flintkote Co. and Garlock. He will arrange with the company directors for representatives to the Technical Committee.

EEH Study - Dr. Rhodes reported that a meeting is scheduled at the Association's office tomorrow (Thursday, January 26) with representatives of EEH, Inc. to discuss improving their report.

Monitoring - Dr. Rhodes reported highly satisfactory response to the monitoring program. There are 23 laboratories who have agreed to collect samples and perform analyses and 19 additional laboratories who will do analysis work. Mr. Mereness reported that the status of OSHA's participation had not been resolved.

Work Practices - It was agreed that the Technical Committee would do no further work until the Executive Committee approved the concept of the Association's preparation for submission to OSHA of a proposed construction industry standard based on work practices. This program will be presented to the Executive Committee for approval at their next meeting. The existing recommended work practices will not be modified pending

issuance of new standards.

Meetings of Interest

Refer to attached outline of Executive Director's remarks.

Next Meeting

The next meeting was scheduled for Wednesday, March 1 at 9:00 AM in the Association's office.

Adjournment

The meeting was adjourned at 2:30 PM.

Please inform the Chairman of any errors or omissions in these minutes.

Edmund M. Fenner

Edmund M. Fenner
Chairman, AIA/NA Technical Committee

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ASBESTOS INFORMATION ASSOCIATION

1745 Jefferson Davis Highway, Crystal Square 4, Suite 509
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AIA/NA TECHNICAL COMMITTEE

Association Office

25 January 1978

Agenda

- I Welcome
- II Minutes of last meeting
- III Review of Federal & State Regulatory Actions and Initiatives
- IV Role of the Technical Committee
 - A) Areas of responsibility
 - B) Membership
 - C) Status of EER Study and determination of adequacy
 - D) Review of materials available to industry for control of asbestos dust, monitoring, record-keeping, personal hygiene, waste disposal, labeling, material data sheets, employee training program, etc.
 - E) New projects and assignments
- V Meetings of interest
- VI Adjournment

Hand-out Materials:

1. AIA/NA Report of State Initiatives for Asbestos Regulation
2. ACGIH TLV pamphlet, 1977 edition
3. Statement of Work for consolidation RTI-CONSAD studies for OSHA
4. Report of current EPA activities related to asbestos
5. Draft OSHA Labeling Standard
6. Becklake paper, "State of the Art, Asbestos Related Diseases, Amer. Review of Respiratory Disease, Vol. 114, 1976."
7. G. S. Rajhans article, "Here's an Update on Asbestos..." Occupational Health and Safety, Nov-Dec 1977
8. P. L. Lowry, P. R. Hesch et.al. paper, "Performance of Single-use Respirators," Am. Ind. Hyg. Assoc. J. Sept. '77
9. Misc. articles, Proceedings of 32nd Annual EMSA Meeting

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25 January 1978

TECHNICAL COMMITTEE
MEETING

EXECUTIVE DIRECTORS REMARKS

I - Review of Federal & State Regulatory Actions & Initiatives:

A. OSHA's Proposed Revision to Asbestos Standard(s)
Consolidation of CONSAD-RTI studies - due end
April (copy of work statement in folders)

B. OSHA's Generic Cancer Policy Proposal

(1) Dr. Bingham announced on January 24 extension
of time period for response - new dates are:

Comments: public: 2/28/78 (was 1/30/78)
OSHA's witnesses: 4/4/78 (was 3/15/78)
public supplemental: 4/25/78
(new provision)

Public hearing: 5/16/78 (was 4/4/78)

(2) Work of American Industrial Health Council

(3) Consideration of AIA/NA Response

C. Report on State Initiatives for Asbestos Regulation
(copy of report in folders) - refer Rhodes' work
ongoing in California.

D. CPSC

(1) Ban of consumer patching compounds containing
intentionally added respirable free-form asbestos
issued 12/15/77.

(2) Proposed carcinogen policy drafted by CPSC staff -
was presented to Commission 1/18/78.

(3) Report on status of A. T. Kearney study, originally
expected to be completed 1/15/78.

E. EPA

(1) Paper on asbestos related programs in folders
(Presented by Dr. Breen, SOEH Conference, 12/7/77)

(2) Regulation for Inventory Reporting Under TSCA issued
12/23/77 - asbestos, as previously reported, will be
automatically included in inventory as a naturally
occurring chemical substance

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II - Meetings of Interest:

- (1) Report on SOEH Meeting, Mayflower Hotel, Washington, D.C.
(12/4 - 12/7/77)
- (2) Symposium on Risk/Benefit Decisions and the Public
Health (FDA sponsored) - U.S. Air Force Academy,
Colorado Springs, Colo., 2/15 - 2/17/78.
- (3) N.Y. Academy of Sciences International Conference on
Asbestos (6/24 - 6/27/78)

Draft of letter prepared by Wendell Alcorn to be used in response to inquiries concerning Enterline study and "state of the art" memorandum.

You previously indicated interest in obtaining certain materials relating to the "state of the art" defense in asbestos-related disease litigation. The materials we have were prepared at the expense of the Asbestos Information Association for the benefit of its members and the industry at large.

Since your company is a member of the asbestos industry but not a member of AIA/NA the materials on bronchogenic cancer prepared by Phil Enterline, Ph.D., E.N. Higgins, M.D., and their staffs will be made available to you at a cost of \$2,000.00. That amount was determined by AIA's Board of Directors to be a fair contribution to the overall costs incurred. If you wish to obtain a set of the materials, we would also ask that you request it with respect to a particular, pending lawsuit for which you expect the information to be of valuable assistance. We view the materials as work product, to be distributed only in the context of an existing attorney-client privilege. All rights are reserved and reproduction can be made only with the express permission and consent of AIA/NA.

If you wish to acquire a copy of the aforesaid materials, please remit a draft payable to Asbestos Information Association/ North America in the amount of \$2,000.00. The draft should be sent to me. I shall then see that you receive a duplicate copy of the information, consisting of three volumes of papers

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and representing over a year's work by Dr. Enterline and his colleagues, who acted under our general direction and supervision.

In addition to the above, you may wish to receive a copy of our "State of the Art" draft memorandum, dated June, 1977. It has been distributed to AIA and represents our latest effort at restating legal principles involved in the defense. The memorandum will not be finalized until another, separate study is submitted by Dr. Enterline on the disease asbestosis, and that submission is not expected before March, 1978. The charge for the draft memorandum, as well as the final version, would be duplication costs plus a charge for legal time actually incurred in supplying the memorandum to you. The draft memorandum should also be requested by you for anticipated use in connection with a specific, pending lawsuit. The memorandum would be supplied in the context of the attorney-client privilege that has been established between you and our firm.

Please let us know if you have any further questions. We shall be pleased to meet with you or otherwise discuss the subject of this letter and any specific problems of concern to you.

Very truly yours,

W.B.A., Jr.

JHM 12934

September 20, 1978



ASBESTOS INFORMATION ASSOCIATION

1745 Jefferson Davis Highway, Crystal Square 4, Suite 509
Arlington, Virginia 22202 • (703) 979-1150

ANNUAL MEETING

September 20, 1978

Marriott Twin Bridges Hotel

Arlington, VA

The Annual Meeting of the Asbestos Information Association/ North America was convened at 9:52 AM, September 20, 1978, in the Marriott Twin Bridges Hotel, Arlington, Virginia. The following members were present:

George Barge	Atlas Asbestos Company
W.H. Beasley	Cement Asbestos Products Co.
Frank M. Brown	Connell Bros. Co., Ltd.
Robert A. Carlson	Special Asbestos Co., Inc.
William C. Clark	Asten-Hill, Limited
Brian Donner	Vermont Asbestos Group
Thomas A. Dougherty	CertainTeed Corporation
Guy G. Gabrielson, Jr.	Nicolet, Inc.
Jean Gaudry	Asbestos Corp., Ltd.
(for M. P. Carson)	
Clarence A. Herbst, Sr.	Resinoid Engineering Corp.
H.W. Heunemann	Congoleum Industries, Inc.
(for N. E. DeCandia)	
A. R. Hooker	The Flintkote Company
Edward Kaufman	P.T. Brake Lining Co., Inc.
(for Alfred Shaines)	
J. E. Keith	Rostone Corporation
Donald G. Magill	Hollingsworth & Vose Co.
John H. Marsh	Raybestos-Manhattan, Inc.
Joseph T. Mooney, Jr.	Monsey Products Company
C. G. Morgan	Continental Products Corp.
Adam Novak	Huxley Development Corp.
Dimitry Poutiatine	Johns-Manville Corporation
Richard H. Prigozen	Schriber Industries, Inc.
(for H. S. Prigozen)	
J. L. Rainey	Amatex Corporation
John Riopelle	The Bendix Corporation
H. B. Rhodes, Dr. Eng. Sci.	Union Carbide Corporation
Richard H. Rosenberg	Borg-Warner Corporation
Walter J. Rosenthal	Glasweld International, Inc.
Kurt Schwarz	Supradur Manufacturing Corp.
John Sheridan	Jim Walter Research Corp.
(for J. M. Ciskowski)	
E. R. Zacharias	Molded Materials Company

JHM 14052

Also present: James W. Armstrong, F. E. Messier and Ben Wong, The Bendix Corporation; E. W. Drislane, Friction Materials Standards Institute; Joseph A. Artabane, Esq., Cadwalader, Wickersham and Taft; W. T. Whitley, Cement Asbestos Products Co.; Doris M. Fagan, ASBESTOS Magazine; Richard P. Carter, Edmund M. Fanner, and James F. Reis, Johns-Manville Corp.; James G. Reil, CertainTeed Corp.; Robert G. Rucker, Congoleum Industries, Inc.; Hans Weill, M.D., Tulane University; R. H. Mereness, B. J. Pigg and Richard Trachtman, AIA/NA staff.

Welcome and Minutes

Mr. Dougherty, President of the Association, called the meeting to order, welcomed attendees and introduced members attending their initial AIA/NA meeting and Joseph A. Artabane, Esq. who succeeded Adrian May as Association counsel. On motion, minutes of the last Annual Meeting, September 21, 1977, were approved as submitted.

Statement of Finances

The Executive Director reviewed the financial statement for the eight-month period ended August 31, 1978. He invited attention to and explained any negative variances between the budget and actual expenditures for specific line items. As of August 31, total assets of \$161,312 with liabilities of \$53,711 resulted in a net worth of \$107,601. The Executive Director said the Association's financial condition was solvent and no problems were anticipated for the remainder of the fiscal (calendar) year. On motion, the financial report was accepted.

Executive Director's Report

OSHA - The The RTI-CONSAD consolidated report on studies of the construction and manufacturing industries is not available, although it has been submitted to OSHA. Grover Wrenn, OSHA's Director of Health Standards Division, recently advised that public hearing on the asbestos standard most likely would not be held before the first quarter of next year.

EPA - Phase I of the Environmental Protection Agency's Toxic Substances Review has been completed by the project officer, and is undergoing in-house review. The report will ultimately be considered by EPA's Priorities Committee (Phase II) for possible further studies or regulatory initiatives.

The study, "Chemical Market Input/Output Analysis of Selected Chemical Substances to Assess Sources of Environmental Contamination: Task III, Asbestos," has been completed by Syracuse Research Corp. for EPA. The study is not expected to be used as basis for any specific agency action. Copies are available on request.

Miscellaneous - A brief reference was made to recent state initiatives impacting on the asbestos industry. Appreciation was expressed to Dr. Rhodes and Messrs. Fenner and Carter for their assistance to the Association in this area. A written statement by the Executive Director regarding Association activities for the preceding year was distributed (copy enclosed).

Membership

Mr. Dougherty said membership in the Association now stands at 37 regular members and 16 associate members. A request from the Richard Klinger Company for change in category from associate to regular was received earlier this month. Contributions by nonmembers to AIA/NA's work thus far in 1978 totals \$3,575.

Standards Advisory Committee Report

Dr. Rhodes said that the committee felt it was not necessary to submit any additional information for the record on OSHA's generic cancer proposal. Deadline for additional written comments is October 10. (Note: Date was subsequently extended to October 24.)

Dr. Rhodes commented on the EEH study. He said that, as previously reported, the report has major deficiencies. The Association's EEH study review group (James Heil, Edmund Fenner and Dr. Rhodes) are pursuing this task consistent with other demands on their time.

Dr. Rhodes reviewed the Environmental Protection Agency's hazardous waste program pursuant to the Resource Conservation and Recovery Act (RCRA). He said considerable effort had been expended by the Johns-Manville Corp. to persuade EPA that asbestos should not be included in the RCRA regulations since it is already covered under National Emissions Standards for Hazardous Air Pollutants (NESHAPS). It now appears that asbestos will not be regulated under RCRA. ✓

Air Sampling and Analysis Program

Dr. Rhodes said this program continues to enjoy outstanding participation. Thus far, data has been received on 2,414 filters. A printout will be distributed which will show each program participant the results of all samples with which that participant was associated. Dr. Rhodes observed that the numbers generated by the sampling program showed some variances which were greater than expected.

Dr. Rhodes reported on response to date regarding attendance at the Second International Colloquium on Dust Measuring Technique and Strategy scheduled for October 11-13 at the Dulles Marriott Hotel. Approximately 25 non-U.S. attendees have advised of their plans to be present.

Legal Research Committee

Mr. Gabrielson said that this committee met September 18 and reviewed the State-of-the-Medical Art Memorandum prepared by special counsel. He said that this document covers the legal issues involved in the presentation of the state-of-the-medical art defense. The document incorporates the work of Dr. Enterline in his review of medical literature on asbestos-related disease. The document is now being revised following the committee's review and should be available to members and their trial counsel in the near future.

Mr. Gabrielson said that the document would be available to non-members as previously agreed. The fee will be \$2000. Mr. Gabrielson added that the procedure here would involve a direct billing to the non-member by Cadwalader, Wickersham and Taft while the AIA/NA would receive appropriate follow-on credit.

Mr. Gabrielson reported that the cost of maintaining the data bank by special counsel on a monthly basis would be about \$1500 which is considerably more than the earlier estimate of \$700. He said the Executive Committee had agreed that no change in this procedure should be made for six months.

Medical Consultant's Report

Dr. Weill reported on the AIA/NA sponsored Plant Physicians' Conference to be held in New Orleans, November 9-10, under the auspices of Tulane's continuing education program. The purpose of this conference is to provide physicians whose responsibility it is to perform medical surveillance on asbestos exposed workers with an update on the methodology of health surveillance.

Also covered will be the state of the medical art. This will prepare the plant physician to serve as a witness during litigation. Dr. Weill said that official AMA credit would be made available to participants. Response to date has been encouraging - about 30 attendees are expected.

Dr. Weill reviewed the present state of asbestos-health literature with specific reference to the United Kingdom. A study dealing with average exposure and mortality has recently been published. Dr. Weill noted that this work does have scientific merit.

There will soon be published an update of a ten-year old British study on asbestosis. This is the study on which the current British asbestos standard is based.

Dr. Weill mentioned a further study conducted at McGill University which is based on total particulates rather than fibers. There is a Tulane University study of asbestos-cement manufacturing industry workers which showed the existence of a level of exposure below which excess mortality was not detectable. Dr. Weill next mentioned the occurrence of mesothelioma in a Turkish village where there is no asbestos.

Dr. Weill referred to HEW Secretary Califano's speech on September 11 before the AFL-CIO National Conference on Occupational Safety and Health and related study. He expressed confidence that the study would be discredited and stated further that this was an example of the anti-scientific approach of releasing this kind of information generally to a public which cannot evaluate it prior to the time for scientific peer review. Dr. Weill then addressed some specific problems with the study. He concluded by saying that the scientific basis for the study is weak.

Technical Committee Report

Mr. Fenner said that the major task facing the committee at this time is the provision of technical support for the Standards Advisory Committee relative to their preparation of an AIA/NA alternative standard for occupational exposure to asbestos in the construction industry. This work is principally in two areas. The first is in connection with

the EEM study of the construction industry as previously reported by Dr. Rhodes. The other area pertains to work practices. Mr. Fenner noted that the Asbestos Cement Pipe Producers Association has developed and documented work practices for asbestos cement pipe. In cooperation with Johns-Manville Research and Development, a set of work practices is being developed and documented for asbestos cement sheet. He said that work practices will comprise a major part of the AIA construction alternative.

International Affairs

Mr. Marsh outlined a number of ongoing actions of the Asbestos International Association, including the work of the Medical Advisory Panel headed by Dr. Murray and the European Economic Commission Advisory Council headed by Mr. Thiele. Mr. Marsh commented on AIA efforts to coordinate attendance of industry representatives at major international conferences. He referred to upcoming conferences at Dubrovnik, Yugoslavia; Buenos Aires, Argentina; and Caracas, Venezuela. The AIA also provides advisory documents to aid industry in countries where regulations on asbestos do not presently exist, Mr. Marsh said.

A probable increase in AIA/NA dues to the international association was explained by Mr. Marsh. He said the new dues would be about \$26,000 per annum.

Mr. Marsh reviewed the program for the AIA Second Biennial Conference scheduled for October 25-27 in London. He said Mr. Dougherty had been invited to give a presentation at the conference.

Election of Directors

In accordance with Article IV, Section 4.02, AIA/NA Syllaws, the following regular member company representatives were proposed to serve on the Association's board of directors:

B. J. Iwarsson	Abex Corporation
J. L. Rainey	Amatex Corporation
Robert Van Buren	American Siltrite, Inc.
M. P. Carson	Asbestos Corporation
William C. Clark	Asten-Hill, Limited
George Barge	Atlas Asbestos Company
John Riopelle	Bendix Corporation
Nicholas Gritzuk	Cassiar Asbestos Corp.
W. H. Beasley	Cement Asbestos Products Co.
Gordon Coats	Calaveras Asbestos, Ltd.
Thomas A. Dougherty	CertainTeed Corporation

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N. E. DeCandia	Congoleum Industries
Frank M. Brown	Connell Bros. Co.
C. G. Morgan	Continental Products Corp.
A. R. Hooker	The Flintkote Company
John W. Guffy	Garlock, Inc.
Donald G. Magill	Hollingsworth & Vose Co.
Adam Novak	Huxley Development Corp.
Joseph Ciskowski	Jim Walter Research Corp.
Dimitry Poutiatine	Johns-Manville Corporation
B. Ramundo	Kentile Floors
W. M. Sleeth	Lear-Siegler, Inc.
S. Masuda	Mitsubishi Canada Ltd.
Edward R. Zacharias	Molded Materials Company
Joseph T. Mooney, Jr.	Monsey Products Company
George P. Vogel	National Assoc. of Filter Mfg. Inc.
William B. Hoffman	National Gypsum Company
Guy G. Gabrielson, Jr.	Nicolet, Inc.
John H. Marsh	Raybestos-Manhattan, Inc.
Clarence A. Herbst, Sr.	Resinoid Engineering Corp.
Derek Coomber	Richard Klinger, Inc.
Howard J. Tomlinson	Safeguard Automotive Corp.
Robert A. Carlson	Special Asbestos Co., Inc.
Kurt Schwarz	Supradur Manufacturing Corp.
H. B. Rhodes, Dr. Eng. Sc.	Union Carbide Corporation
William K. Clark	Uvalde Rock Asphalt Co.
Brian Donner	Vermont Asbestos Group

The list, as read by the Secretary, was approved by vote without objection.

Association Officers

Mr. Dougherty said, in keeping with AIA/NA Bylaws, terms of office for current officers will not expire until September 1979.

Miscellaneous

In conjunction with the Annual Meeting, Mr. John A. McKinney, President, Johns-Manville Corp. was speaker following dinner on September 19, and Congressman James G. Martin was speaker following breakfast on September 20. Mr. Dougherty said he wished the record to note the appreciation of the Association for their participation.

Adjournment

There being no further business, the meeting was adjourned at 11:38 AM.


B. J. Pigg
Secretary

Enclosure

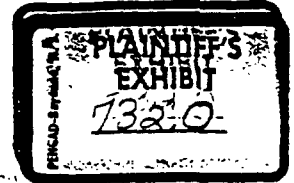
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November 8 - 1978



ASBESTOS INFORMATION ASSOCIATION

1745 Jefferson Davis Highway, Crystal Square 4, Suite 509
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8 November 1978

MEMORANDUM FOR:

EXECUTIVE COMMITTEE

Subject:

Forwarding of Annual, Board of Directors
and Executive Committee Meeting Minutes

Please find enclosed the following meeting minutes:

- (1) Annual Meeting, September 20, 1978
- (2) Board of Directors, September 20, 1978
- (3) Executive Committee, October 6, 1978

The next regular meeting of the Committee is scheduled for Wednesday, November 29, 1978, in the Association office commencing at 9:00 AM. A block of rooms has been reserved at Stouffer's National Center Hotel, Arlington, VA., for Tuesday, November 28. It will be recalled that a dinner meeting is planned for Tuesday evening. Time and location will be provided.

B. J. Pigg
Executive Director

Enclosures

JHM 14051

February 11, 1966

Minutes
GENERAL MEETING
Asbestos Textile Institute
February 11, 1966
Barbizon-Plaza Hotel, New York, N.Y.



In Attendance:

AMERICAN ASBESTOS TEXTILE CORP.
J.L. Rainey
J.W. Christenbury
Wm. Maaskant

ASBESTOS CORPORATION LTD.
P.P. Carson
A.C. Steele
G.F.A. Drink
E.L. Alexander (A.C.S. Ltd.)
W.W. Oughtred

BELL ASBESTOS MINES LTD.
G.W. Smith
F.P. Smith
Wm. J.W. Smith
R. Dodds-Hebron

JOHNS-MANVILLE CORPORATION
W.S. Hough
E.A. Schuman
W.C. Atkinson
J. Barnett
C.L. Sheckler
F.C. Rogers
J.W. Axelson

CADWALADER, WICKERSHAM & TAFT
F. Jay Flocken (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE
H.E. Sunbury (Exec. Secretary)

CANADIAN JOHNS-MANVILLE CO.
N.W. Hendry

GARLOCK, INC.
N.L.A. Martucci
G.E. Houghton

H.K. PORTER COMPANY INC.
J.D. McCluer
A.P. Gouveia
D.E. Childers

RAYBESTOS-MANHATTAN INC.
J.A. Bettles, Jr.
L.C. Williams
J.P. Wronski
J.W. Hawkins
R.B. Smith

TALLMAN-McCLUSKEY FABRICS CO.
J.L. Mitchell
T.C. McCluskey, Jr.

TURNER BROS. ASBESTOS CO. LTD.
W.H. Deckman

LAKE ASBESTOS OF QUEBEC LTD.
K.W. Nelson

UNITED STATES RUBBER COMPANY
S.J. Peele, Jr.
A.C. Link
D.T. Austin, Jr.
E.A. Morris

CASSIAR ASBESTOS CORP. LTD.
R. Marson (Ont. Res. Fdtn.)

Luncheon Guests
Feb. 11, 1966

P.J. Smith - ASTI Headquarters - Phila., Pa.
W.C. Hitchcock, U.S. Rubber Company, New York City
Mrs. R. Marson; Mrs. J.A. Bettles, Jr.; Mrs. W.C. Atkinson;
Mrs. E.A. Schuman; Mrs. W.S. Hough; Mrs. W.H. Deckman; Mrs. S.J. Peele.

Minutes

1. Vice President Rainey called the meeting to order at 9:30 A.M. and informed the members that President Brown was unable to attend because he was convalescing from a recent operation. Mr. Rainey asked Mr. Bettles to convey our best wishes to Mr. Brown.

2. Mr. Rainey asked each person present to stand and identify himself and his company affiliation. A most cordial welcome was extended to Messrs. Martucci and Houghton, representing GARLOCK, INC., who have rejoined the Institute this year.

Mr. Rainey mentioned that the Secretary had received a nice letter from George F. Jenkins expressing his appreciation for the plaque that was given him in absentia at our last meeting. A copy of Mr. Jenkin's letter is attached to these minutes.

3. The minutes of the last meeting were presented for reading. Mr. Bettles moved that the reading be omitted, seconded by Mr. Hough, and so voted.

4. The Financial Report was presented by Mr. E.A. Schuman, Treasurer. Mr. Atkinson moved that the report be accented as read, seconded by Mr. Peele, and so voted. The report is attached to these minutes.

5. Mr. F. Jay Flocken, Legal Counsel, discussed several recent decisions by the Federal Trade Commission on area price discrimination under Clayton Act #2(a), as amended by the Robinson-Patman Act. A summary of his remarks is attached to these minutes.

6. Mr. M.P. Carson, Vice President - Sales, Asbestos Corporation Ltd., Thetford Mines, P.Q., Canada, gave the members a very interesting review of the asbestos mining situation in respect to production and sales of asbestos fibre. Some of the highlights in his talk: Overall shipments of the Canadian asbestos industry last year were 1,230,000 tons, about 5% below the prior year. However, there was some overpurchasing in 1964 to beat the price increase on No.4 and lower grades. Russia in 1965 supposed to have produced 1,500,000 tons. The No.3 spinning grades of asbestos fibre are in good supply at this time. However, the situation in Rhodesia could affect this in 1966. Some countries have boycotted Rhodesia, but others have not. The situation on long fibres could change.

Shipments of Canadian fibre to North America were about the same in 1964 and 1965. Shipments to Japan have been off, caused by a business depression there; this may improve in late 1966. The demand in India has been high for asbestos-cement grades, and Russia has supplied substantial quantities to India. The Canadian producers are now real "busy". New capacity for producing the shorter grades, now available or soon to be available, promises to meet the ever increasing demand.

7. Mr. J.P. Wronski, Head-Physics Section, Research & Development Dept., Raybestos-Manhattan Inc., Mannheim, Pa., gave a technical paper entitled: "The Role of Fibers and Whiskers in Reinforcement". This proved to be a most interesting paper, and was followed by an extensive question and answer period. By courtesy of Mr. Wronski and Raybestos-Manhattan, the full text of the paper is attached to these minutes.

8. Mr. Rainey read the letter that President Brown sent to Mrs. M. C. Shaw on behalf of the Institute, following the sudden death of Dr. Shaw on November 12th, 1965. The reply, expressing Mrs. Shaw's appreciation, was read. Both letters are made a part of these minutes. Following the reading of the letters, Vice President Rainey asked that the members stand and observe a minute of silence in memory of Dr. Shaw.

9. The committee reports were given by the chairmen of their respective committees as listed below. The full text of their reports is attached to these minutes..

Air Hygiene & Mfg. Committee - W.C. Atkinson, Chairman

Sales Promotion Committee - W.S. Hough, Chairman

Technical Committee - J.D. McCluer, Chairman

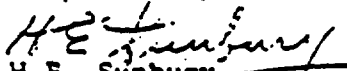
Fiber Testing Committee - J.P. Wronski, Chairman

10. Vice President Rainey announced that the next meeting of the Institute would be held on June 9th and 10th, 1966, at the Barbizon-Plaza Hotel in New York City.

11. The annual meeting in the fall will be held on October 6th and 7th, but the location has not been settled as yet. This will be the BIG MEETING of the year, and members are urged to bring their wives. We hope to find a location that will be equally attractive to both the men and their wives, (See footnote)

12. There being no further business to come before this meeting, on motion duly made and seconded, it was voted to adjourn. The luncheon that followed the meeting was made more enjoyable by presence of many wives.

Respectfully submitted,


H.E. Sunbury
Exec. Secretary

Note:

Subsequent to the meeting, arrangements were completed to hold the October meeting at The Homestead, Hot Springs, Va. This is reported, by those fortunate enough to have stayed there, to be a wonderful place to hold our annual meeting, and one that will be equally attractive to both the men and their wives. So - we suggest that you start planning NOW to bring your wife to the October meeting, to be held October 6th and 7th, 1966, at the world famous "Homestead", Hot Springs, Va.!

H.E.S.

GEORGE F. JENKINS

Knowlton, Quebec

November 24, 1965

Mr. H.E. Sunbury
Executive Secretary
Asbestos Textile Institute
P.O.Box 239
Pompton Lakes, N.J. 07442

Dear Herb:

It will be greatly appreciated if you will express my sincere thanks to the President, Board of Governors and members of the Asbestos Textile Institute for the extremely thoughtful gift presented to me in absentia at your last meeting held at Buck Hill Falls.

The illuminated scroll is truly a beautiful memento and while I am far from deserving the inscribed commendation on the scroll, I shall certainly cherish this as one of my most prized possessions. It will always occupy a place in my home where I shall have it as a constant reminder of the pleasant and interesting association with the Institute and all its members, past and present.

Mrs. Jenkins and I would have enjoyed nothing more than to have been able to accept your President's kind invitation to be present at the Buck Hill Falls meeting, however prior obligations intervened.

Please extend my kindest regards to all present at your next meeting and best wishes for the continued success of the Institute.

Yours sincerely,

(Signed) GEORGE F. JENKINS

ASBESTOS TEXTILE INSTITUTE
Report of Funds

January 10, 1966

Balance on Hand at Last Report, Sept. 9, 1965

General Fund	\$ 2049.05	
Savings Fund	21323.14	
Petty Cash	<u>10.44</u>	\$23332.63

Receipts

To Savings Fund (Interest)	475.05	
To General Fund (Book Sales)	<u>24.94</u>	499.99
		<u>23832.62</u>

Total On Hand and Received

Disbursements

Legal Retainer (3 months ending 11/30/65)	500.00	
Legal Travel	70.66	
Telephone (4 months)	194.69	
Postage Expense (October 1965)	607.12	
Fibre Test Manual Expense	598.32	
Handbook Expense (3rd Edition)	53.02	
Secretary's Travel	332.00	
F.I.C.A. Tax	21.75	
Office Rent (Two months)	83.32	
Exhibit Expense	216.67	
Exhibit Insurance (3 yrs)	135.00	
ASTM dues (1966)	35.00	
Printing & Office Supplies	157.15	
Flowers (Dr. W.C. Shaw)	25.70	
Petty Cash, vouchers 198-222 inclusive	<u>161.59</u>	3192.01

Balance On Hand as of Jan. 10th 20690.61

Funds

General Fund (Bank statement of 1/10/66)	1877.40
Savings Fund	18798.19
Petty Cash Fund	<u>15.02</u>

Total Funds 20690.61

Assets as of January 10, 1966

General Fund	1877.40(*)
Savings Fund	18798.19
Petty Cash on Hand	15.02
Accounts Receivable (1966 Dues)	9250.00
" " (Book Sales)	1.00
Postage on Hand	2.04
Furniture & Equipment (Nominal Value)	<u>1.00</u>

Total Assets \$29944.65

Liabilities (None)

Net Worth \$29944.65

(*) \$1000.00 transferred from Savings to General Fund 11/19/65
 \$2000.00 " " " " " 1/5/66

Respectfully submitted,

H. E. Summary, Asst. Treasurer

Legal Counsel Report
February 11, 1966, ATI Meeting

P. Jay Flocken, ATI counsel, discussed several recent decisions by the Federal Trade Commission on area price discrimination under Clayton Act #2(a), as amended by the Robinson-Patman Act. Area or territorial price "discrimination" occurs whenever a seller charges different prices in different geographic areas or markets. Such "discrimination" is not illegal unless proven to cause the competitive injury forbidden by the Clayton Act. The standards of proof of such injury have always been a sore spot and the FTC's traditional approach has been responsible for the common criticism that its Clayton Act price discrimination decisions require "soft" competition in conflict with the Sherman Act's philosophy of "hard" competition; that sellers who compete effectively in the spirit of the Sherman Act are inviting price discrimination charges under the Clayton Act.

Mr. Flocken noted that in a series of cases, ending with Dean Milk Co. (FTC Docket 8032), the FTC appears to be shifting away from its old attitude toward territorial price discrimination and to be gradually accepting the views of what Commissioner Elman calls the FTC's "responsible critics". At least, the FTC is attempting to announce meaningful standards, drawn from the basic antitrust policy of promoting competition.

This slow tentative shift after almost 30 years has been accomplished by narrowly divided votes in these recent cases. But Commissioner Elman is gradually forcing grudging Commission recognition of his point of view that competition--not protection of competitors from price competition--is the ultimate antitrust goal.

Utilizing Mr. Elman's dissent in the Dean Milk case, counsel elaborated on Elman's view that the proper standard for measuring competitive injury at the seller level in area price discrimination cases must focus on "the condition of the market as a whole" and that the standard is not satisfied merely by showing temporary diversion of business, minor losses in sales and profits, or temporary shifts in market shares. Counsel also expressed doubt that the Commission's rejection of a defense by Dean Milk--that its discounts were in response to a price-fixing conspiracy among its competitors and that the decline in its competitors' profits resulted not from Dean's discounts but from a decline of prices from a conspiratorial to a competitive level--would be upheld by the courts if challenged.

One pro-competitive result of the FTC's slowly changing attitude has been reflected in the orders issued by the Commission in recent territorial price discrimination cases. These orders have tended to prohibit only those area price differences in which the seller's price in a particular local market or its sales from a single plant undercut all the prices of its small competitors in the local market involved. Formerly, typical FTC orders in such cases prohibited area price discrimination in broad terms and, in the view of some critics, tended to make pricing inflexible and unresponsive to the vagaries of local market competitive realities.

Minutes: Air Hygiene and Manufacturing Committee

February 10, 1966

Barbizon-Plaza Hotel

New York City, New York

9:30 A.M. to 4:00 P.M.

Attending:

Members:	W.C. Atkinson, Chairman	Johns-Manville Corp.
	L.C. Williams	Raybestos-Manhattan, Inc.
	C.L. Sheckler	Johns-Manville Corp.
	R.B. Smith	Raybestos-Manhattan, Inc.
	A.C. Link	United States Rubber Co.
	T.C. McCluskey, Jr.	Tallman-McCluskey Fabrics Co.
	K.W. Nelson	American Smelting & Refining Co.
	A.P. Gouveia	M.H. Porter Co., Inc.

Guests:	W.H. Declman	Turner Brothers Asbestos Co. Ltd.
	Dr. L.J. Cralley	U.S. Dept. of Health, Education and Welfare

Absent: H. Walter American Asbestos Textile

Bausch and Lomb Automatic Dust Counter

There was a short discussion on the Bausch and Lomb automatic dust counter. Mr. Nelson stated that his company had placed an order for one of the 40-2 machines and expected delivery in March. All members of the committee will be interested in the results obtained from the use of this machine.

Materials Handling Methods

This matter was brought up for discussion relative to loading trucks from ground level.

Methods discussed were: (a) fork lift trucks, and (b) electric hoists, and (c) hydraulic lifts.

Advantages and disadvantages of all three were discussed. Most companies have fork lift trucks, but, in some cases, they may be in use elsewhere at the time they are needed for loading a truck. Electric hoists are adequate for indoor use but not practical for outdoors. Hydraulic lifts require a permanent installation and lack the flexibility of a mobile unit.

Dust Bags for Dust Collectors

The relative merits of bags made from cotton, Nylon and Dacron came up for discussion. In most cases cotton bags are used. Some companies have experimented with Nylon and with Dacron bags. The consensus was that the cotton bags were more efficient and gave a satisfactory service life.

One company reported that examination after 9 years of service showed no deterioration in their cotton bags.

Dust Control by the Use of Oils, etc.

Most of the member companies have at one time used oils or emulsions, sprayed on the stock, to hold down dust in subsequent operations. In many cases it has been found to be of little, if any, value.

Two companies are currently experimenting with the use of a new substance called Lenospin Anti-Fly SD-5, which was developed by Lenox Chemical Co. Initial results indicate that larger scale runs for evaluation would be worthwhile. This will be reported on at future meetings.

Audiometry

Because of the growing number of compensation cases due to loss of hearing, the subject is being given serious consideration by most companies. Detailed programs are being developed for pre-employment testing, as well as regularly scheduled testing after employment. In addition, all areas of the plants are being tested for noise levels and decibel count. Maximum allowable levels are established and, wherever possible, corrective action is being taken.

One company has started issuing industrial earmuffs and requiring the employees to wear them in areas where the noise level is above the maximum allowable limits.

It was brought out, during the discussion, that there have been four manufacturing companies forced into bankruptcy due to compensation awards for loss of hearing, and one well-known steel manufacturing company has 950 claims filed against it that could run over a million dollars.

One of the member companies distributed sample forms showing the results of their noise survey.

Mr. Sheckler exhibited and recommended for study a copy of the Industrial Noise Manual published by the American Industrial Hygiene Association. It can be purchased for \$15.00.

Several States already have industrial noise legislation, and it is being considered by others.

This subject will be followed up in future meetings.

Environmental Health Survey

During the afternoon session Dr. Lewis Cralley joined us and brought the committee up-to-date on the status of the Environmental Health Survey.

He stated that the plant surveys in Asbestos Textiles had been completed. The next phase, consisting of analyzing the data, is progressing. In addition, it is their intention to analyze trace contaminants, to determine whether they are present and, if so, still active. They will determine whether there is any radioactivity.

Environmental Health Survey (continued)

Dr. Cralley stated that within a year they hope to make a report on chemical content of asbestos fiber and its relationship to health hazards.

He also related that the Q.A.M.A. has organized an institute for the study of asbestos and its environmental health effects in order to bring a previous study up-to-date.

More and more publicity is being given to the health hazards in working with asbestos. The latest, a clipping from the National Observer of 2-7-66, written by John Henderson, M.D., discussed some symptoms of asbestosis and stated that the incidence of asbestosis is rising and that 30 years from now it would be much higher.

The article stated that "Doctors are mystified by the appearance of a rare tissue tumor, mesothelioma, which is found increasingly in asbestosis victims".

The increasing number of these articles, apparently being written for personal publicity reasons, is disturbing to the industry and points up the need for an impartial survey such as is being made by the U.S. Department of Health, Education and Welfare.

Published Pamphlet - "Method for Determining Asbestos Dust Concentration"

In an effort to obtain a wider circulation of the subject pamphlet, the Sales Promotion Committee was asked to consider a plan whereby sales departments of the member companies might distribute the booklet to customers.

The Sales Promotion Committee, after due consideration, voted negatively.

Respectfully submitted,

W.D. Atkinson, Chairman
Air Hygiene & Mfg. Committee

Minutes: Sales Promotion Committee
Asbestos Textile Institute
February 10, 1966
Barbizon-Plaza Hotel
New York, N.Y.

The Meeting was called to order at 9:30 A.M. by the Chairman.

Representatives of all member companies were present including Garlock, Inc., except H.K. Porter Co.

Mr. Howard Bain, our A.T.I. handbook editor, was present and we reviewed in detail prepared copy for the third edition. 90% of the editorial work has been completed and it is estimated by the June meeting all of the editorial work and new photographs will be available and ready pending approval and availability of new A.S.T.M. specifications.

It was decided to not distribute the A.T.I. booklet on Method for Determining Asbestos Dust Concentration as requested by the Air Hygiene & Manufacturing Committee, but to make this booklet available if and when customers request information.

The A.T.I. display has been offered to the Franklin Institute Museum at Philadelphia, Pa., for a minimum of six months, maximum period of two years. No word has been received to date.

Mr. Peele reported on what appears to be increased activity on the part of A.R. Simon Co., New York City, importers of European and Japanese manufactured asbestos textiles. Quantities during the past three months have increased appreciably.

Mr. Peele offered examples of a new type of colorful sales promotion literature being used by U.S. Rubber throughout their entire industrial textile line. It is thought that a similar type of advertising could be useful for the A.T.I. members in general as a sales presentation piece. Mr. Peele will invite Reis Kanelow & Caldwell, New York City advertising agency, to attend one of our coming meetings.

There was a brief discussion of Carborundum Corp. new fiber boron-nitride, for high temperature applications. Extremely high price will probably prevent ready acceptance.

We referred to our Technical Committee study of weight tolerances of asbestos cloth under A.S.T.M. specifications. In addition, we asked for the Technical Committee's recommendation regarding inclusion of two or more wire inserted asbestos cloths in official A.S.T.M. specifications.

The meeting adjourned at 3:00 P.M.

Respectfully submitted,

W.S. Hongh
Chairman

MINUTES: Asbestos Textile Institute
Technical Committee Report
February 10, 1966

The meeting was held at Barbizon - Plaza Hotel, New York, N. Y.

ATTENDANCE: Edward A. Morris - U. S. Rubber Co.
D. T. Austin - U. S. Rubber Co.
G. E. Houghton - Garlock, Inc.
J. W. Hawkins - Raybestos - Manhattan, Inc.
William Maaskant - American Asbestos Textile Corp.
Irvin Barnett - Johns - Manville Corp.
J. D. McCluer - H. K. Porter Co., Inc.
H. E. Sumbury - Asbestos Textile Institute
Ralph Marson - Ontario Research Foundation
(Representing Cassiar Asbestos Corp.)
Paul J. Smith - A.S.T.M.

SUBJECTS DISCUSSED:

Revision of Tentative A.S.T.M. Specifications, preliminary remarks. The Technical Committee has been made the Task Group for revising all the Tentative A.S.T.M. Specifications. There is an A.S.T.M. ruling that any tentative specification not revised within 5 years of its last revision will be dropped from the Book of A.S.T.M. Standards. Several are in or near this condition:

D 1571 - 58 T Asbestos Cloth. This has stood over 5 years and had to be revised before the end of 1965.

D 315 - 62T Asbestos Tape.

D 1918 - 62T Test for Asbestos Content.

The above two require revision during 1966 to avoid running too close to the dead line.

This work was initiated in November 1965 by the Technical Committee in order to complete D 1571, Cloth, on time. A resume of these early meetings will be given later.

At the meeting of this date, the discussion was on D 1918 - 62T - Test for Asbestos Content of Asbestos Textile Materials. The committee spent the major part of the day preparing the 1st Draft of a revision. This draft will be circulated to all members of the Committee for their consideration and possible comments, after which a 2nd Draft may be prepared based on comments.

RESUME OF PREVIOUS MEETINGS:

November 18, 1965 at A.S.T.M. Headquarters, Philadelphia, Pa.

IN ATTENDANCE: D. T. Austin Irvin Barnett
 J. W. Hawkins J. D. McCluer
 William Maaskant H. E. Sunbury

At this meeting the 1st Draft of D 1571, Cloth, was prepared using as a starting point a preliminary revision which Dr. Shaw had prepared before his death.

This 1st Draft was circulated to members and on basis of comments by correspondence a 2nd Draft was made using A.S.T.M. format of decimal paragraphing with metric equivalents for all U. S. Measurements and Weights.

December 2, 1965 at A.S.T.M. Headquarters - Philadelphia, Pa.

IN ATTENDANCE: Same group as November 18, meeting plus Paul J. Smith, Senior Assistant Technical Secretary, A.S.T.M.

At this meeting a 3rd Draft was made based on some recommendations from Dr. Scroggie and Mr. P. O. Nicodemus. Copies of this draft were sent to Mr. Nicodemus and Dr. Scroggie for their respective committees.

January 6 & 7, 1966 at Marriott Motor Hotel, Atlanta, Georgia

IN ATTENDANCE: D. T. Austin J. D. McCluer
 J. W. Hawkins H. E. Sunbury
 William Maaskant Paul J. Smith (2nd day)

On January 6th, the committee made the 1st Draft of a revision of D 315. Tape, using experience gained on the D 1571 which was assumed to be approved.

On January 7th, Paul Smith joined the committee and submitted a letter from Dr. Scroggie on recommended changes in the 3rd Draft of D 1571. The committee spent this day going over these recommendations, most of which were accepted, and prepared the 4th Draft of D 1571. Exceptions were taken by the committee to some of Dr. Scroggie's recommendations, but reasons were submitted for each exception taken. This draft was circulated to all members for approval. The committee was advised by Mr. Nicodemus that we would have until January 21st, to get copies to him for a letter ballot within the A-4 committee. 20 copies were sent to Mr. Nicodemus and 10 copies to Dr. Scroggie for their respective committees. Letter ballots were sent out to members of the A-4 committee by Mr. Nicodemus.

In the meantime, a 2nd Draft of D 315, Tape, was prepared based on comments by correspondence from committee members.

February 9, 1966 at Barbizon - Plaza Hotel - New York, N. Y.

(THIS WAS A SPECIAL MEETING AT 1:00 P.M.,, ONE DAY IN
ADVANCE OF THE REGULAR TECHNICAL COMMITTEE MEETING.)

<u>IN ATTENDANCE:</u>	Edward A. Morris	William Maaskant
	D. T. Austin	Irvin Barnett
	G. E. Houghton	J. D. McCluer
	J. W. Hawkins	H. E. Sunbury
		Paul J. Smith

At this meeting D 315 Tape, was again discussed and the 3rd Draft was made. By common consent of the committee, this draft was to be typed in usual way and copies sent to Mr. NicoGenus and Dr. Scroggie for their respective committees.

J. D. McCluer,
Chairman of Technical Committee

Minutes: ASBESTOS TEXTILE INSTITUTE
FIBER TESTING COMMITTEE
February 10, 1966

The meeting was held at the Barbizon-Plaza Hotel, New York.

In attendance:

J. Wronski	Raybestos-Manhattan, Inc.
Dr. J. Axelson	Johns-Manville
I. Barnett	Johns-Manville
F. Bodycomb	Johns-Manville
G.F.A. Brink	Asbestos Corp. Ltd.
D.E. Childers	H.K. Porter, Inc.
R. Dodds-Hebron	Bell Asbestos Mines, Ltd.
Dr. R. Marson	Ontario Research Foundation
J.L. Tucker	A.T.I. Consultant

Subjects Discussed

1. The new fiber testing manual is ready for the printer. Mr. Sunbury has received orders from various companies totalling 2790 complete manuals and 5026 copies of individual tests. Based on the lowest printing bid, this brings the price per manual to \$1.71 and the price per individual test to 0.16. Since some members have indicated they may purchase more test manuals than they have already pledged to buy and also since there may be a price concession for the purchase of 3000 instead of 2790 manuals, the committee recommends that the Board of Governors authorize the purchase of 3000 copies of the complete manual together with 5026 copies of individual tests.
2. Preliminary data was presented on two proposed test procedures -- one for the determination of frictional properties of asbestos fibers and the other for the determination of the amount of spicules and unopened fiber bundles in milled fiber. Further test data on these procedures will be gathered for presentation at the next meeting.

3. A two man Task Force was appointed to follow the deliberations of ASTM Committee A-4 in their efforts at revising the present ASTM procedure for determining the magnetic rating of asbestos fibers. The magnetic rating test we now have in our test manual follows the present ASTM procedure very closely and the Fiber Testing Committee feels it should know what changes, if any, will be made in the ASTM procedure so that it can decide whether to make corresponding modifications in our own procedure.

The Task Force will keep the Technical Committee as well as the Fiber Testing Committee informed of these developments.

Respectfully submitted,

J. P. Wronski

ASBESTOS TEXTILE INSTITUTE

18 November 1965

Mrs. M. C. Shaw
563 Gates Street
Philadelphia 28, Pa.

Dear Mrs. Shaw:

The sad news of your husband's passing was indeed a great shock to all of his friends and long time associates in the Institute. I want to express on their behalf our most sincere sympathy to you in the loss of your beloved husband, and to your children, Marilyn and Myril, Jr., in the loss of their devoted father.

"Doc" Shaw as he was affectionately known throughout the Asbestos Industry, gave unstintingly of his time and talents to the Institute over a period of seventeen years as Research Fellow, Executive Director, and Assistant Treasurer. More than any other single individual he was responsible for the success and continued growth of the Institute.

Your husband was a most capable and efficient administrator of the Institute's affairs, and commanded the utmost respect from our members and the entire Asbestos Industry. The fact that you were his only assistant for those many years is known and appreciated greatly.

Dr. Shaw's fine Christian character and exemplary personal habits were greatly admired by his associates, and those who knew him best are lastingly enriched by their opportunity for close acquaintance with him.

Our Industry has lost a fine individual, and an outstanding authority on asbestos, and he will be greatly missed.

I have instructed the Secretary to make this letter a part of the permanent records of the Institute, also to circulate it to the Board of Governors.

At our next General Meeting, to be held in February, I will inform our members of this official action.

You may be sure that our thoughts and best wishes will go out to you and your children on that occasion.

Most sincerely,

John A. Brown, Jr. - President
msg

Mrs. Myril C. Shaw
563 Gates St.
Philadelphia, Pa. 19128

December 2, 1965

Mr. John A. Brown, Jr., President
Asbestos Textile Institute
P.O. Box 239
75 Center St.
Pompton Lakes, N.J. 07442

Dear Mr. Brown:

Thank you so much for your letter and kind words about Myril. To realize that Myril was so appreciated by all of his associates is a great source of strength and comfort to me. Myril always considered all of you of the Asbestos Textile Institute as personal friends, and he was so happy to once again be a part of the textile branch of the industry. He had marked the dates of the next A.T.I. meeting in his "date" book and was looking forward to greeting and working with all of you.

Please express my heartfelt thanks to the members of the Asbestos Textile Institute for the beautiful flowers sent to Myril and for their many expressions of kindness and sympathy to me and the children.

Very sincerely,

(Signed) Mrs. Myril C. Shaw

TECHNICAL PAPER

"THE ROLE OF FIBERS AND WHISKERS
IN REINFORCEMENT"

Presented at the General Meeting

Asbestos Textile Institute

February 11, 1966

by

Joseph P. Wronski

Head of the Physics Section

Research & Development Dept.

Raybestos-Manhattan, Inc.

United States Asbestos Div.

Manheim, Pa.

About the Author:

"Joe" Wronski was graduated from the University of Minnesota in 1940 with a Bachelor of Chemistry degree. He received his Masters Degree in Physics from the same institution in 1947, and did further graduate work in physics at Ohio State University.

He was at Battelle Memorial Institute for eight years working on electro-optical properties of dielectrics, stresses in thin walled pipes, and operations research. Prior to his employment with the U.S. Asbestos Division of Raybestos-Manhattan he was with the Westinghouse-Bettis Atomic Power Division in Pittsburgh working on problems associated with the construction of nuclear reactors for the Navy.

A member of the Asbestos Textile Institute's Fiber Testing Committee for several years he is presently serving as it's chairman.

By courtesy of Mr. Wronski and Raybestos-Manhattan, Inc., the full text of his paper is being distributed with the minutes of this meeting.

Any correspondence concerning same should be addressed to:

Mr. J.P. Wronski
Head- Physics Section
Research & Development Dept.
Raybestos-Manhattan, Inc.
Manheim, Pa. 17545
U.S.A.

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THE ROLE OF FIBERS AND WHISKERS
IN REINFORCEMENT

Paper Presented At
ASBESTOS TEXTILE INSTITUTE CONFERENCE
February 11, 1966

By

Joseph P. Wronski

Research and Development
Department

RAYBESTOS-MANHATTAN, INC.
Manheim, Pennsylvania

3

THE ROLE OF FIBERS AND WHISKERS IN REINFORCEMENT

When I was invited to give a talk at this meeting it wasn't very hard for me to decide on my topic. The subject of fiber-reinforced materials has been of great interest to me ever since I joined Raybestos-Manhattan about seven years ago -- not only because we at Manheim are very active in producing asbestos-reinforced materials but also because I feel there is a great economic future for fiber-reinforcements. The recent development of strong, inorganic, fiber-like, synthetic materials called "whiskers" and their use as reinforcements has further stimulated my interest in the whole subject of reinforcements.

In looking over much of the recent literature on this whole subject of fiber and whisker reinforcement I have learned a few things and gained a few insights which I would like to share with you today. I am no expert on the subject. It would take a lot more study and research on this subject than I have done to come anywhere near being an expert. Even those I would qualify as experts admit that there is a lot they don't understand about fiber reinforcement. However, they have outlined the basic engineering principles that govern the physical behavior of fiber-reinforced composites. From these principles they have pinpointed the properties of the fiber and of the matrix in which these fibers are imbedded that are important in establishing the physical properties of the fiber-matrix composite or reinforcement.

This is mainly what I want to talk to you about today; -- what are some of the simple, basic principles that determine the physical properties of reinforcements? -- what makes a fiber-reinforced material good or bad? In doing so, I hope to be able to show you at the same time how asbestos fibers compare with some of the new synthetic fibers as reinforcements.

First of all -- what are "whiskers" and why is there so much to-do about them? Whiskers are inorganic crystals that are grown under special temperature and pressure conditions. The conditions are such that the growth of these crystals takes place primarily in one direction. They can be grown to a length which may be many hundreds of times their diameter. As we will see later on, many materials can be grown in whisker form -- iron, silver, silicon carbide and even sodium chloride, to mention a few. Not all are novel. Silver whiskers, for example, were known to the medieval silversmiths who knew that they could be made to grow by gently heating a scratch made on freshly cast silver.

One whisker material that has received a lot of attention lately is crystalline aluminum oxide -- or sapphire. I have a sample of this material which I'll pass around for you to see. The sample contains three different forms of the fiber. The slide coming up will show you what the so-called "wool" form of this fiber looks like when magnified a hundred times. Incidentally, from here on I will use the terms 'fibers' and 'whiskers' interchangeably.

(See Slide #1 - Appendix)

These "wool" fibers are about ten microns (400 millionths of an inch) in diameter and are up to about 1000 microns, or 40 thousandths of an inch long.

Just for comparison, the next slide shows you the old, familiar photograph of asbestos fibers as seen under an electron microscope. Magnification is 35,000 times. The diameter of the unit asbestos fibers is about 2 hundredths of a micron (less than one millionth of an inch) and is about 500 times smaller than the sapphire fibers you saw. I will point out later on how important this difference in diameter is from the standpoint of reinforcing properties.

(See Slide #2 - Appendix)

Many of the whiskers produced to date are extremely strong -- with tensile strengths in the millions of pounds per square inch. But their high tensile strength is not the only reason these fibers have created so much interest. They are also light. It is really their strength in relation to their weight that has stimulated so much interest in them. This matter of fiber weight is very important when we talk about using the fibers as a reinforcement. We add fibers to a matrix material -- such as resin, ceramic or even metal -- to make a composite that is stronger than the original matrix material. This, of course, is what we mean by reinforcement. The strength of the final composite will be somewhere between the strength of the fiber we've added and the strength of the matrix material we've used. We can add strength by adding more fiber. But if the fiber is heavy we are also adding more weight. In this case we may wind up with a composite that has good strength -- say a strength as good as the strongest steel. But if its weight is very close to that of steel we have gained very little -- and have probably paid too high a price for what little we have gained.

In addition to their high strength to weight ratio many of these new whisker materials possess another important characteristic that makes them valuable as reinforcements and that is their high modulus.

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This matter of high-modulus brings us to the point where I would like to discuss some of the simple mechanical principles involved in fiber reinforcement and which, I hope, will give us a better insight into the factors that affect the performance of fiber reinforced composites.

The next slide depicts a physical situation which I hope will give you some idea of what we mean when we talk about the modulus of a material. For those of you for whom this is old stuff, please bear with me.

(See Slide #3 - Appendix)

When a force is applied to a solid -- whether the solid is a piece of resin, a piece of wax, or a piece of steel -- it responds to this force by changing its shape. For simplicity, we can visualize any material as behaving like a spring. It stretches a certain amount when it is pulled and compresses a certain amount when it is pushed. Our picture shows a condition of stretching -- or tension. When a load is applied to this spring it stretches a certain amount. The fractional increase in its length is called strain. When a load or stress is applied to the spring it strains a certain amount. When the stress is doubled the amount of strain it undergoes is also doubled. Triple the stress and you triple the strain, etc. The modulus of this spring is the amount of stress it requires to strain it by a certain amount. In other words, the modulus of a material is a measure of its stiffness.

Now let's relate this notion to a fiber-reinforced material. The next slide depicts this condition.

(See Slide #4 - Appendix)

Here we have a composite subjected to a tensile load. The applied force acting over the indicated area of the composite is the applied stress. Under this stress the material stretches -- or strains. If the fibers are strongly bonded to the matrix, they will strain right along with the matrix. The stress is shared by both the matrix and the fiber. But, if the matrix has a smaller modulus than the fiber -- and this is usually the case -- the fibers will take over most of the load. This situation is shown in the stress-strain diagram.

This simple illustration depicts a most important aspect of the whole problem of fiber reinforcement. It indicates why it is desirable to have high modulus as well as high-strength fiber for reinforcement. Under a given strain, the higher the fiber modulus, the greater will be the portion of the load transferred to the fiber. This is the way we want it -- because the fiber is much stronger than the matrix. The primary function of the matrix material is simply to support the fibers and to transfer stresses to them.

4

I have tabulated the modulus values for a few of the new whisker materials along with those for asbestos and glass fibers. These data are shown in the next slide together with other important values pertaining to these fibers.

(See Slide #5 - Appendix)

You will note, for example, that silicon carbide whiskers have a modulus about five times and a strength about twice that of asbestos. Because of its high modulus, a silicon carbide whisker could take over a greater share of the load in a composite than an asbestos fiber could in the same matrix. In other words, fewer silicon carbide whiskers than asbestos fibers would be needed to take over the same amount of load. In addition, a silicon carbide whisker would support twice the stress of an asbestos fiber because of its two-fold greater strength. However, things are not all that much in favor of the silicon carbide when we look at its strength-to-weight ratio. On a pound-for-pound basis, silicon carbide would actually support only 50% more load than an asbestos fiber instead of twice the load. The situation is even more dramatically illustrated in the case of iron whiskers. Here iron, with over twice the strength of asbestos, is 50% weaker on a pound-for-pound basis.

I present this table of modulus values to illustrate how widely these values vary for different fibers. I now want to back up a little and again take up the discussion about the importance of the fiber modulus to the load carrying characteristics of a composite. I think I can do this best by showing you the next slide.

(See Slide #6 - Appendix)

You will remember that high modulus fibers take over more load than low modulus fibers in a composite. This means that fewer high modulus fibers in a composite would be required to support a load than would be required if the composite were made of lower modulus fibers. The slide you see here shows what fraction of the load on a composite material the fibers take over. As you see, this depends on the fiber concentration as well as on the modulus of the matrix material. These curves are for fibers in a resin matrix having a modulus of 1/2 million psi -- which is a typical value for resins.

The curves are based on highly idealized conditions such as perfect resin-to-fiber bonding, perfect alignment of fibers, and pure transfer of stress from resin to fiber -- no matter how far apart the fibers are. These conditions almost certainly would not be realized in practice. Nevertheless, they do provide an insight into what relative performance we might hope to achieve for various fiber-resin composites. You will note from these curves that the asbestos fibers in a composite containing 10% fiber by volume would support about 80% of a load imposed on the composite under the idealized conditions I have just mentioned. At the same concentration

and in the same resin, glass fibers would support about 70% of the load. Under these conditions the glass composite would fail before the asbestos composite -- simply because the resin could not support the greater load imposed on it.

I now want to bring out another important characteristic of fibers that affect their performance as reinforcements. This is the shape of the fiber -- or, more specifically the ratio of the length of a fiber to its diameter. The next slide shows why this is so

(See Slide #7 - Appendix)

You can imagine, first of all, that we have a fiber reinforced material that is subjected to a stress -- a tensile stress, say. This stress distributes itself throughout the whole composite. The slide you see here illustrates -- in a highly schematic way -- the stresses acting on a single fiber within the composite.

Essentially, there are two stress systems acting on this fiber. One is a shear stress acting at the interface of the fiber and matrix and the other a tensile stress acting on the fiber cross section. We might think of the tensile stress as one tending to pull the fiber apart and the shear stress as tending to drag the fiber back against the action of the tensile stress. Under equilibrium conditions the tensile and shear forces are equal and when we go through the simple mathematics expressing this condition we find that the tensile stress on the fiber is proportional to the interfacial shear stress in the matrix multiplied by the ratio of fiber length to fiber diameter.

It is this relationship between matrix shear stress and fiber tensile stress that brings out the importance of the length-to-diameter ratio of the fiber. Without going into a lot of detail, the situation I have illustrated means simply this: when we use fibers in a reinforcement that are long in relation to their diameter (have a high L/D ratio) then we can use a matrix material with a lower shear strength than we could if the fibers were short in relation to their diameters. This can be a very important consideration in designing a fiber reinforced composite. In developing a fiber reinforced material we might be forced to use a matrix material having a low shear strength. In this case we would want to use a fiber with a high length-to-diameter ratio in order to exploit the full strength of our fiber. Otherwise, the reinforcement might fail under load due to shear failure of the matrix long before we exploited the full strength of the fibers.

As you know, the unit, or ultimate, asbestos fiber has an extremely small diameter. Although I have never seen any figure on what the average length of the ultimate asbestos fiber might be, I have estimated from some of the published strength data that the ultimate length might be on the order of 100 microns -- or about 4

thousandths of an inch. If so, this would make the length of the ultimate asbestos fiber about 5,000 times its diameter. The next slide shows how this length-to-diameter ratio compares with that for other fibers.

(See Slide #8 - Appendix)

The data on the other fibers was obtained from scattered sources. One source will give one value and another will quote some other value. However, I have chosen values that seemed typical to me.

If each of these fibers were used as a reinforcement in some kind of matrix material and we wanted to exploit their full strength -- that is, we wanted the fiber to fail under load before the matrix material failed in shear -- then the minimum shear strength of the matrix material we would have to use is that shown in the last column.

We can see from these figures that asbestos fibers, if they could be reduced to their ultimate dimensions in a reinforcement, would impose very small shear strength requirements on the matrix material. Graphite and sapphire whiskers, on the other hand, would have to be incorporated with a high shear-strength matrix in order to fully realize their strength potentials.

There is yet another factor concerning fiber-fineness that is important. This has to do with the stresses that are built up around the ends of fibers imbedded in a matrix. The next slide illustrates what I mean.

(See Slide #9 - Appendix)

The fiber you see is a sapphire whisker imbedded in a birefringent plastic. The plastic, with the fiber in it, is stressed in the fiber direction. Because of its birefringent nature, the plastic produces different colors (interference fringes) in those areas where the stresses are different. The blue areas you see near the ends of the fiber represent areas of high stress and the yellow coloration along most of the length of the fiber represents about half this stress. The bluntness of the ends of the fiber accounts for most of the high stress concentration at these points. This means that composites reinforced with fibers having large diameters and blunt ends could fail under load much earlier than small diameter fibers because of the high stress concentrations produced at their ends. Also, you may notice that the high stresses at the ends of the fibers extend a short distance along the fiber length. For fibers with a small length-to-diameter ratio this would mean that the high stresses would extend over an appreciable fraction of the length of the fiber. This, obviously, would also be bad from the standpoint of reinforcement.

There is good reason for all the efforts being expended these days to develop high-strength, high-modulus fibers for

reinforcing purposes. Whoever can come up with a composite that has all the strength properties of the best of our present metals but with only about a third or a fourth the weight would be in a position to reap tremendous economic rewards. As an example of what can be achieved in the way of fiber-reinforced materials, I give you the following figures: the theoretical tensile strength of a sapphire-whisker reinforced resin containing 50% resin by volume is about 1.4 million psi -- or about four or five times the strength of the finest steel. And this composite would be only about a fourth as heavy as steel. Using asbestos fibers opened to their ultimate dimensions, a similar analysis shows that a theoretical tensile strength of about 700,000 psi is possible; -- and, again, the weight of the composite would be about a fourth that of an equal volume of steel.

It's doubtful that fiber-reinforced composites will ever achieve these theoretical strengths. But there are reports that composites with strengths well above the 300,000 psi strength of fine steel and with densities well below that of steel have already been developed. Cost and difficulty of fabrication are two of the main reasons why quantity production of such composites is being held back. The current cost of whiskers and other high strength synthetic fibers is very high. The next slide shows you some typical cost figures for such fibers.

(See Slide #10 - Appendix)

However, as you can see from this table, it is anticipated that within the next ten years the cost of these fibers will drop by an appreciable amount. On a cost-per-strength basis these fibers in the future may well present a serious challenge to asbestos fibers.

Asbestos shouldn't have to take a back seat to any of these synthetic fibers. When reduced to its ultimate dimensions, asbestos has a tensile strength estimated to be about 1,500,000 psi, a length-to-diameter ratio that is probably much higher than any of the synthetic fibers now have or will ever have, and, finally, a modulus that compares favorably with many of the synthetics. But the exploitation of these excellent properties is going to take research -- vigorous and imaginative research; the kind of research now being done by the producers of synthetic fibers. And if we are going to compete with them in the field of reinforcements, we are going to have to learn a lot about the nature of the interaction of asbestos fibers with various matrix materials -- the principles that determine the bonding of asbestos fibers to other materials.

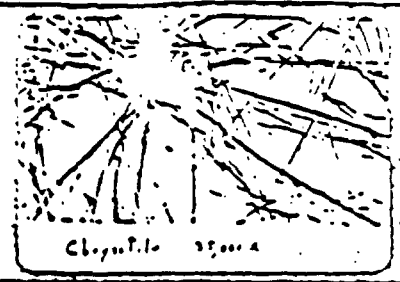
I think the rewards will be worth the effort.

Joseph P. Wronski

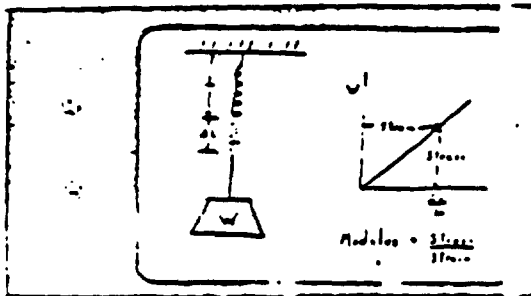
APPENDIX



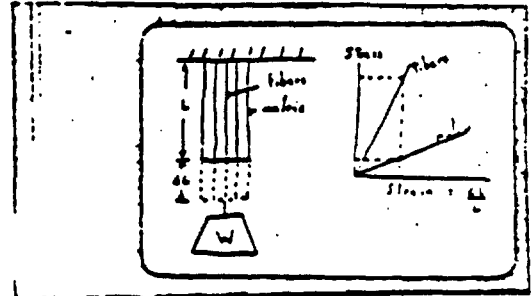
Slide #1



Slide #2



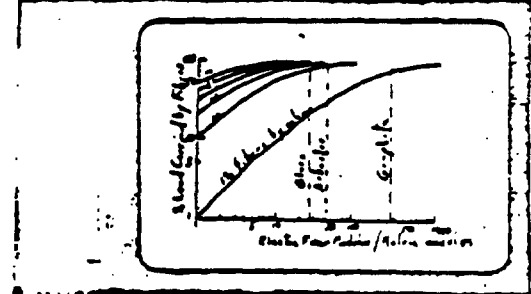
Slide #3



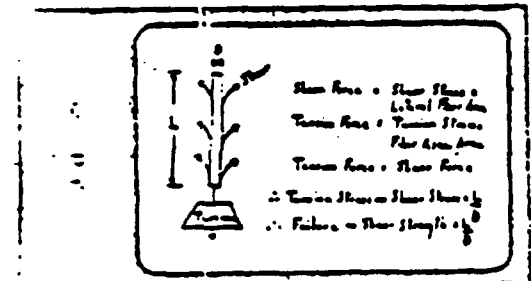
Slide #4

Fiber	Modulus (psi)	Strength (psi)	Strain at Break (%)
Asbestos	10	1,000,000	1.0
Sapphire	10	1,000,000	0.5
Shin Cord	10	1,000,000	1.0
Shin Cord	10	1,000,000	1.0
Graphite	10	1,000,000	1.0
Glass	10	1,000,000	1.0
Iron	10	1,000,000	1.0

Slide #5



Slide #6



Slide #7

Fiber	Modulus (psi)	Strength (psi)	Strain at Break (%)
Asbestos	10	1,000,000	1.0
Sapphire	10	1,000,000	0.5
Shin Cord	10	1,000,000	1.0
Shin Cord	10	1,000,000	1.0
Graphite	10	1,000,000	1.0
Glass	10	1,000,000	1.0
Iron	10	1,000,000	1.0

Slide #8



Fiber	Modulus (psi)	Strength (psi)	Strain at Break (%)
Asbestos	10	1,000,000	1.0
Sapphire	10	1,000,000	0.5
Shin Cord	10	1,000,000	1.0
Shin Cord	10	1,000,000	1.0
Graphite	10	1,000,000	1.0
Glass	10	1,000,000	1.0
Iron	10	1,000,000	1.0

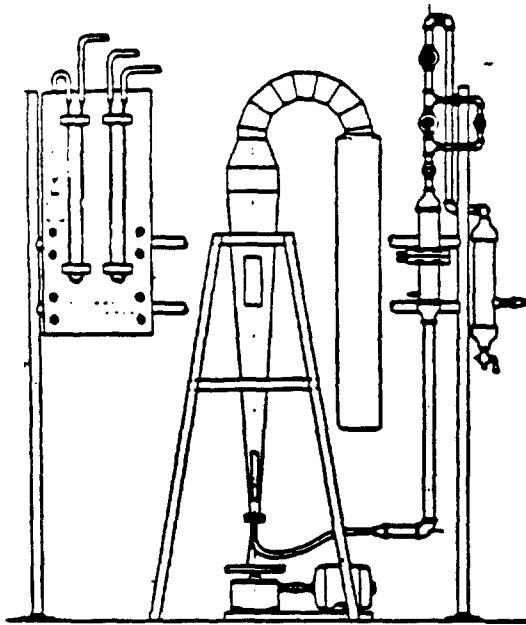


FIGURE 11. AIR ANALYSIS TEST UNIT

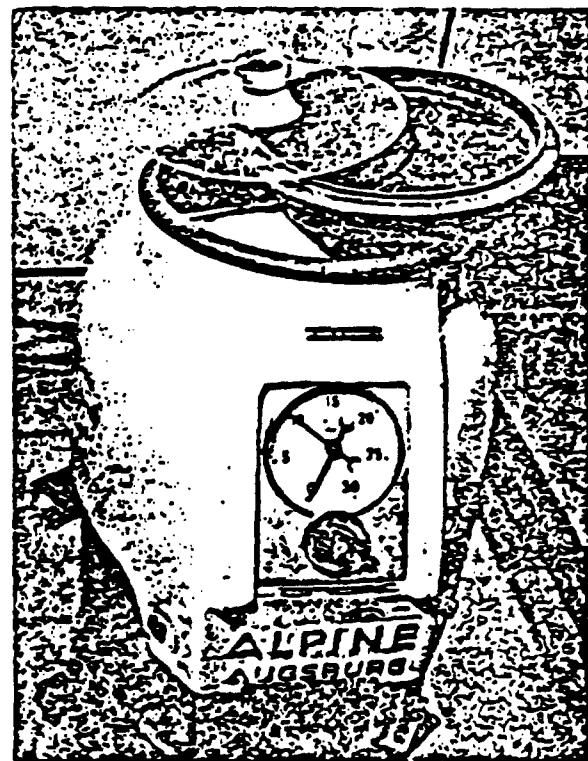


FIGURE 12. ALPINE TESTER

June 9, 1966

**PLAINTIFF'S
EXHIBIT**

ATI-55

Minutes
GENERAL MEETING
Asbestos Textile Institute
June 10, 1944
Barbison-Plaza Hotel, New York, N.Y.

In Attendance:

AMERICAN ASBESTOS TEXTILE CORP.
J.L. Rainey
J.W. Christenbury

AMINEXOS CORPORATION LTD.
A.C. Steele
G.L. Alexander (A.C.S. Ltd.)

BELL ASBESTOS TILES LTD.
Mr. J.W. Smith
R. Dada-Mohran

JOHN-MANVILLE CORP.
W.S. Hough
E.A. Schuman
P.A. Rogers
G.L. Shockler
W.C. Atkinson

CASLAR ASBESTOS CORP. LTD.
T.T. Elgart

CATALANER, WICKERMAN & TAFT
P. Jay Flecken (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE
H.B. Smooty (Secretary)

ASHI Headquarters Staff
P.J. Smith

CARLOCK, INC.
G.B. Houghton
- - Olson

E.I. FORTER COMPANY, INC.
A.P. Gervais
J.C. McClure

RAYBESTON-INSULATION, INC.
J.A. Brown, Jr.
J.A. Dutton, Jr.
L.C. Williams
J.P. Wronski
E.S. Smith
J.W. Hopkins
L.Q. Scovcroft

TALLAM-IE CLOTHING FABRICS CO.
J.L. Mitchell
Tom D. McKinstry

UNITED STATES RUBBER COMPANY
A.C. Link
S.J. Poole, Jr.
E.A. Harris
Dr. J.M. Wolfe
W.C. Hitchcock

U.S. PUBLIC HEALTH SERVICE
Dr. L.J. Cralley

WICKLET INDUSTRIES
R.T. Griffin

Invited Guests

Mrs. J.A. Dutton, Jr., Mrs. S.J. Poole, Jr., Mrs. W.C. Atkinson
W.C. Hitchcock, U.S. Rubber Co., New York
W.A. Singleton, U.S. Rubber Co., New York
R.T. Griffin, Wicklet Industries

Minutes

1. President John A. Brown, Jr., called the meeting to order at 9:30 A.M. and asked each person present to stand and identify himself and his company affiliation.

2. The minutes of the last meeting were presented for reading. Mr. Poole moved that the reading be omitted, seconded by W.C. Atkinson and so voted.

Ex 7366

3. The Financial Report was presented by Mr. R.A. Schuman, Treasurer. Mr. Neale moved that it be accepted, seconded by Mr. Hough, and it was so voted unanimously. The report is attached.

4. Mr. Jay Ploeken, legal counsel, presented a report entitled 'Some Aspects of the Legal Problems on Asbestos Publicity: Grounds for Possible Libel Action and Standing to Sue'. Mr. Ploeken referred to a recent example of statements made on a radio broadcast and then discussed the general problems involved in bringing an action for libel where the product or manufactured article has been named but no particular manufacturer has been named. Council discussed briefly the New York Court of Appeals' rulings in Drug Research Corp. v. Curtis Pub. Co., 7 N.Y.2d 435, and Harwood Mfg. Co. v. Nat. Broadcasting Co., 9 N.Y.2d 460. In conclusion, it was stated that without either a specific and direct reference to a particular plaintiff or necessarily implying plaintiff's fraud or deceit in putting a dangerous product upon the market, the probability of success of a libel suit in the circumstances referred to would be difficult to assure.

5. Mr. A.C. Steele, Asbestos Corporation, Ltd., presented an interesting report, on behalf of the asbestos fibre producers, concerning supply and demand for raw asbestos fibre. He mentioned the current shipping strike, which if long continued, could have a most adverse effect on mine operations.

6. Dr. J.M. Wolfie, Corporate Medical Director, United States Rubber Company, was the Guest Speaker, and his subject was "Asbestos and Health".

Dr. Wolfie referred to the alarming information that has appeared in the lay press concerning the alleged deleterious effects of asbestos on the health of the public. Apropos of this, some of the highlights of the present state of knowledge on the effects of asbestos on health were reviewed. Dr. Wolfie read excerpts from certain news releases, and said that he could find many weaknesses in the statements made.

Dr. Wolfie described the development of a preventive medical program to protect the health of employees from possible adverse effects of exposure to asbestos, and gave a brief account of the development of the present preventive health program in the United States Rubber Company for its asbestos employees.

An extensive question and answer period followed Dr. Wolfie's talk, and our members were most appreciative of the privilege to hear him.

7. The committee reports were given by the chairmen of their respective committees as listed below. The full text of their reports is attached to these minutes.

Air Hygiene & Eng. Committee - W.C. Atkinson, Chairman

Sales Promotion Committee - W.S. Hough, Chairman

Technical Committee - J.D. McCluer, Chairman

Fiber Testing Committee - J.P. Wronski, Chairman

8. A "CERTIFICATE OF APPRECIATION" in the form of a Scroll was presented to Mr. John A. Dettos, Jr., on behalf of the members, by President Brown.

Mr. Dettos, better known as "Jack" to his many friends in the asbestos industry, is planning to retire in July 1966 from his position as Manager, Asbestos Textile Division, Raybestos-Manhattan, Inc.

Jack Dettos is a past president of the Institute, and has served it in many other capacities as well during his more than twenty years of faithful attendance at our meetings.

In accepting the Scroll, Jack expressed his great appreciation for it and also for the most enjoyable private cocktail party held in his honor on Wednesday evening, June 8th.

Jack stressed the value of the Institute as an aid to management training, and pointed out that getting to know each other is most important, as it builds confidence. He mentioned that the Institute has been of great value in bringing the mining industry in close contact with the asbestos textile industry, to their mutual advantage.

As a suggestion, Jack believes that our industry should spend more time promoting new uses for asbestos, and less time in defensive tactics against competitors.

Immediately after his retirement, about July 14th, Jack and his most attractive wife, Helen, will leave for an extended auto trip to the far West.

We will greatly miss his counsel and advice on Institute matters, his leadership in our industry, and the opportunity for personal contact with him. Our members wish him a most happy retirement!

9. The next meeting of the Institute will be held at The Homestead, Hot Springs, Va., on October 6th and 7th, (Arrival Oct. 5th).

This is the Annual Meeting, and The Homestead was selected as being a delightful spot to bring the wives! Reservations are required thirty days in advance. So, plan to bring your wife, and help to make this Annual Meeting the Biggest and Best ever!

10. There being no further business to come before this meeting, on motion duly made and seconded, it was voted to adjourn. The luncheon that followed the meeting was made more enjoyable by presence of several wives as our guests.

Respectfully submitted,

H.B. Sunbury
Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

May 9, 1966

Balance on Hand at Last Report, Jan. 10, 1966

General Fund	\$ 1877.40	
Savings Fund	18798.19	
Petty Cash Fund	15.02	
		\$20690.61

Receipts

To Savings Fund (Interest)	211.77
To General Fund (1966 Dues)	8750.00
To General Fund (Book Sales)	37.75
To General Fund (Expense Refund)	56.00

9055.52
\$20746.13

Total On Hand and Received

Disbursements

Legal Retainer (3 months ending 2/28/66)	500.00
Telephone (4 months)	75.79
Meeting Expense - February 1966	585.28
Fibre Test Manual Exp. (2nd Edition)	63.86
Handbook Expense (3rd Edition)	372.01
Secretary's Salary (6 months)	569.46
F.I.C.A. Tax (Adjusted to July 1965)	220.80
Secretary's Travel	125.00
Office Rent (6 months)	383.32
Exhibit Expense	52.00
Printing & Office Supplies	73.75
Stenographic	99.50
Petty Cash (Vouchers 223-238 incl.)	71.72

3292.48

Balance on Hand as of May 9, 1966 ----- \$26453.65

Funds

General Fund (Bank Statement of May 9, 1966)	\$ 7415.41
Savings Fund	19009.96
Petty Cash Fund	28.28

Total Funds

\$26453.65

Assets as of May 9, 1966

General Fund	\$ 7415.41
Savings Fund	19009.96
Petty Cash on Hand	28.28
Accounts Receivable (1966 dues)	500.00 (e)
(Book Sales)	21.55
Postage on Hand	6.50
Furniture and Equipment (Nominal Value) -	1.00
Total Assets	\$26982.70

Liabilities (None)

Net Worth

\$26982.70

Respectfully submitted

H. E. Sunbury
H. E. Sunbury, Asst. Treasurer

(e) Paid 5/18/66

Minutes

AIR INGLER AND MANUFACTURING CO., ITTAS
June 9, 1966
Barbison-Flann Hotel, New York, N.Y.

Attending:

Members:	W.C. Atkinson, Chairman	Johns-Manville Products Corp.
	L.C. Williams	Raybestos-Manhattan Inc.
	C.L. Sheckler	Johns-Manville Products Corp.
	R.B. Smith	Raybestos-Manhattan Inc.
	A.C. Link	United States Rubber Co.
	Ted D. McCluskey	Tallman-McCluskey Fabrics Co.
	A.P. Gourais	M.K. Porter Co. Inc.
	M. Walker	American Asbestos Textile Corp.
Guests:	Dr. J.H. Wolfe	United States Rubber Co.
	Dr. Lewis J. Crailley	U.S. Dept. of Health, Education & Welfare
	Mr. Sands	U.S. Rubber Co.
	Is. Langlois	Garlock Inc.
Absent:	K.W. Nelson	American Smelting & Refining Co

Rausch and Lomb Automatic Dust Counter

Due to Mr. Nelson's unavoidable absence the intended demonstration of the 40-2 portable dust counter was postponed.

There was some discussion on the merits of this counter and the consensus was that it would be of particular value in monitoring and quick checking operating areas after correlating with the Greenberg-Smith Impinger.

Environmental Health Survey

Dr. Lewis J. Crailley reported that the survey is progressing on schedule and that they are now in the areas of Friction Materials, Asbestos Cement Products and Insulation Materials.

Control of Dust by Treating Stock

Reports were given on the results obtained in control of dust by the application of oils and other solutions both to blended stock and to asbestos fiber.

Two companies are experimenting with S.O. 3 made by the Lumm Chemical Co. Preliminary controller test runs indicate that it is possible to reduce the dust counts by applying up to 2% by spraying it on the fiber or on the stock. Further experimental runs will be made to determine the minimum effective amount to be used and its effect, if any, upon the products.

Another company has been using a mineral oil sprayed on the stock with satisfactory results.

General

There was some discussion and exchange of ideas on how to control dust at braiders and narrow fabric looms.

One company has installed vacuum ducts in the center of the braiders except where they make braid over braid. Here it is installed at the perimeter of the braider. Both systems have reduced the dust counts considerably.

Another company has succeeded in reducing the dust at weaving by running the warps over a smooth pick-up roll running in a trough containing a solution of 20% Velubra Softener GHS and 80% water. The softener is supplied by Auligamated Chemical Corp., Rorer and Ontario Sts., Philadelphia, Pa.

The softener prevents the yarn from drying out by absorption of moisture from the air resulting in a smoother and less dusty yarn.

Proposal by the Industrial Hygiene Foundation of America, Inc.

Dr. Robert deFreville and Dr. Paul Gross of the Industrial Hygiene Foundation had been invited to attend a luncheon meeting for the purpose of presenting to the industry, through the A.T.I., a proposal for a supplementary investigation of the specificity of Asbestos Bodies and the biologic effects of trace substances associated with Chrysotile Asbestos.

In addition to the speakers, 26 members and guests attended the luncheon meeting.

It was suggested that a contract could be arranged between the Industrial Health Foundation and a group of interested corporations who would contribute the funds for the investigation which would amount to a total of \$350,000; or it could be separated into two parts, the first of which would cost \$150,000 (Phases 1 and 2), and the second part would cost \$200,000. The second part would be optional at the completion of part one.

With the consent of Drs. deFreville and Gross, a copy of the presentation is attached to the minutes.

Perchlor as Index for Determining Asbestos Dust Concentration

Since February, 20 additional copies have been shipped, by request, to companies in the U.S.A., Canada, England, The Netherlands, Norway, Sweden and Australia.

In total, 233 copies have been shipped out. There are still approximately 500 on hand.

The Secretary has a record of all shipments.

Respectfully submitted,

W.C. Atkinson, Chairman
Air Hygiene & Mfg. Comm.

MINUTES OF THE 222ND MEETING OF COMMITTEE
ASBESTOS TEXTILE INSTITUTE ISITING
JUNE 9 - 10, 1966

A full complement of all member companies was present at the Sales Promotion Meeting on June 9, 1966.

We reviewed all known foreign competition situations feeling that it is quite important to stay abreast with inroads that have been made in the U.S.A. even though to date they might be considered minor in sales volume. The latest report from the U.S. Department of Commerce, Washington, indicates the following imports into the U.S.A. which are sizable enough to be of some concern:

	<u>March 1966</u>		<u>1st 3 mos. 1966</u>	
	<u>Pounds</u>	<u>£</u>	<u>Pounds</u>	<u>£</u>
ASBESTOS YARN, Etc.				
United Kingdom	51,132	29,425	119,230	96,044
Japan	15,108	8,041	49,043	26,303
Canada	<u>5,246</u>	<u>4,019</u>	<u>9,995</u>	<u>8,089</u>
Total	71,486	41,485	178,268	130,436

We have been unsuccessful in placing the A.T.I. display at the Franklin Institute Museum, Philadelphia. It was decided that the Sales Promotion Committee would issue a leaflet or make available photos to be sent to a sizable list of technical and engineering schools soliciting the use of the display on their campus.

We discussed the Asbestos Fibre stockpiling program reporting that Arizona so-called Textile Grade Asbestos Fibre purchased by the U.S. Government against recommendations by the A.T.I. resulted in no bids for resale at a recent opening in Washington, D.C.

It was reported that North American Asbestos Co., Chicago, Illinois, is now marketing an asbestos felt as a fire resisting protective insert in mattresses for the hotel, motel and hospital trade.

We completed a lengthy review of all copy and format for the third edition of the A.T.I. Handbook which will go out for bids in July and probably be published in the Fall of 1966.

ASTI approval was received to use 29 pages of ASTI specifications for a charge of \$273.

(Signed) W.S. Hough

W.S. HUGHES
CHAIRMAN

MINUTES: Asbestos Textile Institute
Technical Committee Report
June 9, 1966

The meeting was held at Barbison - Plaza Hotel, New York, N. Y.

IN ATTENDANCE: Edward A. Morris - U. S. Rubber Co.
C. E. Houghton - Gerlock, Inc.
J. W. Hawkins - Raybestos - Manhattan, Ind.
William Massant - American Asbestos Textile Corp.
Irvin Barnett - Johns - Manville Corp.
J. D. McCluer - H. K. Porter Co., Inc.
H. E. Sunbury - Asbestos Textile Institute
Paul J. Smith - A.S.T.M.

SUBJECTS DISCUSSED:

A.T.I. Hand Book. Confirmation of weight values on Tapes.
The Technical Committee was requested to review and confirm the weight values of metallic and plain tapes for reprinting in the revised third edition of the Hand Book. These values are presently shown in Tables Q and R respectively. The Committee made a detailed study of this and recommended the following:

To recommend the weight values for decimal tapes as given in Military Specification Mil-C-105D for .010", .015", .020", .025", and .030" since the industry usually makes these tapes to conform to the Military Specification and also since there is very minor deviation of the weight values in the Military Specification from those in the current Hand Book.

To confirm the present values of 1/32", 1/16", 1/8" and 1/4" plain tapes and the present values of 1/16", 1/8", and 1/4" metallic tapes as accurate since all the weight values of these come within the tolerable limits of industry's values.

To delete 1/16" plain and 1/16" metallic from the Hand Book since they are not popular sizes.

Industry weight values were found almost identical to Hand Book values with exception of 1/32" plain and the variation here was less than 10% as shown in the appended table. Conformance of Mil-C-105D with Hand Book is also shown in the table.

The chairman will send a letter with the above recommendation on tapes to H. E. Sunbury with direction that he send this information to Samuel Bain who is editing the Hand Book.

Mil-C-103168. No action to date has been made by the agency on issuing an interim specification correcting the thickness values. The last communication from the agency was on October 29, 1965 at which time the agency agreed to make this correction as requested by W. Massant, Chairman of the Technical Committee at that time. A follow up letter to the agency was made May 4, 1966 by W. Massant. The committee found that the thickness values in Mil-C-103168 are correct but the values in Mil-C-103168 are incorrect.

Consideration was given to two other items but action was not taken. In SS-C-1666 specifying as optional the use of .006" nickel wire or .008" monel wire in sewing thread, when this specification comes up for revision.

Making a closer tolerance than $\pm 7\%$ on weight of woven asbestos cloth when specification comes up for revision again on D1571.

Revision of ASTM Specifications D315, D1571, and D2100

At the February 1966 meeting the committee reported completion of the 3rd Draft of D315 tape and the 4th Draft of D1571 cloth and that copies of these two were in the hands of Dr. Scroggie's Editorial Committee and Mr. Nicodemus' A-4 Committee. The committee had reason to believe they would be approved and a favorable report was given. The following week the chairman received a letter from Dr. Scroggie's committee making many changes in both specifications. The committee felt that making further revisions would not accomplish very much and that it would be more effective to allow representatives of A-4 Committee to resolve the differences with Dr. Scroggie. Accordingly, on March 3, 1966 a meeting was held in New York between A-4 representatives and Dr. Scroggie and at this meeting the differences were resolved. On the basis of the resolved differences, the Technical Committee drafted the 4th Draft of D315 tape and the 5th Draft of D1571 cloth. Concurrently Mr. P. O. Nicodemus revised D2100 on electrical insulation and submitted it with D315 and D1571. These were satisfactory editorially so far as Dr. Scroggie's committee was concerned, but a temporary set-back resulted when the editor of ASTM took exceptions to these three specifications. After explanation and assistance from Paul Smith of ASTM and P. O. Nicodemus Chairman of A-4 Committee, the three specifications were approved with very minor changes. On May 17, a letter from Paul Smith advised the chairman that these three would appear in the 1966 preprint of ASTM. On June 1, 1966, a copy of the preprint was received and only minor changes were noted.

Letter ballots are now out to all members of D-13 Committee on these three specifications. Results of the ballots have not been received.

Committee members were requested to proof read these specifications and report to the chairman before July 1st. any typographical errors or discrepancies. The chairman is to report these to Paul Smith if any are found.

Howard Bain met briefly with the committee and agreement was made that we would convey information on the status of tapes in the Hand Book within the next two weeks and that he would use information in the preprint on tapes, cloth, and electrical insulation for setting up the revised Hand Book.

Revision of ASTM Specification - D1918 Asbestos Content

At the February 1966 meeting the 1st. Draft on D1918 was made. Since that meeting two more Drafts have been made by correspondence, the 2nd. and 3rd. Drafts. At the present meeting the 3rd. Draft was reviewed and minor changes and corrections made. This will now issue as the 4th. Draft dated June 9, 1966 and copies will be sent to Dr. Scroggie's S-W. Editorial Committee and P. O. Nicodemus' A-4 Committee with the request that they review and respond in time for committee discussion at our next meeting, August 18 and 19th.

Revision of ASTM Specification - D299 Tar

A start was made on this specification and approximately half of it was covered. The chairman requested that each committee member continue this specification and also DJ75 roving and send in their comments on how these two should be revised. The several comments will be merged to form the 1st. Draft of D299 and 1st. Draft of DJ75 and these will be used as the basis for further discussion.

Next Meeting of Technical Committee

Since there are six more specifications to revise, the committee felt that progress on these would be too slow with one day meetings at the regular ATI meetings, especially in view of other items which come up. Accordingly the next meeting was set up as a two day meeting August 18 and 19th at ASTM headquarters in Philadelphia. At that meeting a decision will be made as to whether we will meet one day ahead at our October meeting.

The committee wishes to acknowledge and thank Paul Smith of ASTM for the contribution he has made in revising these specifications.

J. D. McClellan
Chairman of Technical Committee

Appendix to Minutes of Meeting of Technical Committee
June 9, 1966

Table 1

1/32" Plain Tape

WIDTH	POUNDS PER 100 FEET						
	SUPPLIER			A.T.I. N.B.		DEV. OF AV. FROM N.B.	
	1	2	3	N.B.	AVT.	AMOUNT	PERCENT
1/8	.80	.70	.70	.80	.75	.05	6
3/4	1.18	1.10	1.05	1.18	1.13	.05	4
1	1.66	1.60	1.65	1.66	1.56	.12	7
1 1/4	2.00	1.80	-	2.00	1.93	.07	3.5
1 1/2	2.40	2.10	2.15	2.40	2.26	.14	6
2	3.10	2.90	2.90	3.10	3.00	.10	3
2 1/2	3.80	3.50	3.60	3.80	3.68	.12	3
3	4.50	-	4.40	4.50	4.43	.07	1.5

Table 2

Decimal Tapes

THICKNESS	WIDTH	POUNDS PER 100 FEET			DEVIATION OF AV. FROM HANDBOOK	
		A.T.T. H.B.	MIL-C-3053D	AV.	AMOUNT	PERCENT
.010"	1/2	.29	.24	.265	.025	8.6
	3/4	.40	.38	.370	.030	7.5
	1	.52	.45	.485	.035	6.7
	1 1/4	.66	.55	.605	.055	8.3
	1 1/2	.77	.64	.695	.075	9.7
.015"	1/2	.37	.36	.365	.005	1.4
	3/4	.49	.50	.495	.005	1.0
	1	.61	.65	.630	.020	3.3
	1 1/4	.77	.79	.780	.010	1.3
	1 1/2	.90	.93	.915	.015	1.7
	2	1.15	1.19	1.170	.010	0.9
.020"	1/2	.46	.45	.455	.005	1.1
	3/4	.63	.63	.630	0	0.0
	1	.80	.80	.800	0	0.0
	1 1/4	1.00	.99	.995	.005	0.5
	1 1/2	1.16	1.18	1.170	.001	0.1
	2	1.52	1.54	1.530	.010	0.7
.025"	1/2	.55	.63	.590	.040	7.3
	3/4	.80	.84	.820	.020	2.5
	1	1.00	1.03	1.015	.015	1.5
	1 1/4	1.28	1.33	1.305	.025	2.0
	1 1/2	1.50	1.58	1.540	.020	1.7
	2	2.00	2.11	2.055	.055	2.7
	2 1/2	2.26	-	-	-	-
	3	2.80	-	-	-	-
.030"	3/4	1.88	1.10	1.090	.010	1.0
	1	1.43	1.44	1.445	.015	1.0
	1 1/4	1.80	1.77	1.785	.010	2.7
	1 1/2	2.13	2.10	2.115	.015	0.7
	2	2.86	2.78	2.820	.040	1.4
	2 1/2	3.45	-	-	-	-
	3	4.17	-	-	-	-

Minutes: ASBESTOS TEXTILE INSTITUTE
FIBER TESTING COMMITTEE
June 9, 1966
Barbizon Plaza Hotel
New York, N.Y.
9:30 A.M. to 12:00 Noon

Attending:

J. Wronski, Chairman
R. Dodds-Mebrom
T. T. Tigert

Raybestos-Manhattan, Inc.
Ball Asbestos Miner, Inc.
Cassir Asbestos Corp. Ltd.

Subjects Discussed

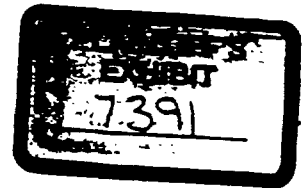
1. The printing of the new fiber testing manual was completed just about on schedule and copies have been distributed to all companies and groups that had previously placed orders for them. Of the 3113 copies purchased, 423 still remain and are stored in R. Sunbury's garage. One hundred of these were ordered by the Institute and are earmarked for sale to parties addressing requests for them to the Institute. The remaining 323 are uncommitted. Of these, 210 resulted from increasing the original order from 2790 to 3000 to take advantage of a price concession. The remaining 113 were the result of a printing over-run and were purchased at a greatly reduced price.
2. Further data on two proposed test procedures -- one for the determination of asbestos fiber frictional properties and the other for determination of amule content of textile grade fibers -- were to be presented at this meeting. However, the sponsors of these two procedures were absent and discussion is deferred until the next meeting.
3. The committee sends its regards and hopes for an early recovery for Dewey Childers of M.F. Porter who was hospitalized at the time of this meeting.

Respectfully submitted,

J. P. Wronski

June 10, 1966

Minutes
GENERAL MEETING
Asbestos Textile Institute
June 10, 1966
Barbizon-Plaza Hotel, New York, N.Y.



In Attendance:

AMERICAN ASBESTOS TEXTILE CORP.
J.L. Rainey
J.W. Christenbury

ASBESTOS CORPORATION LTD.
A.C. Steele
C.L. Alexander (A.C.S. Ltd.)

BELL ASBESTOS MINES LTD.
Wm. J.W. Smith
R. Dodds-Mebron

JOHNS-MANVILLE CORP.
W.S. Hough
E.A. Schuman
P.A. Rogers
C.L. Sheckler
W.C. Atkinson

CASSIAR ASBESTOS CORP. LTD.
T.T. Tigert

CADWALADER, WICKERSHAM & TAFT
P. Jay Flocken (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE
H.E. Sunbury (Secretary)

ASTI Headquarters Staff
P.J. Smith

GARLOCK, INC.
G.E. Houghton
- - Olson

H.K. PORTER COMPANY, INC.
AP. Gouveia
J.D. McClure

RAYBESTOS-MANHATTAN, INC.
J.A. Brown, Jr.
J.A. Bettles, Jr.
L.C. Williams
J.T. Wronski
R.B. Smith
J.W. Hawkins
A.Q. Scowcroft

TALLMAN-DE CLUSKEY FABRICS CO.
J.L. Mitchell
Ted D. McCluskey

UNITED STATES RUBBER COMPANY
A.C. Link
S.J. Peele, Jr.
E.A. Morris
Dr. J.H. Wolfsie
W.C. Hitchcock

U.S. PUBLIC HEALTH SERVICE
Dr. L.J. Cralley

NICOLET INDUSTRIES
R.D. Griffin

Luncheon Guests

Mrs. J.A. Bettles, Jr., Mrs. S.J. Peele, Jr., Mrs. W.C. Atkinson
W.C. Hitchcock, U.S. Rubber Co., New York
W.A. Singleterry, U.S. Rubber Co., New York
R.D. Griffin, Nicolet Industries

*****MINUTES*****

1. President John A. Brown, Jr., called the meeting to order at 9:30 A.M. and asked each person present to stand and identify himself and his company affiliation.
2. The minutes of the last meeting were presented for reading. Mr. Peele moved that the reading be omitted, seconded by Mr. Atkinson and so voted.

3. The Financial Report was presented by Mr. E.A. Schuman, Treasurer. Mr. Peele moved that it be accepted, seconded by Mr. Hough, and it was so voted unanimously. The report is attached.

4. P.Jay Flocken, legal counsel, presented a report entitled 'Some Aspects of the Legal Problems on Asbestos Publicity: Grounds for Possible Libel Action and Standing to Sue'. Mr. Flocken referred to a recent example of statements made on a radio broadcast and then discussed the general problems involved in bringing an action for libel where the product or manufactured article has been named but no particular manufacturer has been named. Counsel discussed briefly the New York Court of Appeals' rulings in Drug Research Corp. v. Curtis Pub. Co., 7 N.Y.2d 435, and Harwood Tharm. Co. v. Nat. Broadcasting Co., 9 N.Y.2d 460. In conclusion, it was stated that without either a specific and direct reference to a particular plaintiff or necessarily implying plaintiff's fraud or deceit in putting a dangerous product upon the market, the probability of success of a libel suit in the circumstances referred to would be difficult to assure.

5. Mr. A.C. Steele, Asbestos Corporation, Ltd., presented an interesting report, on behalf of the asbestos fibre producers, concerning supply and demand for raw asbestos fibre. He mentioned the current shipping strike, which if long continued, could have a most adverse effect on mine operations.

6. Dr. J.H. Wolfsie, Corporate Medical Director, United States Rubber Company, was the Guest Speaker, and his subject was "Asbestos and Health".

Dr. Wolfsie referred to the alarming information that has appeared in the lay press concerning the alleged deleterious effects of asbestos on the health of the public. Apropos of this, some of the highlights of the present state of knowledge on the effects of asbestos on health were reviewed. Dr. Wolfsie read excerpts from certain news releases, and said that he could find many weaknesses in the statements made.

Dr. Wolfsie described the development of a preventive medical program to protect the health of employees from possible adverse effects of exposure to asbestos, and gave a brief account of the development of the present preventive health program in the United States Rubber Company for its asbestos employees.

An extensive question and answer period followed Dr. Wolfsie's talk, and our members were most appreciative of the privilege to hear him.

7. The committee reports were given by the chairmen of their respective committees as listed below. The full text of their reports is attached to these minutes.

Air Hygiene & Mfg. Committee - W.C. Atkinson, Chairman

Sales Promotion Committee - W.S. Hough, Chairman

Technical Committee - J.D. McCluer, Chairman

Fiber Testing Committee - J.P. Wronski, Chairman

8. A "CERTIFICATE OF APPRECIATION" in the form of a Scroll was presented to Mr. John A. Bettles, Jr., on behalf of the members, by President Brown.

Mr. Bettles, better known as "Jack" to his many friends in the asbestos industry, is planning to retire in July 1966 from his position as Manager, Asbestos Textile Division, Raybestos-Manhattan, Inc.

Jack Bettles is a past president of the Institute, and has served it in many other capacities as well during his more than twenty years of faithful attendance at our meetings.

In accepting the Scroll, Jack expressed his great appreciation for it and also for the most enjoyable private cocktail party held in his honor on Wednesday evening, June 8th.

Jack stressed the value of the Institute as an aid to management training, and pointed out that getting to know each other is most important, as it builds confidence. He mentioned that the Institute has been of great value in bringing the mining industry in close contact with the asbestos textile industry, to their mutual advantage.

As a suggestion, Jack believes that our industry should spend more time promoting new uses for asbestos, and less time in defensive tactics against competitors.

Immediately after his retirement, about July 14th, Jack and his most attractive wife, Helen, will leave for an extended auto trip to the far West.

We will greatly miss his counsel and advice on Institute matters, his leadership in our industry, and the opportunity for personal contact with him. Our members wish him a most happy retirement!

9. The next meeting of the Institute will be held at The Homestead, Hot Springs, Va., on October 6th and 7th, (Arrival Oct. 5th).

This is the Annual Meeting, and The Homestead was selected as being a delightful spot to bring the wives! Reservations are required thirty days in advance. So, plan to bring your wife, and help to make this Annual Meeting the Biggest and Best ever!

10. There being no further business to come before this meeting, on motion duly made and seconded, it was voted to adjourn. The luncheon that followed the meeting was made more enjoyable by presence of several wives as our guests.

Respectfully submitted,

H.E. Sunbury
Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

May 9, 1966

Balance on Hand at Last Report, Jan. 10, 1966

General Fund	\$ 1877.40
Savings Fund	18798.19
Petty Cash Fund	<u>15.02</u>

\$20690.61

Receipts

To Savings Fund (Interest)	211.77
To General Fund (1966 Dues)	8750.00
To General Fund (Book Sales)	37.75
To General Fund (Expense Refund)	<u>56.00</u>

9055.52

Total On Hand and Received

\$29746.13

Disbursements

Legal Retainer (3 months ending 2/28/66)	500.00
Telephone (4 months)	75.79
Meeting Expense - February 1966	685.28
Fibre Test Manual Exp. (2nd Edition)	63.86
Handbook Expense (3rd Edition)	372.01
Secretary's Salary (6 months)	569.45
F.I.C.A. Tax (Adjusted to July 1963)	220.60
Secretary's Travel	125.00
Office Rent (6 months)	383.32
Exhibit Expense	52.00
Printing & Office Supplies	73.75
Stenographic	99.50
Petty Cash (Vouchers 223-238 incl.)	<u>71.72</u>

7292.48

Balance on Hand as of May 9, 1966

\$26453.65

Funds

General Fund (Bank Statement of May 9, 1966)	\$ 7415.41
Savings Fund	19009.96
Petty Cash Fund	<u>28.28</u>

Total Funds

\$26453.65

Assets as of May 9, 1966

General Fund	\$ 7415.41
Savings Fund	19009.96
Petty Cash on Hand	28.28
Accounts Receivable (1966 dues)	500.00 (*)
" " (Book Sales)	21.55
Postage on Hand	6.50
Furniture and Equipment (Nominal Value)	<u>1.00</u>

Total Assets

\$26982.70

Liabilities (None)

Net Worth

\$26982.70

Respectfully submitted

H.E. Sunbury
H.E. Sunbury, Asst. Treasurer

(*) Paid 5/18/66

Minutes

AIR HYGIENE AND MANUFACTURING COMMITTEE

June 9, 1966

Barbizon-Plaza Hotel, New York, N.Y.

Attending:

Members:	W.C. Atkinson, Chairman	Johns-Manville Products Corp.
	L.C. Williams	Raybestos-Manhattan Inc.
	C.L. Sheckler	Johns-Manville Products Corp.
	R.B. Smith	Raybestos-Manhattan Inc.
	A.C. Link	United States Rubber Co.
	Ted D. McCluskey	Tallman-McCluskey Fabrics Co.
	A.P. Gouveia	H.K. Porter Co. Inc.
	H. Walker	American Asbestos Textile Corp.
Guests:	Dr. J.H. Wolfsie	United States Rubber Co.
	Dr. Lewis J. Cralley	U.S. Dept. of Health, Education & Welfare
	Mr. Sands	U.S. Rubber Co.
	Mr. Langlois	Garlock Inc.
Absent:	K.W. Nelson	American Smelting & Refining Co

Bausch and Lomb Automatic Dust Counter

Due to Mr. Nelson's unavoidable absence the intended demonstration of the 40-2 portable dust counter was postponed.

There was some discussion on the merits of this counter and the consensus was that it would be of particular value in monitoring and quick checking operating areas after correlating with the Greenberg-Smith Impinger.

Environmental Health Survey

Dr. Lewis J. Cralley reported that the survey is progressing on schedule and that they are now in the areas of Friction Materials, Asbestos Cement Products and Insulation Materials.

Control of Dust by Treating Stock

Reports were given on the results obtained in control of dust by the application of oils and other solutions both to blended stock and to asbestos fiber.

Two companies are experimenting with S.D. 5 made by the Lenox Chemical Co. Preliminary controlled test runs indicate that it is possible to reduce the dust counts by applying up to 1% by spraying it on the fiber or on the stock. Further experimental runs will be made to determine the minimum effective amount to be used and its effect, if any, upon the products.

Another company has been using a mineral oil sprayed on the stock with satisfactory results.

General

There was some discussion and exchange of ideas on how to control dust at braiders and narrow fabric looms.

One company has installed vacuum ducts in the center of the braiders except where they make braid over braid. Here it is installed at the perimeter of the braider. Both systems have reduced the dust counts considerably.

Another company has succeeded in reducing the dust at weaving by running the warps over a smooth pick-up roll running in a trough containing a solution of 20% Velubra Softener GSE and 80% water. The softener is supplied by Amalgamated Chemical Corp., Rorer and Ontario Sts., Philadelphia, Pa.

The softener prevents the yarn from drying out by absorption of moisture from the air resulting in a smoother and less dusty yarn.

Proposal by the Industrial Hygiene Foundation of America, Inc.

Dr. Robert deTreville and Dr. Paul Gross of the Industrial Hygiene Foundation had been invited to attend a luncheon meeting for the purpose of presenting to the industry, through the A.T.I., a proposal for a supplementary investigation of the Specificity of Asbestos Bodies and the biologic effects of trace substances associated with Chrysotile Asbestos.

In addition to the speakers, 26 members and guests attended the luncheon meeting.

It was suggested that a contract could be arranged between the Industrial Health Foundation and a group of interested corporations who would contribute the funds for the investigation which would amount to a total of \$350,000; or it could be separated into two parts, the first of which would cost \$150,000 (Phases 1 and 2), and the second part would cost \$200,000. The second part would be optional at the completion of part one.

With the consent of Drs. deTreville and Gross, a copy of the presentation is attached to the minutes.

Pamphlet on Method for Determining Asbestos Dust Concentration

Since February, 20 additional copies have been shipped, by request, to companies in the U.S.A., Canada, England, The Netherlands, Norway, Sweden and Australia.

In total, 232 copies have been shipped out. There are still approximately 800 on hand.

The Secretary has a record of all shipments.

Respectfully submitted,

W.C. Atkinson, Chairman
Air Hygiene & Mfg. Comm.

INDUSTRIAL HYGIENE FOUNDATION OF AMERICA, INC.
Mellon Institute, 4400 Fifth Avenue
Pittsburgh, Pa. 15213

June 1, 1966

Prospectus for An Investigation of:

- a. The Specificity of Asbestos Bodies and
- b. The Biologic Effects of Trace Substances
Associated with Chrysotile Asbestos.

INTRODUCTION

Thomson (1) found that about 30% of the people that had died in hospitals in Canetown (500 consecutive autopsies) had "asbestos bodies" in the lungs. The same author (2) found a similar prevalence of "asbestos bodies" among the hospital deaths in Miami, Florida. Cauna, Totten and Gross (3) examined the lungs of 100 non-selected hospital deaths for which autopsy permission had been obtained, and found that 40% of these had "asbestos bodies" in their lungs. Ian Webster (4) recently reported a 47% prevalence in Johannesburg.

There is, at present, a reasonable doubt that "asbestos bodies" are specific indicators of the inhalation of asbestos fibers. Such bodies have been found in coal miners and talc workers where they have been called "pseudo-asbestos bodies". Recently Davis (5) and Collet (6) have demonstrated the intracellular development of "asbestos bodies" secondary to amorphous material.

Asbestos occupies an anomalous position in its ability to produce lung damage, causing diffuse fibrosis and possibly also lung cancer. It is anomalous inasmuch as no other silicate has been shown to possess this ability. The fibrosis encountered in talcosis is limited to the tremolite variety, which is asbestos-like. On the other hand the pneumoconiosis associated with the mining of mica (another silicate) has not been investigated experimentally, and the fibrogenic activity of the dusts coexisting with the mica has not been evaluated. Other silicates may evoke either minimal or relatively slight inflammatory changes, and are incapable of producing lung cancer.

Inasmuch as certain polycyclic hydrocarbons and trace metals known to be potent cancer-producing agents have been demonstrated in asbestos, particularly nickel, chromium and benzopyrene, the possibility exists that the trace metals and/or the polycyclic hydrocarbons may be solely responsible for the observed pathogenicity.

This possibility is supported by two findings:

1. The report of Braun and Truan (7) which indicated that the prevalence of lung cancer among Canadian asbestos miners was no greater than that of the general population. This was in contrast to the report of Doll (8) which indicated a greatly increased risk of lung cancer among British workers exposed to asbestos dust while fabricating the asbestos.

2. In a recent investigation in the laboratory of the Industrial Hygiene Foundation, lung cancers were found in rats exposed for 18 months to high concentrations of chrysotile dust. (9) Because rats exposed to chrysotile dust by other investigators failed to develop lung cancer, there is a good probability that the chrysotile dust that produced lung cancer was significantly different from that which did not have this effect. It is possible that this difference is

caused by a coating of nickel steel alloy applied to the asbestos dust particles during the continuous hammer milling process used for rendering the dust respirable. This method has not been used by previous investigators. Nickel has been found capable of producing lung cancer in trace amounts.

Although asbestos and glass are both silicates, the industrial health experience with workers of these two materials has been vastly different. No pulmonary disease has been reported in workers exposed to glass dust.

Nevertheless, the dust of filamentous glass has been labeled as highly dangerous in the lay press by association with asbestos. It is a fact that although the effect of flake glass dust on the lungs of animals has been reported, no similar study has been made of the dust of filamentous glass which does not have an associated resin or filler.

PROPOSAL

Phase 1.

It is proposed to examine the response of animals lungs to different inorganic fibrous materials of contrasting chemical composition, and to characterize the differences and similarities in the response.

Phase 2.

It is proposed to investigate the influence of trace minerals and polycyclic hydrocarbons (i.e., benzonpyrene) associated with chrysotile ore or the subsequent processing on the long-term response of the lung to the dust.

Another objective of this phase is to obtain definitive data on the long-term effect of dust derived from filamentous glass upon the lungs. Three varieties of such glass dust will be investigated:

1. with the phenol-formaldehyde-type of binder
2. with the binders used in textiles
3. without binder.

Phase 3.

A comparative study of the three main types of asbestos dust (chrysotile, amosite and crocidolite) is proposed to attempt to pinpoint the cause of biological activity - i.e., whether due to silicates per se or the associated trace metals or hydrocarbons. Positive findings would be a basis for identifying any possible health hazards and for suggesting specific engineering or other process controls to eliminate such hazards.

MATERIALS AND METHOD

Phase 1.

The following fibrous materials will be reduced to respirable particle size ($<3\mu$) and will be injected in amounts of 3.5 mg. to 30 mg. as aqueous suspensions:

1. chrysotile dust (Prepared by milling in Wright mill and with demonstrated carcinogenic potential)
2. Chrysotile dust (unmilled synthetic)*
3. Aluminum nitride
4. tricalcium phosphate (filamentous)
5. fibrous glass
 - a. with phenol-formaldehyde-type binder

5. b. with binder used for textiles
c. without binder
6. magnesium hydroxide (brucite)
7. mineral wool
8. zinc oxide (filamentous)

*Synthetic chrysotile has been prepared at Mellon Institute by Dr. William Granquist. Electron photomicrographs show the characteristic tubular crystals.

These materials will be injected intratracheally into hamsters under ether anesthesia. Previous experience has demonstrated that asbestos bodies will form in response to chrysotile dust within five months. The animals will therefore be held for six months and then killed. Asbestos bodies will be sought in lung juice as well as in the lung tissues.

The lungs will be expanded with buffered formalin under a head of 10 cm. of water. Blocks removed from these lungs will be sectioned at 6µ after paraffin impregnation. These sections will be stained by different methods and photographed sequentially to provide means for studying more completely the tissue reaction to these various materials. Search for the so-called asbestos bodies will be made using routinely stained sections, and sections stained for iron. In addition, unstained cleared sections will be examined under dark-field conditions for asbestos bodies. The latter glow when examined in this manner.

The difference in tissue reaction between the synthetic chrysotile dust and that which is known to be fibrogenic as well as carcinogenic will point to the contribution to pathogenicity made by one or more of the various trace substances which may be associated with chrysotile asbestos dust as a result of processing.

The development of "asbestos bodies", better termed Ferruginous bodies, to dusts other than asbestos would point to the non-specificity of these structures and to the desirability of collecting such "asbestos bodies" from human lungs in order to subject them to electron-probe analysis. Such analysis could give information in regard to the chemical make-up of the dust responsible for the development of the Ferruginous ("asbestos" body).

Phase 2.

In order to explore the etiologic role of the various components of chrysotile asbestos in the production of lung fibrosis and lung cancer, six series of rats will be injected intratracheally with the following:

1. chrysotile dust known to be carcinogenic (9)
2. synthetic chrysotile
3. synthetic chrysotile plus nickel
4. synthetic chrysotile plus chrome
5. synthetic chrysotile plus nickel, chrome and benzo(a)pyrene
6. nickel alone or with carbon as carrier
7. chrome alone or with carbon as carrier
8. benzo(a)pyrene with carbon as carrier

These rats will be held for two years and then killed. The lungs will be prepared for examination and sections cut in the same manner as in Phase 1.

Three other series of rats will be injected intratracheally with the following dusts:

1. filamentous glass with phenol-formaldehyde-type binder
2. filamentous glass with the binders used for textiles
3. filamentous glass without binder.

These animals will also be held for two years and then killed. The lungs will be prepared and studied as in the preceding groups, with special attention to asbestos bodies in lung tissues or juice.

The number of animals per series will be such that there will be no doubt regarding the statistical significance of the results.

Phase 3.

SUPPLEMENTARY PROPOSAL

(Note: The following supplement has been added to the original proposal of April 15, 1966).

INTRODUCTION

Because of the interest of a number of companies in biologic investigations similar to those planned for chrysotile asbestos, but using instead, amosite and crocidolite, an additional investigation is proposed to be undertaken concurrently with the one proposed April 15, 1966.

As in the proposal dealing with chrysotile asbestos, the purpose of the presently proposed concurrent investigation is to attempt to pinpoint the cause of the biologic activity of all three main types of asbestos dusts: whether this lies in the silicates *per se*, in the associated trace metals, or in the associated hydrocarbons.

Because neither amosite nor crocidolite is available as a pure synthetic material, the investigation proposed for these two types of asbestos is necessarily different from that proposed for chrysotile. Nevertheless, in order to make the investigation complete, it is desirable to include also chrysotile in the new investigation since different methods are involved.

Inasmuch as the biologic activity of asbestos seems to have two components: (a.) inflammatory--responsible for asbestosis, and (b.) neoplastic--responsible for lung cancer and mesothelioma, it is advisable to investigate both of them. This can readily be accomplished within the four year span contemplated for this investigation.

In order to determine whether the biologic activity of asbestos resides in the silicate, in the associated trace metals, or in the associated hydrocarbons, attempts will be made to remove the trace metals and the hydrocarbons from their respective silicates and to compare the biologic activities of such "purified" asbestos samples from which these associated materials have been removed.

PROTOCOL

As a prerequisite to any biologic testing (insofar as the lungs are concerned), it is necessary to reduce the asbestos to a respirable particle size. This will be done in the following manner: the amosite and crocidolite will be ball-milled and then fed into continuous hammer mills modified from a design by Holt and Young (10). The dusts emerging from the hammer mills will be collected in electro-

static precipitators. This method has been used successfully by us to reduce chrysotile asbestos to a particle size, 70% of which was respirable. A sufficient quantity of finely divided chrysotile dust is available for the purposes of this investigation.

All three types of asbestos dust will be deprived of the greater portion or of all of their hydrocarbon content in one of two ways:

1. by continuous extraction with various solvents
2. by heating beyond the decomposition point of the hydrocarbons.

The trace metals will be removed from the three types of asbestos dust by treatment with aqua regia followed by treatment with EDTA (ethylene diamine tetraacetic acid, a chelating agent).

One batch of each type of asbestos dust will be subjected to both procedures, i.e., removal of trace metals and removal of hydrocarbons.

Accordingly, each of the three types of asbestos dust will consist of five batches, each with a different composition:

1. the unaltered dust as collected in the precipitators
2. the dust minus the hydrocarbons (heat-treated). Here, it is anticipated that there may also have been some change in the chemical structure of the asbestos through loss of some molecules of water of hydration.
3. the dust minus the hydrocarbons (solvent extraction). Here, it is anticipated that the extraction may not be 100% complete.
4. the dust minus trace metals
5. the dust minus trace metals then subjected to solvent extraction to remove most of the hydrocarbons.

In order to investigate the inflammatory component of the various (15) batches of asbestos dust, these will be injected intratracheally into rats and hamsters. The lungs of these animals are expected to show definitive changes within one year after the intrapulmonary introduction of the dusts.

In order to explore the lung cancer aspect of the neoplastic component of the biologic activity of asbestos dust, additional rats will be injected with the same batches of dust as above and allowed to live out their lives. Most of the animals, however, will have died before the end of the third year.

The other (mesotheliomatous) aspect of the above neoplastic component will be investigated by injecting the 15 different batches of asbestos dust within the pleural cavity of rats and hamsters and allowing them to live out their lives. Most of these animals will also have died before the end of the third year.

For the investigation of the inflammatory component of asbestos dust, a large enough number of animals will be put on test to allow sampling at intervals throughout the year and still have an adequate number remaining to represent the 12 month old lesion.

A tabular summary of the protocol is attached.

REPORTS

Definite trends in regard to the inflammatory component are expected to be demonstrable in animals that will be killed prior to the 12 month period (as indicated under footnote (b) in the Tabular Summary). An interim report covering the findings in these 420 animals will, therefore, be issued at the end of the first year.

Because few, if any, tumors are expected to develop prior to 24 months, no interim report on the neoplastic component will be issued until the end of the third year. The final report covering the

entire investigation will be issued toward the end of the fourth year. This report will probably be in the form of several manuscripts suitable for publication.

SUPERVISION

Research will be performed under the direct supervision of Dr. Paul Gross, Director of the Foundation's Research Laboratory. The Foundation's studies on asbestos presently are being conducted under partial support of the U.S. Government through a National Institutes of Health grant and a contract with the U.S. Public Health Service, Division of Occupational Health (Dr. Lewis J. Cralley).

TABULAR SUMMARY OF PROTOCOL

Type of Asbestos	Batch (a)	Dust Injected Intratracheally for		Dust Injected Intrapleurally for	
		Inflammatory Component	Lung Cancer	Mesothelioma	
		No. Rats (b)	No. Hamsters (b)	No. Rats (c)	No. Hamsters (c)
Chrysotile	1	20	20	20	20
	2	20	20	20	20
	3	20	20	20	20
	4	20	20	20	20
	5	20	20	20	20
Amosite	1	20	20	20	20
	2	20	20	20	20
	3	20	20	20	20
	4	20	20	20	20
	5	20	20	20	20
Crocidolite	1	20	20	20	20
	2	20	20	20	20
	3	20	20	20	20
	4	20	20	20	20
	5	20	20	20	20
TOTALS		300	300	300	300

(a) The following batches are identified:

- No. 1 = dust as collected from electrostatic precipitators
- No. 2 = dust extracted with solvents
- No. 3 = dust heated to decompose hydrocarbons
- No. 4 = dust treated with aqua regia and EYTA
- No. 5 = dust treated as with No. 4 and No. 2

- (b) Two animals killed immediately after the dust injection
Four animals killed 4 days after the dust injection
Four animals killed 1 month after the dust injection
Four animals killed 6 months after the dust injection
Six animals killed 12 months after the dust injection
- (c) All animals allowed to live out their lives

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MINUTES OF THE SALES PROMOTION COMMITTEE
 ASBESTOS TEXTILE INSTITUTE MEETING
 JUNE 9 - 10, 1966

A full complement of all member companies was present at the Sales Promotion Meeting on June 9, 1966.

We reviewed all known foreign competition situations feeling that it is quite important to stay abreast with inroads that have been made in the U.S.A. even though to date they might be considered minor in sales volume. The latest report from the U.S. Department of Commerce, Washington, indicates the following imports into the U.S.A. which are sizable enough to be of some concern:

	<u>March 1966</u>		<u>1st 3 mos. 1966</u>	
	<u>Pounds</u>	<u>\$</u>	<u>Pounds</u>	<u>\$</u>
ASBESTOS YARN, Etc.				
United Kingdom	51,132	29,425	119,230	96,044
Japan	15,103	3,041	49,043	26,505
Canada	<u>5,246</u>	<u>4,019</u>	<u>9,095</u>	<u>8,089</u>
Total	71,486	41,485	178,208	130,638

We have been unsuccessful in placing the A.T.I. display at the Franklin Institute Museum, Philadelphia. It was decided that the Sales Promotion Committee would issue a leaflet or make available photos to be sent to a sizable list of technical and engineering schools soliciting the use of the display on their campus.

We discussed the Asbestos Fibre stockpiling program reporting that Arizona so-called Textile Grade Asbestos Fibre purchased by the U.S. Government against recommendations by the A.T.I. resulted in no bids for resale at a recent opening in Washington, D.C.

It was reported that North American Asbestos Co., Chicago, Illinois, is now marketing an asbestos felt as a fire resisting protective insert in mattresses for the hotel, motel and hospital trade.

We completed a lengthy review of all copy and format for the third edition of the A.T.I. Handbook which will go out for bids in July and probably be published in the Fall of 1966.

ASTM approval was received to use 29 pages of ASTM specifications for a charge of \$273.

(Signed)

W.S. Hough

W.S. HOUGH
 C. ATYUM

MINUTES: Asbestos Textile Institute
Technical Committee Report
June 9, 1966

The meeting was held at Barbizon - Plaza Hotel, New York, N. Y.

IN ATTENDANCE: Edward A. Morris - U. S. Rubber Co.
C. E. Houghton - Garlock, Inc.
J. W. Hawkins - Raybestos - Manhattan, Inc.
William Maaskant - American Asbestos Textile Corp.
Irvin Barnett - Johns - Manville Corp.
J. D. McCluer - H. K. Porter Co., Inc.
H. E. Sunbury - Asbestos Textile Institute
Paul J. Smith - A.S.T.M.

SUBJECTS DISCUSSED:

A.T.I. Hand Book. Confirmation of weight values on Tapes.
The Technical Committee was requested to review and confirm the weight values of metallic and plain tapes for reprinting in the revised third edition of the Hand Book. These values are presently shown in Tables Q and R respectively. The Committee made a detailed study of this and recommended the following:

To recommend the weight values for decimal tapes as given in Military Specification Mil-C-3053D for .010", .015", .020", .025", and .030" since the industry usually makes these tapes to conform to the Military Specification and also since there is very minor deviation of the weight values in the Military Specification from those in the current Hand Book.

To confirm the present values of 1/32", 1/16", 1/8" and 1/4" plain tapes and the present values of 1/16", 1/8", and 1/4" metallic tapes as accurate since all the weight values of these come within the tolerable limits of industry's values.

To delete 3/16" plain and 3/16" metallic from the Hand Book since they are not popular sizes.

Industry weight values were found almost identical to Hand Book values with exception of 1/32" plain and the variation here was less than 10% as shown in the appended table. Conformance of Mil-C-1053D with Hand Book is also shown in the table.

The chairman will send a letter with the above recommendation on tapes to H. E. Sunbury with direction that he send this information to Howard Bain who is editing the Hand Book.

Mil-C-10316B. No action to date has been made by the agency on issuing an interim specification correcting the thickness values. The last communication from the agency was on October 29, 1965 at which time the agency agreed to make this correction as requested by W. Maaskant, Chairman of the Technical Committee at that time. A follow up letter to the agency was made May 4, 1966 by W. Maaskant. The committee found that the thickness values in Mil-C-10316A are correct but the values in Mil-C-10316B are incorrect.

Consideration was given to two other items but action was not taken. In SS-C-466e specifying as optional the use of .006" nickel wire or .008" monel wire in sewing thread, When this specification comes up for revision.

Making a closer tolerance than $\pm 7\%$ on weight of woven asbestos cloth when specification comes up for revision again, on D1571

Revision of ASTM Specifications D315, D1571, and D2100

At the February 1966 meeting the committee reported completion of the 3rd Draft of D315 tape and the 4th Draft of D1571 cloth and that copies of these two were in the hands of Dr. Scroggie's Editorial Committee and Mr. Nicodemus' A-L Committee. The committee had reason to believe they would be approved and a favorable report was given. The following week the chairman received a letter from Dr. Scroggie's committee making many changes in both specifications. The committee felt that making further revisions would not accomplish very much and that it would be more effective to allow representatives of A-L Committee to resolve the differences with Dr. Scroggie. Accordingly, on March 3, 1966 a meeting was held in New York between A-L representatives and Dr. Scroggie and at this meeting the differences were resolved. On the basis of the resolved differences, the Technical Committee drafted the 4th Draft of D315 tape and the 5th Draft of D1571 cloth. Concurrently Mr. P. O. Nicodemus revised D2100 on electrical insulation and submitted it with D315 and D1571. These were satisfactory editorily so far as Dr. Scroggie's committee was concerned, but a temporary set-back resulted when the editor of ASTM took exceptions to these three specifications. After explanation and assistance from Paul Smith of ASTM and P. O. Nicodemus Chairman of A-L Committee, the three specifications were approved with very minor changes. On May 17, a letter from Paul Smith advised the chairman that these three would appear in the 1966 preprint of ASTM. On June 1, 1966, a copy of the preprint was received and only minor changes were noted.

Letter ballots are now out to all members of D-13 Committee on these three specifications. Results of the ballots have not been received.

Committee members were requested to proof read these specifications and report to the chairman before July 1st. any typographical errors or discrepancies. The chairman is to report these to Paul Smith if any are found.

Howard Bain met briefly with the committee and agreement was made that we would convey information on the status of tapes in the Hand Book within the next two weeks and that he would use information in the preprint on tapes, cloth, and electrical insulation for setting up the revised Hand Book.

Revision of ASTM Specification - D1918 Asbestos Content

At the February 1966 meeting the 1st. Draft on D1918 was made. Since that meeting two more Drafts have been made by correspondence, the 2nd. and 3rd. Drafts. At the present meeting the 3rd. Draft was reviewed and minor changes and corrections made. This will now issue as the 4th. Draft dated June 9, 1966 and copies will be sent to Dr. Scroggie's S-C Editorial Committee and P. O. Nicodemus' A-L Committee with the request that they review and respond in time for committee discussion at our next meeting, August 18 and 19th.

Revision of ASTM Specification - D299 Yarn

A start was made on this specification and approximately half of it was covered. The chairman requested that each committee member continue this specification and also D375 roving and sand in their comments on how these two should be revised. The several comments will be merged to form the 1st. Draft of D299 and 1st. Draft of D375 and these will be used as the basis for further discussion.

Next Meeting of Technical Committee

Since there are six more specifications to revise, the committee felt that progress on these would be too slow with one day meetings at the regular ATI meetings, especially in view of other items which come up. Accordingly the next meeting was set up as a two day meeting August 18 and 19th at ASTM headquarters in Philadelphia. At that meeting a decision will be made as to whether we will meet one day ahead at our October meeting.

The committee wishes to acknowledge and thank Paul Smith of ASTM for the contribution he has made in revising these specifications.

J. D. McCluer
Chairman of Technical Committee

Appendix to Minutes of Meeting of Technical Committee
June 9, 1966

Table 1

1/32" Plain Tape

WIDTH	POUNDS PER 100 FEET						
	SUPPLIER			A.T.I.		DEVIATION OF AV. FROM H.B.	
	1	2	3	H.B.	AVE.	AMOUNT	PERCENT
1/8	.80	.70	.70	.80	.75	.05	6
3/4	1.18	1.10	1.05	1.18	1.13	.05	4
1	1.66	1.40	1.45	1.66	1.54	.12	7
1 1/4	2.00	1.80	-	2.00	1.93	.07	3.5
1 1/2	2.40	2.10	2.15	2.40	2.26	.14	6
2	3.10	2.90	2.90	3.10	3.00	.10	3
2 1/2	3.80	3.50	3.60	3.80	3.68	.12	3
3	4.50	-	4.30	4.50	4.43	.07	1.5

Table 2

Decimal Tapes

THICKNESS	WIDTH	POUNDS PER 100 FEET			DEVIATION OF AV. FROM HAND BOOK	
		A.T.I.	H.B.	MIL-C-3053D	AV.	
.010"	1/2	.29	.24	.265	.025	8.6
	3/4	.40	.38	.370	.030	7.5
	1	.52	.45	.485	.035	6.7
	1 1/4	.66	.55	.605	.055	8.3
	1 1/2	.77	.64	.695	.075	9.7
.015"	1/2	.37	.36	.365	.005	1.4
	3/4	.49	.50	.495	.005	1.0
	1	.61	.65	.630	.020	3.3
	1 1/4	.77	.79	.780	.010	1.3
	1 1/2	.90	.93	.915	.015	1.7
	2	1.15	1.19	1.170	.010	0.9
.020"	1/2	.46	.45	.455	.005	1.1
	3/4	.63	.63	.630	0	0.0
	1	.80	.80	.800	0	0.0
	1 1/4	1.00	.99	.995	.005	0.5
	1 1/2	1.16	1.18	1.170	.001	0.1
	2	1.52	1.54	1.530	.010	0.7
.025"	1/2	.55	.63	.590	.040	7.3
	3/4	.80	.84	.820	.020	2.5
	1	1.00	1.03	1.015	.015	1.5
	1 1/4	1.28	1.33	1.305	.025	2.0
	1 1/2	1.50	1.58	1.540	.020	1.7
	2	2.00	2.11	2.055	.055	2.7
	2 1/2	2.24	-	-	-	-
	3	2.80	-	-	-	-
.030"	3/4	1.08	1.10	1.090	.010	1.0
	1	1.43	1.46	1.445	.015	1.0
	1 1/4	1.80	1.77	1.785	.030	2.7
	1 1/2	2.13	2.10	2.115	.015	0.7
	2	2.86	2.78	2.820	.040	1.4
	2 1/2	3.45	-	-	-	-
	3	4.17	-	-	-	-

Minutes: ASBESTOS TEXTILE INSTITUTE
FIBER TESTING COMMITTEE

June 9, 1966

Barbizon Plaza Hotel

New York, N.Y.

9:30 A.M. to 12:00 Noon

Attending:

J. Wronski, Chairman

R. Dodds-Hebron

T. T. Tigert

Raybestos-Manhattan, Inc.

Bell Asbestos Mines, Inc.

Cassiar Asbestos Corp. Ltd.

Subjects Discussed

1. The printing of the new fiber testing manual was completed just about on schedule and copies have been distributed to all companies and groups that had previously placed orders for them. Of the 3113 copies purchased, 423 still remain and are stored in Mr. Sunbury's garage. One hundred of these were ordered by the Institute and are earmarked for sale to parties addressing requests for them to the Institute. The remaining 323 are uncommitted. Of these, 210 resulted from increasing the original order from 2790 to 3000 to take advantage of a price concession. The remaining 113 were the result of a printing over-run and were purchased at a greatly reduced price.
2. Further data on two proposed test procedures -- one for the determination of asbestos fiber frictional properties and the other for determination of silicicle content of textile grade fibers -- were to be presented at this meeting. However, the sponsors of these two procedures were absent and discussion is deferred until the next meeting.
3. The committee sends its regards and hopes for an early recovery for Dewey Childers of H.K. Porter who was hospitalized at the time of this meeting.

Respectfully submitted,

J. P. Wronski

FINAL COST FIGURES
TESTING PROCEDURES FOR CHRYSOTILE ASBESTOS FIBRE
(Second Edition)

July 1, 1966

Incidental Expenses

Editorial, travel, phone, etc. -----	\$ 895.32
Typing copy -----	100.00
Shipping cartons -----	98.25

Total \$1093.57

Total pages

Bound Manuals -----	669600 (95%)
Reprints of Individual Tests -----	37192 (5%)

Total 706792 (100%)

Incidental expenses pro-rated on pages.

Bound Manuals -- \$1093.57 x 95% --	\$1038.89
Reprints ----- \$1093.57 x 5% --	54.68

\$1093.57

Summary of Costs

<u>Item</u>	<u>Bound Manuals</u>	<u>Reprints</u>
Printing	\$4184.40	\$750.00
Incidental costs (Pro-rated)	1038.89	54.68
Freight on surplus copies (est)	31.45	
Total	\$5254.74	\$804.68
Total orders received	2790	5026
Unit cost	\$1.883	\$0.160

H. E. Sunbury
H. E. Sunbury
Exec. Secretary

October 5-7, 1966

Minutes
GENERAL MEETING
Asbestos Textile Institute
October 7, 1966
The Homestead, Hot Springs, Va.



In Attendance:

AMERICAN ASBESTOS TEXTILE CORP.

J.W. Weber
J.L. Rainey
J.W. Christenbury
D.F. Nealy
H.H. Walter
G.F. Fabel
GARLOCK, INC.
E.W. Houghton

JOHNS-MANVILLE CORP.

W.S. Hough
E.A. Schuman
W.C. Atkinson
I. Barnett
N.W. Hendry (Canadian Johns-Manville)

H.K. PORTER COMPANY, INC.

J.A. Gallagher
J.D. McCluer
D.E. Childers

RAYBESTOS-MANHATTAN, INC.

S.R. Zimmerman, Jr.
J.A. Brown, Jr.
B.Q. Scowcroft
J.P. Wronski
L.C. Williams
J.W. Hawkins

UNITED STATES RUBBER COMPANY

S.I. Peele, Jr.
D.T. Austin, Jr.

ASBESTOS CORPORATION LIMITED

W.W. Oughtred
M.P. Carson
G.F.A. Brink
E.L. Alexander

BELL ASBESTOS MINES LIMITED

F.P. Smith
Wm.J.W. Smith
R. Dodds-Hebron

CASCIAN ASBESTOS CORP. LTD.

J.D. Christian
J.G. Berry

LAKE ASBESTOS OF QUEBEC, LTD.

K.W. Nelson

TURNER BROS. ASBESTOS CO. LTD.

W.F. Deckman

TURNER & NEWALL, LIMITED

B. Lincoln

CADWALADER, WICKERSHAM & TAFT

P.Jay Flocken (Legal Counsel)

TALLMAN-MCCLUSKEY FABRICS CO.

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury (Secretary)

--- GUESTS ---

T.J. Smith - American Society for Testing & Materials
H.E. Shearer - FIC Corp. - American Viscose Division

***** Minutes *****

1. President John A. Brown, Jr., called the meeting to order at 9:30 A.M. and asked each person to stand and identify himself and his company affiliation.
2. The minutes of the last meeting were presented for reading. Mr. Peele moved that the reading be omitted. Seconded by Mr. Schuman. So voted.

3. The Financial Report was presented by Mr. E.A. Schuman, Treasurer. Mr. Peele moved that it be accepted, seconded by Mr. Hough, and so voted. The report is attached to these minutes.

4. Mr. T.Jay Flocken, Legal Counsel, discussed the background, statutory construction and means of enforcement pertaining to the Sherman Act, with particular emphasis on the per se offenses which have been established under Section I of the Act.

5. Mr. N.W. Hendry, General Sales Manager, Canadian Johns-Manville Asbestos Limited, Asbestos Fibre Division, presented a most interesting report on behalf of the asbestos fibre producers. The full text of his report is attached to these minutes.

6. Mr. Howard E. Shearer, Industrial Development Coordinator, FMC Corp. American Viscose Division, Marcus Hook, Pa., addressed the meeting. His subject, "Some Fiber Relationships of Interest to the Asbestos Textile Manufacturer", was most informative. Assisted by photomicrographic slides, Mr. Shearer explained the various steps in the manufacture of rayon and distinguishing features of the many descriptions of staple produced by the American Viscose Division. It was indicated that the uniform diameters and lengths of a crimped rayon with a serrated cross section; and its cohesive and processing properties enhanced by the presence of a delustrant and special lubricating finish, make such a staple especially attractive as a carrying fiber for spinning of asbestos. President Brown expressed to Mr. Shearer our appreciation for his fine talk.

7. The committee reports were given by the respective chairmen as listed below. The full text of their reports is attached to these minutes.

Air Hygiene & Manufacturing Committee - W.C. Atkinson, Chm.
Sales Promotion Committee - W.S. Hough, Chairman
Technical Committee - J.D. McCluer, Chairman
Fiber Testing Committee - J.P. Wronski, Chairman

8. President Brown reported with deep regret the death of T.C. McCluskey, President of Tallman-McCluskey Fabrics Company, which occurred on July 18, 1966. Mr. McCluskey was a most loyal supporter of the various activities of the A.T.I., and had served as its treasurer in 1958, and as Vice President in 1961 and 1962. President Brown stated that he had written a letter of sympathy to Mrs. McCluskey on behalf of the Institute, and the letter is made a part of these minutes.

9. Mr. Peele, Chairman of the Nominating Committee, reported that the members of the Board of Governors for the coming year would be:

J.A. Brown, Jr. - Raybestos-Manhattan, Inc.
J.A. Gallagher - H.K. Porter Company, Inc.
E.A. Schuman - Johns-Manville Corporation
S.J. Peele, Jr. - United States Rubber Company
J.L. Mitchell - Tallman-McCluskey Fabrics Company
J.L. Rainey - American Asbestos Textile Corporation
G.P. Wiess - Garlock, Inc.

10. Mr. Peele informed the members that the Board of Governors had met on October 6, 1966, and elected the following officers to serve in the coming year:

President - J.L. Rainey, American Asbestos Textile Corporation
Vice President - E.A. Schuman, Johns-Manville Corporation
Treasurer - N.L.A. Bartucci, Garlock, Inc.

11. President Brown stated that the present chairmen of Air Hygiene & Mfg., Technical, Sales Promotion and Fiber Testing Committees, all of whom have completed only one year of the normal two year service, would be continued for another year without change.

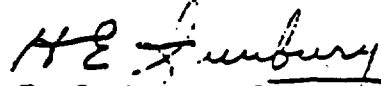
12. President Brown, retiring president, was presented with a handsome ATIOS clock on behalf of the members, by Mr. Peele, in appreciation of his leadership of the Institute during the past two years. President Brown expressed his thanks for the gift with appropriate remarks, and said that it had been a most pleasurable and worthwhile experience to have had the opportunity to serve the Institute as its President. He thanked the members and the Board of Governors for the fine cooperation given him during his tenure of office.

13. President Brown commented on the fact that so many of the members had brought their respective wives to this meeting (about 30) and remarked that the ladies had contributed a great deal to the social success and good fellowship so evident in the two days preceding this General Meeting.

14. President Brown announced that the next regular meeting of the Institute would be held on February 9-10, 1967, at the CHERRY HILL INN, Cherry Hill, N.J. The Cherry Hill Inn is well-known for its new and exceptionally fine accommodations. It is located near Camden, N.J., just across the river from Philadelphia. It is convenient by TAXI to Philadelphia's trains and airports, and also is close to the New Jersey Turnpike for those who drive their cars to the meeting.

15. There being no further business to come before this meeting, it was duly adjourned.

Respectfully submitted,


H.E. Sunbury - Secretary

ASSETUS TO FILL INSTITUTE

Report of Funds

September 9, 1966

Balance on Hand at Last Report, May 9, 1966

General Fund	\$ 7415.41
Savings Fund	10009.96
Petty Cash Fund	<u>78.28</u>

\$26453.65

Receipts

To Savings Fund (Interest)	213.30
To General Fund (1966 Dues)	500.00
To General Fund (Book Sales)	87.52
To General Fund (Assessments Fibre Test Manual)	<u>5768.91</u>

6568.73

Total On Hand and Received

\$ 3019.38

Disbursements

Legal Retainer (six mos ending 8/31)	1005.28
Secretary's Salary (3 mos.)	359.25
F.I.C.A. Tax (2nd Qtr 1966)	31.50
Secretary's travel	194.05
Office rent (3 mos.)	228.00
Exhibit expense	62.60
Fibre Test Manual Expense	5478.43
Handbook expense (3rd Edition)	999.00
Printing & Office Supplies	173.00
Stenographic	27.50
Meeting Expense (June 1966)	770.34
Insurance (3 year renewals)	115.00
Flowers (T.C. McCluskey)	21.65
Telephone (4 mos.)	122.63
Petty Cash (Vouchers 239-256 incl.)	<u>103.10</u>

9651.33

Balance on Hand as of Sept. 9, 1966

\$ 23368.05

Funds

General Fund (Bank Statement of Sept. 9, 1966)	4067.89
Savings Fund	19223.26
Petty Cash Fund	<u>76.90</u>

Total Funds

\$ 23368.05

Assets as of Sept. 9, 1966

General Fund	4067.89
Savings Fund	19223.26
Petty cash on hand	76.90
Accounts Receivable (Book Sales)	96.03
Accounts Receivable (F. Test Man. Assessmt)	251.52 (*)
Postage on Hand	4.50
Furniture & Equipment (Nominal Value)	<u>1.00</u>

Total Assets

\$ 23721.10

Liabilities (None)

Net Worth

\$ 23721.10

Respectfully submitted

H.E. Santary - Asst. Treasurer

(*) Paid 9/15/66

FIBRE COMMITTEE REPORT

The year 1966 has been a difficult one for the asbestos fibre producers in that asbestos fibre shipments were interrupted for a five week period in May and June by a stevedore strike at the St. Lawrence River ports. Secondly, a strike of the Canadian railroad workers occurred in the latter part of August and early September for a ten day period. Inflation is of increasing concern on the Canadian scene with labour assuming more militant tendencies and demanding higher and higher wages. New asbestos mines under development include the Clinton Creek operation of Cassiar which is scheduled for production in 1968. The Asbestos Mill development of Asbestos Corporation in the Ungava region of Quebec is scheduled for production in 1970. These two mining operations will produce additional asbestos cement fibres to supply the growing market in this field where the demand is increasing throughout the world. Countries in the Far East and in South America continue to expand their production of asbestos cement products with the requirement for asbestos fibres. The demand for asbestos fibres in brake linings particularly in the United States continues at a high level and this demand is expected to continue at the same strength providing the automobile industry continues to produce at a record pace. Also, the many miscellaneous uses for asbestos fibre continue in good demand and it is encouraging to note a broader usage of asbestos fibre from year to year.

Production of asbestos fibre in Russia continues to exceed that of Canada although sales outside the borders of that country are limited to Europe, India and Japan at a rate estimated at 175,000 to 200,000 tons per year. Difficult times are being experienced by T. & N. in Southern Rhodesia whereby the asbestos fibre from that country is being embargoed in many countries of the world and we see no early termination to the problems related thereto. The economy of North America continues at a high level and no indication of a slowdown in demand for asbestos fibre is yet apparent although it is expected that the continuation of the tight money policy in the U.S. and Canada will have its effects in the near term. The currency problems of many countries in South America has lessened during the past two years and this has resulted in a higher demand for asbestos fibre in many of the South American countries. The economy of Europe continues at a high level with the exception of the United Kingdom where severe problems indicate difficult times for the year 1967. Certainly, the problems in the United Kingdom will affect the asbestos industry in the near term. The demand for asbestos fibre in the Far East is continuing to grow at a rapid rate with the increasing production of asbestos cement products. It is expected that these markets will continue to grow at a rapid rate providing currency problems can be solved and providing that external forces do not disturb the normal political situations.

Concern has been registered regarding the possibility of asbestos as a health hazard such that it is pertinent to mention that the Quebec Asbestos Mining Association has embarked on a broad medical study which will involve the expenditure of substantial sums of money. Three very competent medical personnel have been retained to conduct basic studies on asbestos fibre from the standpoint of its effect on the health of human beings. Sufficient information is not yet at hand to provide the basis for any publication and it will be some time before such is available.

W.W. HENDRY, General Sales Mgr.

NWH/bh Canadian JOHNS-MANVILLE Asbestos Ltd., P.O. Box 1500
ASBESTOS, Province of Quebec, Canada

MINUTES
AIR HYGIENE AND MANUFACTURING COMMITTEE
OCTOBER 6, 1966
THE HOMESTEAD - HOT SPRINGS, VA.

Attending:

Members:	W.C. Atkinson, Chairman	Johns-Manville Products Corp.
	J.A. Gallagher	H.K. Porter Co., Inc.
	L.C. Williams	Raybestos-Manhattan, Inc.
	H. Walter	American Asbestos Textile Corp.
	K.W. Nelson	American Smelting & Refining Co.
Absent:	R.B. Smith	Raybestos-Manhattan, Inc.
	A.G. Link	United States Rubber Co.
	C.L. Sheckler	Johns-Manville Products Corp.
	T.D. McCluskey	Tallman McCluskey Fabrics Co.

Bausch and Lomb Automatic Dust Counter

Mr. Nelson of American Smelting and Refining Co. gave a demonstration of the Bausch and Lomb 40-2 Automatic Dust Counter. The Committee was impressed with its simplicity of operation and its versatility.

It is portable and can be carried around with ease, and requires no special training to operate. Maintenance is practically nil. By a simple adjustment the range of particle size to be counted can be changed. It also has the advantage that it gives instant and continuous readings which, with the addition of a recorder, makes it possible to set the equipment up at a given station and monitor the atmospheric conditions for extended periods of time.

The present cost of the instrument is \$3,800. plus \$800. for the recorder.

It was suggested, for consideration, that the A.T.I. purchase one which could be rented or loaned to individual member companies.

There was also some discussion on literature received from the Union Industrial Equipment Corp. which described the Unico Cassella Gravimetric Dust Sampler. This instrument still requires manual counting the same as the Greenberg Smith method.

Environmental Health Survey

A letter from Dr. Lewis J. Cralley was read in which he stated that they expect to complete the in-plant phase of their study within a year from this fall.

He also enclosed copies of the following papers they have written on the environmental phase of the asbestos study since its beginning. Additional copies may be obtained by writing direct to:

Lewis J. Cralley, Scientist Director
Occupational Health Research & Training Facility
Bureau of State Services
1014 Broadway
Cincinnati, Ohio 45202

Environmental Health Survey - continued

- 1.) Ayer, et al: A comparison of impinger and membrane filter techniques for evaluating air samples in asbestos plants.
- 2.) Ayer, et al: Relationship of impinger counts to fiber concentrations by membrane filter in asbestos textile plants.
- 3.) Ayer and Lynch: Notes and fibers in the air of asbestos processing plants and hygienic criteria for air-borne asbestos.
- 4.) Cralley, et al: Occupational health study of the asbestos products industry in the United States.
- 5.) Lynch: Asbestos study - Procedures and findings.
- 6.) Lynch and Ayer: Measurement of dust exposures in the asbestos textile industry.

"CHEMICAL WEEK" Article

There was a joint discussion with the Sales Promotion Committee on an article printed in the September 10th issue of "CHEMICAL WEEK" entitled "Asbestos: Awaiting Trial".

A full report on the actions to be taken will be reported in the minutes of the Sales Promotion Committee.

Respectfully submitted,

W.C. Atkinson, Chairman
Air Hygiene & Mfg. Committee

November 9, 1966

Minutes:

SALES PROMOTION COMMITTEE
ASBESTOS TEXTILE INSTITUTE
OCTOBER 6th, 1966
AT HOT SPRINGS, VIRGINIA

The Sales Promotion Committee met on October 6, 1966. All member companies were present except H.K. Porter Co. and Tallman-McCluskey Fabrics, Inc.

As a result of a direct mail campaign to a selected list of colleges and universities with Engineering Departments, we have had some response in the matter of interest in using our A.T.I. Exhibit in their schools.

The display has been sent to Alfred University School of Ceramics at Alfred, New York, assigned for the fall semester until February 1st, 1967. We have tentative assignment of the exhibit for Stevens Institute of Technology, Hoboken, New Jersey, from February 1st, 1967 to June 1st, 1967. We have possible interest from South Dakota School of Mines for some later date.

At an appropriate time in 1967, we will send out a similar, direct mail letter to the remaining portion of the mailing list of universities.

A report was made that a small quantity of Japanese made Asbestos Cloth has been reported sold in the midwest area as low as 46¢ per lb. This situation is being watched carefully.

Final decisions on all copy has been made for publishing the Third Edition of the Asbestos Textile Handbook. We have coordinated in the Handbook all of the ASTM specifications revised and approved by ASTM for our publication.

Contract has been let for publication of 12,500 copies to Confort & Company, New York City, with an approximate six weeks' delivery promised as of October 17th, 1966.

The Sales Promotion Committee agreed to recommend to the Board of Governors sending a copy of the A.T.I. Handbook to all important engineering school libraries.

Discussion took place as to the advisability of expanding our inter-member reporting of business levels of production and sales of individual companies to supplement Caruso reports. No decision was concluded.

A supplementary meeting was held with all interested A.T.I. members concerning recent adverse publicity of asbestos products as written in Chemical Week Magazine. Members of the Asbestos Fibre Committee and the Technical Committee joined with the Sales Promotion Committee in this discussion. Sitting as a Committee Of The Whole, it was felt advisable to register with Chemical Week our concern of their irresponsible article in the September 10th, 1966, issue.

Thru our legal counsel, we plan to register our dissatisfaction both verbally and in written form.

We rejected at this time a plan of trying to obtain a written statement from either Dr. Cralley or from the Industrial Hygiene Foundation which could be used by sales organizations to refute adverse publicity.

(Signed) W.S. Hough

W.S. Hough - Chairman

MINUTES: Asbestos Textile Institute
Technical Committee Report
October 6, 1966

The meeting was held at The Homestead, Hot Springs, Virginia

IN ATTENDANCE: J. W. Hawkins - Raybestos-Manhattan, Inc.
Irvin Barnett - Johns-Manville Corporation
G. E. Houghton - Garlock, Inc.
D. T. Austin - U. S. Rubber Company
Walter M. Deckman - Turner Brothers Asbestos Company
D. F. Quealy - American Asbestos Company
J. D. McCluer - H. K. Porter Company, Inc.
Paul Smith - ASTM
Herbert E. Sunbury - Asbestos Textile Institute

SUBJECTS DISCUSSED:

Revision of ASTM Specifications

In order to give an intelligent report of the meeting on Thursday, October 6th., it is necessary to describe the activities of the committee since the June meeting.

Following the June meeting, the committee reviewed and reported discrepancies in the 1966 ASTM preprint on D315, D1571, and D2100. These were reported to Paul Smith, ASTM.

In the meantime a conflict in use of terms was noted wherein the word "Type" was used in two places to imply different meanings. In D315 and D1571 Types 1 to 5 designate the various kinds of yarn that can be used. In D2100 Types 11, 1V, and VI designate the magnetic rating of various asbestos textiles.

In order to avoid the conflict it was recommended that the word "Class" be used in designating the kinds of yarn used in D315 and D1571 and the word "Type" be retained in D2100. In order to give all members of the committee an opportunity to express confirmation of the change, a letter ballot was mailed by the chairman to each member with the request to vote for or against the change. The response was 100% for the change.

This information was relayed to Paul Smith for proper changes in the ASTM draft and also to Bill Hough and Howard Bain for proper insertion in the new A.T.I. Handbook. This completed the committee's work in assisting Sales Promotion with the A.T.I. Handbook.

Copies of the 4th. Draft of D1918, as set up at the June meeting were distributed to all members and a copy to Dr. Scroggie. Comments and recommended changes on this draft were received from Dr. Scroggie in July. Copies of his comments were sent to all members prior to the August 18th. and 19th. meeting.

Meeting of the Technical Committee August 18th. - 19th., 1966 at ASTM Headquarters, Philadelphia, Pennsylvania

IN ATTENDANCE: Irvin Barnett - Johns-Manville Corporation
W. S. Hough - Johns-Manville Corporation
J. W. Hawkins - Raybestos-Manhattan, Inc.
William Maaskant - American Asbestos Company
G. E. Houghton - Garlock, Inc.
J. D. McCluer - H. K. Porter Company, Inc.
Paul Smith - ASTM
Arthur G. Scroggie - ASTM
Herbert Sunbury - A.T.I.

On Thursday August 18th., the committee set up the 2nd. Draft of D299 yarns. Bill Hough, chairman of the Sales Promotion Committee met with the committee that day and his assistance was greatly appreciated.

On Friday August 19th., Dr. Scroggie met with the committee and with his assistance a better arrangement of the specification was formulated. Time did not permit at this meeting the consideration of the various equations involved.

Following the August meeting several exchanges by correspondence have been made within the committee and with Dr. Scroggie on the equations involved in D1918,

At the present meeting on October 6th., consideration was given to D1918 and so far as the editorial script is concerned, agreement seems to have been reached between the committee and Dr. Scroggie's committee. The equations are yet to be resolved.

Due to the urgency of completing the revision of the specifications, the committee felt that an intermediate meeting should be held. Decision was to have this on Thursday and Friday, December 15th. and 16th., 1966 at ASTM Headquarters, Philadelphia, Pennsylvania.

J. D. McCluer
Chairman of the Technical Committee

Minutes: ASBESTOS TEXTILE INSTITUTE
FIBER TESTING COMMITTEE
October 5-7, 1966
Hot Springs, Virginia

Attending:

J. Wronski
J. Berry
G.F.A. Brink
D.E. Childers
J. Christian
R. Dodds-Hebron
B. Lincoln

Raybestos-Manhattan, Inc.
Cassiar Asbestos Corp. Ltd
Asbestos Corp., Ltd.
H.K. Porter, Inc.
Cassiar Asbestos Corp., Lt
Bell Asbestos Mines, Ltd.
Turner & Newall, Ltd.

Subjects Discussed

1. Mr. Dewey Childers of H.K. Porter discussed the present status of a test procedure he is trying to develop to determine the spicule content of milled textile grade fibers. So far, results have been inconclusive. By the time of the next meeting he hopes to know definitely whether his apparatus will function well enough to do the job he wants.
2. Members of the Fiber Testing Committee representing both fiber producers and consumers plan to attend the next meeting of ASTM Sub Committee A-4 on Asbestos Textiles which meets in New York City the 19th of this month.

One of the items scheduled to be taken up at this meeting is the revision of ASTM test procedure D-1118, which is the procedure for determining the magnetic rating of asbestos.

Since the magnetic rating test presented in our test manual is patterned very closely after the ASTM procedure, the Committee feels we should follow any proposed changes in the ASTM procedure very closely to see if the proposed changes might suggest any modifications to our own procedure.

Results of the ASTM deliberations will be reported to Committee members at the next meeting.

3. The Committee discussed a situation that arose occasionally in which test values for fiber openness or surface area reported by a mine sometimes differed

appreciably from the values found by the fiber purchaser on the same lot of fiber. It was agreed that this problem arose when the miner made his tests on fiber before it was packed in shipping bags and the purchaser made his tests on packed fiber removed from the bag. The effect of packing makes a big difference in fiber openness test values.

This situation emphasized the need for both the miner and the purchaser to condition and prepare the fibers in the same way before any tests are made on them. At present the best procedure we have for this is outlined in the first test in our test manual under Method of Sampling and Preparation.

4. Mr. Gay Brink of Asbestos Corporation briefly reviewed for the Committee the results of the recent meeting of ASTM Committee D-30 on Inorganic and High Modulus Fibers. This is the committee established a few years ago to handle standards and test procedures on fibers and whiskers made of such materials as boron, carbon, aluminum oxide and other materials as well as on asbestos.

Respectfully submitted,

J. Wronski

ASBESTOS TEXTILE INSTITUTE

July 26, 1966

Mrs. T. C. McCluskey
852 North Taylor Avenue
Kirkwood, Missouri 63122

Dear Mrs. McCluskey:

The sad news of your husband's passing was indeed a great shock to all of his friends and long time associates in the Asbestos Textile Institute, and I want to express on their behalf our most sincere sympathy to you in the loss of your beloved husband, and to Marilyn and Theodore D., in the loss of their devoted father.

Your husband served the Institute as its Treasurer in 1958, and as its Vice President in 1961 and 1962. His counsel and advice in its affairs and in problems common to the asbestos textile industry were most highly valued and respected by his associates, and he will be greatly missed.

"Ted" McCluskey, as he was affectionately known to all of us here at the Institute, was a man of splendid character, and those who knew him best are lastingly enriched by their opportunity for close acquaintance with him.

I have instructed the Secretary to make this letter a part of the permanent records of the Institute, also to circulate it to the Board of Governors on which "Ted" served for so many years.

At our next General Meeting, to be held in October, I will inform the members of this official action.

You may be sure that our thoughts and best wishes will go out to you on that occasion.

Most sincerely,

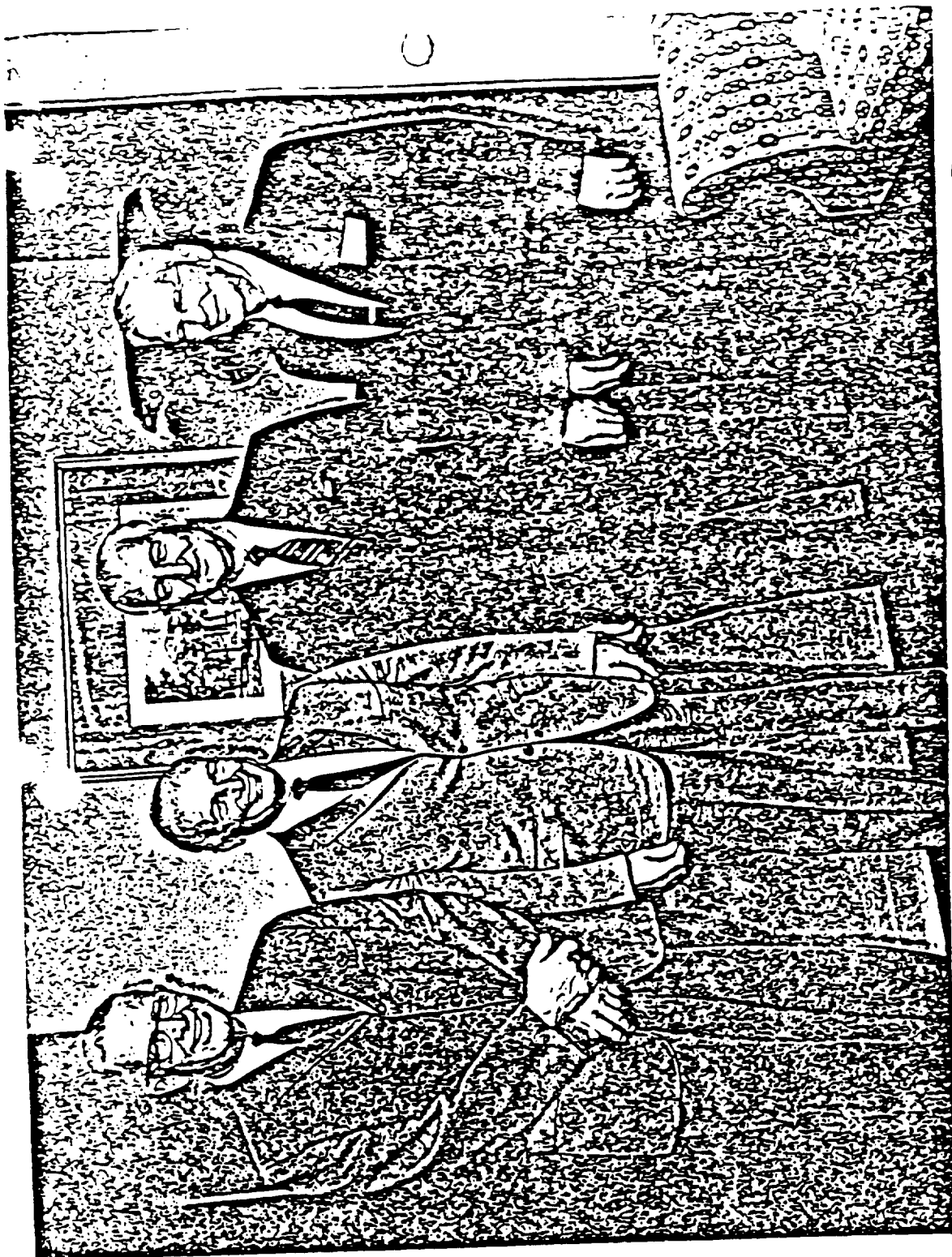
(Signed) John A. Brown, Jr.

JOHN A. BROWN, JR. - PRESIDENT
sag

cc: Mr. Theodore D. McCluskey
Mr. J.L. Mitchell

PLAINTIFF'S
EXHIBIT

7368



Minutes

Board of Governor's Meeting

Asbestos Textile Institute

October 6, 1966

The Homestead, Hot Springs, Va.

In Attendance:

J.A. Brown, Jr. - Raybestos-Manhattan, Inc.
J.L. Rainey - American Asbestos Textile Corporation
W.S. Hough - Johns-Manville Corporation
S.J. Peele, Jr. - United States Rubber Company
J.A. Gallagher - H.K. Porter Company, Inc.
H.T. Schaefer - Garlock, Inc.
E.A. Schuman - Johns-Manville Corporation (Treasurer of ATI)
P.Jay Flocken - Legal Counsel
H.E. Sunbury - Secretary, ATI

***** Minutes *****

1. The meeting was called to order by President Brown who stated that he had received a letter from Mr. G. Parry Wiess, representative of Garlock, Inc., that Mr. H.T. Schaefer had "full authority to act on my behalf and to represent Garlock in the Board of Governor's meeting to be held on October 6, 1966".

Welcomed to the Board was the new representative of H.K. Porter Company, Inc., Mr. J.A. Gallagher.

The only member company not represented was Tallman-McCluskey Fab. Co.

2. The Secretary presented the minutes of the last meeting. Mr. Hough moved the reading of same be omitted, seconded by Mr. Rainey. So voted.

3. The Financial Report was presented by Treasurer E.A. Schuman. President Brown stated that he had received a letter from W.E. Eddy, General Auditor, Johns-Manville Corp., New York City, dated September 22, 1966, in which Mr. Eddy stated that he had examined the financial records of the Institute, and that the Financial Report dated September 9, 1966, represented the financial condition of the Institute. Copy of the auditor's letter is attached to these minutes.

There was considerable discussion of the report in view of the thought expressed at a prior meeting that the strong financial position of the Institute might justify a reduction in members' dues. Mr. Hough urged that a strong financial position be maintained, Mr. Schuman thought that we should consider needs for promotional work, and Mr. Gallagher favored a reserve for that purpose. Mr. Hough remarked that we should know more about where money will be needed in future before any action is taken to reduce income of the Institute. Mr. Peele moved that the Financial Report be accepted, seconded by Mr. Rainey, and so voted.

4. Mr. Peele, Chairman of the Nominating Committee, reported that he had canvassed the member companies to determine who would represent them on the Board of Governors for the coming year, and submitted the following list:

J.A. Brown, Jr. (alternate M.Q. Scowcroft) Raybestos-Manhattan, Inc.
 J.A. Gallagher - H.K. Porter Company, Inc.
 E.A. Schuman - Johns-Manville Corporation
 S.J. Peele, Jr. - United States Rubber Company
 J.L. Mitchell - Tallman-McCluskey Fabrics Company
 G.P. Wiess - Garlock, Inc.
 J.L. Rainey - American Asbestos Textile Corporation

5. Election of Officers. Mr. Peele, as Chairman of the Nominating Committee, appointed at the last meeting, submitted a slate of officers for the coming year:

For President - J.L. Rainey - American Asbestos Textile Corp.

For Vice President - E.A. Schuman - Johns-Manville Corp.

For Treasurer - W.L.A. Martucci - Garlock, Inc.

At the suggestion of Mr. Peele the above slate of officers was accepted by acclamation, and duly elected.

6. Mr. Peele recommended that the Chairmen of our four working committees, namely: W.C. Atkinson - Air Hygiene & Mfg; J.D. McCluer - Technical; J.P. Wronski - Fiber Testing; and W.S. Hough - Sales Promotion; be continued for another year inasmuch as they were completing their first year of the normal two year tenure. Mr. Rainey moved for approval of this recommendation, seconded by Mr. Schuman, and so voted.

7. A.T.I. Handbook - 3rd Edition. On motion made by Mr. Peele and seconded by Mr. Rainey, it was voted to pay Howard T. Bain a fee of \$1000.00 for editing the 3rd Edition of the Handbook. This is the same amount as paid him for editing the 1st and 2nd Editions.

8. On motion made by Mr. Hough, and seconded by Mr. Peele, it was voted to give each Associate Member of the Institute 100 copies of the new Handbook without charge. This compares with the 150 free copies given them of the prior edition.

9. Number of Handbooks to be printed. The presently indicated requirements for the New Handbook are:

H.K. Porter Company	-----	1500
Raybestos-Manhattan, Inc.	-----	2000
Johns-Manville Corp.	-----	2000
American Asbestos Textile Corp.	-----	1500
U.S. Rubber Company	-----	750
Tallman-McCluskey Fab. Co.	-----	100
Garlock, Inc.	-----	(to be advised)
Free copies to Associate Members	-----	900
Purchases by " "	-----	500
A.T.I. stock	-----	<u>2000</u>
Total		11250

On the basis of these estimated requirements, Mr. Peele moved that the printing of the 3rd Edition be limited to 12,500 copies. This motion was seconded by Mr. Rainey. So voted.

10. Pricing of Handbook. After discussion of estimated costs of the new edition as submitted by Mr. Hough, it was moved by Mr. Gallagher that the Handbook be sold at \$1.00 each to Members and Associate Members. Others to pay \$1.50. This is the same basis as used for the last edition. Motion was seconded by Mr. Hough. So voted.

11. Modification of Membership Dues. At the June, 1966 meeting President Brown had requested that the committee to make recommendations for possible modification in membership dues (Messrs. Peele, Chm. and E.A. Schuman) make final report at this meeting. Mr. Peele recommended that same dues be continued for 1967 as he and Mr. Schuman felt that we may be under the necessity to lend more support for creation of an effective rebuttal to the bad publicity such as appeared in Chemical Week Magazine issue of September 10th entitled "Asbestos - Awaiting Trial". Mr. Peele moved that dues be continued without change, and Mr. Hough seconded the motion. There being no dissent, it was so voted.

12. A.T.I. Budget for 1967. The proposed budget for 1967 was presented by Treasurer Schuman. The total is \$10,248.00 compared with \$9,525.40 for the previous year. Expected income is \$10,300.00. Mr. Peele moved that the proposed budget be accepted. This was seconded by Mr. Rainey. Agreement was unanimous. A copy of the Budget is attached to these minutes.

13. The Secretary presented a letter from Mr. Frank G. Ruggles, of the Frank G. Ruggles Co., dealers in asbestos waste, making application for Associate Membership in the A.T.I. Mr. Gallagher moved that the Ruggles application be denied by reason of a technicality (our By-Laws do not provide any classification that would be applicable) however, as Mr. Ruggles is well and favorably known thruout our industry, that he be extended an invitation to attend our meetings as a special courtesy. This motion was seconded by Mr. Hough. So voted. Some discussion ensued as to the desirability of amending our By-Laws to broaden the classes of membership, but no action was taken.

14. Nippon Asbestos Company, Japan. The Secretary stated that in response to an inquiry from A. & R. Simon Co., New York City, for information on membership requirements (on behalf of their principals, Nippon Asbestos Co., Japan) that he had given them a copy of our Constitution & By-Laws plus some general information, and that they had forwarded this to Japan. No further word has been received. Legal counsel was asked to render an opinion if A. & R. Simon Co., as sales agent for Nippon Asbestos Co., would be eligible to attend ATI meetings in the event that Nippon was accepted for an Associate Membership at some future time.

15. President Brown noted with deep regret the death of T.C. McCluskey, President of Tallman-McCluskey Fabrics Company, which occurred on July 18, 1966. Mr. McCluskey was a most loyal supporter of the various activities of the A.T.I., and had served as its Treasurer in 1958, and as Vice President in 1961 and 1962. President Brown stated that he had written a letter of sympathy to Mrs. McCluskey on behalf of the Institute, and the letter is made a part of these minutes.

16. Mr. W.S. Hough moved that the Secretary send a letter to the family of W.E. Clark, who died, following heart surgery, on August 10th. Mr. Clark, during his many years as Vice President & General Manager of U.S. Rubber's Textile Division, was a staunch friend and supporter of A.T.I. So voted.

17. Speaker for February Meeting. President Brown suggested that anyone having a suggestion to offer should contact Mr. Rainey at an early date.

18. Mr. Hough recommended that the Board of Governors should authorize our Legal Counsel to draft a letter protesting the Chemical Week article of September 10th, 1966, entitled "Asbestos-Awaiting Trial", and send same to the editor of Chemical Week; also to the proper official in McGraw-Hill Publishing Company. Further, that Legal Counsel should attempt to set up a meeting with McGraw-Hill and/or Chemical Week at which he, accompanied by three representatives of A.T.I., could register a verbal protest. Mr. Flocken agreed to try to set up a meeting as suggested by Mr. Hough, and also to draft the letter of protest. Final decision will be made as to how effective, or desirable, the proposed meeting with McGraw-Hill would be after Mr. Flocken has made a preliminary contact.

19. Date and location of the next meeting. It was decided to hold the next regular meeting of A.T.I. on February 9-10, 1967, at the Cherry Hill Inn, Cherry Hill, N.J. 08034. This is located near Camden, N.J., and is convenient to Philadelphia. They have agreed to host the A.T.I. on the dates that we desire.

20. There being no further business to come before the Board of Governors, on motion made and duly seconded, the meeting adjourned.

Respectfully submitted,


H.E. Sunbury - Secretary

ASSOCIATED TOWEL INSTITUTE

Report of Funds

September 9, 1966

Balance on Hand at Last Report, May 9, 1966

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Secretary's travel	194.05
Office rent (3 mos.)	225.00
Exhibit expense	62.60
Fibre Test Manual Expense	5403.43
Handbook expense (3rd Edition)	999.00
Printing & Office Supplies	173.00
Stenographic	27.50
Meeting Expense (June 1966)	773.34
Insurance (3 year renewals)	115.00
Flowers (T.C. McCluskey)	21.65
Telephone (4 mos.)	122.63
Petty Cash (Vouchers 239-266 incl.)	<u>103.10</u>

9651.33

Balance on Hand as of Sept.9, 1966

\$ 23368.05

Funds

General Fund (Bank Statement of Sept.9, 1966)	4067.89
Savings Fund	19223.26
Petty Cash Fund	<u>76.90</u>

Total Funds

\$ 23368.05

Assets as of Sept.9, 1966

General Fund	4067.89
Savings Fund	19223.26
Petty cash on hand	76.90
Accounts Receivable (Book Sales)	96.03
Accounts Receivable (F. Test Man. Assessmt)	251.52 (*)
Postage on Hand	4.50
Furniture & Equipment (Nominal Value)	<u>1.00</u>
Total Assets	

\$ 23721.10

Liabilities (None)

Net Worth

\$ 23721.10

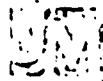
Respectfully submitted

H. E. Surrency - Asst. Treasurer

(*) Paid 9/15/66

JOHNS-MANVILLE

201 E. 4TH ST. NEW YORK 17, N.Y. 10003 • TELEPHONE: (212) 512-1700 • CABLE: JOMAN



September 22, 1966

Mr. John A. Brown, Jr., President
Asbestos Litigation Institute
c/o Raybestos-Manhattan, Incorporated
Machlala, Pennsylvania 17545

Dear Mr. Brown:

The report of funds and balance sheet of Asbestos Litigation Institute as of September 1, 1966 and activity for the fiscal year were examined.

Bank balances as shown on balance sheet were reconciled with bank records.

The attached statement represents the financial position of the Institute as of September 1, 1966.

Very truly yours,

W. E. Eddy
W. E. Eddy
General Auditor

enc.

cc:

E. A. Schuman
Johns-Manville Research Center
Manville, New Jersey

H. E. Gunbury
75 Center Street
Pompton Lakes, New Jersey 07462

ASBESTOS TEXTILE INSTITUTE

Budget for 1967

Item	1966 Budget	Disbursements 12 months ending 9/9/66	Proposed for 1967
Secretary's Salary	\$1149.60	\$ 928.70	\$ 1437.00
" Travel	400.00	432.05	450.00
Office rent	500.00	691.64	900.00
Office Expense	1200.00	1265.42	1200.00
Legal Retainer	2000.00	2000.00	2000.00
Legal Travel or other expense	375.00	75.96	250.00
C.F.A. (Caruso)	300.00	-----	300.00
Meeting Expense (3 meetings)	1750.00	2065.74	2000.00
Exhibit Expense	400.00	331.27	400.00
F.I.C.A. Tax	100.80	274.05	126.00
Fiber Test Manual Expense	-----	5886.70	-----
Handbook, 3rd Edition	500.00	1424.03	600.00
Revision of ASTM Specs.	500.00	219.00	250.00
Fiber Test Manuals (A.T.I. stock)	150.00	208.91	-----
Incidentals (Flowers, etc.)	200.00	47.35	200.00
Insurance (3 year renewals)	-----	250.00	-----
ASTM and I.H.F. dues	-----	35.00	135.00
Totals	\$9525.40	\$16135.82	\$10248.00

Less: Payments received for
Fiber Test Manuals

6020.43 (*)

(*) Includes \$251.52 rec'd. 9/15/66

\$10115.39

Expected Income for Year 1967

Dues, Class "A" Members	-----	5 @ \$1000.00	-- \$5000.00
" " "B" "	-----	2 @ 500.00	-- 1000.00
" " "C" "	-----	4 @ 500.00	-- 2000.00
" " "D" "	-----	5 @ 250.00	-- 1250.00
Book Sales (\$146.21 in last 12 months)	-----	(Est.)	200.00
Interest on Savings Fund	-----	(Est.)	850.00
Total expected income			\$10300.00

Approved by Board of Governors

October 6, 1966

1. The first step in the process of the investigation is the identification of the problem. This involves a thorough review of the available information and a clear definition of the issue at hand.

2. Once the problem is identified, the next step is to gather relevant data. This can be done through various methods, including interviews, surveys, and analysis of existing records.

3. After gathering the data, the investigator must analyze it to identify patterns and trends. This step is crucial in understanding the root cause of the problem.

4. The final step in the process is to develop and implement a solution. This involves creating a plan of action and ensuring that it is effectively carried out.

5. Throughout the entire process, it is important to maintain clear communication and documentation. This ensures that all parties involved are kept informed and that the progress of the investigation is well-recorded.

6. The investigation should be conducted in a fair and unbiased manner, with all evidence being carefully examined and evaluated.

7. The results of the investigation should be presented in a clear and concise manner, highlighting the findings and any recommendations for future action.

8. Finally, it is important to reflect on the process and learn from any mistakes or challenges encountered. This will help to improve the effectiveness of future investigations.

ASBESTOS TEXTILE INSTITUTE

July 26, 1966

Mrs. T. C. McCluskey
852 North Taylor Avenue
Kirkwood, Missouri 63122

Dear Mrs. McCluskey:

The sad news of your husband's passing was indeed a great shock to all of his friends and long time associates in the Asbestos Textile Institute, and I want to express on their behalf our most sincere sympathy to you in the loss of your beloved husband, and to Marilyn and Theodore D., in the loss of their devoted father.

Your husband served the Institute as its Treasurer in 1958, and as its Vice President in 1961 and 1962. His counsel and advice in its affairs and in problems common to the asbestos textile industry were most highly valued and respected by his associates, and he will be greatly missed.

"Ted" McCluskey, as he was affectionately known to all of us here at the Institute, was a man of splendid character, and those who knew him best are lastingly enriched by their opportunity for close acquaintance with him.

I have instructed the Secretary to make this letter a part of the permanent records of the Institute, also to circulate it to the Board of Governors on which "Ted" served for so many years.

At our next General Meeting, to be held in October, I will inform the members of this official action.

You may be sure that our thoughts and best wishes will go out to you on that occasion.

Most sincerely,

(Signed) John A. Brown, Jr.

JOHN A. BROWN, JR. - PRESIDENT
sag

cc: Mr. Theodore D. McCluskey
Mr. J.L. Mitchell



ASBESTOS TEXTILE INSTITUTE

P. O. BOX 239

75 CENTER ST., POMPTON LAKES, N. J. 07442

U. S. A.

Phone: 839-2216

November 19, 1966 AREA CODE 201

Mrs. W.E. Clark
6250 W.E. 19th Avenue
Imperial Point
Fort Lauderdale, Fla. 33306

Dear Mrs. Clark:

At their most recent meeting, the Board of Governors of the Institute voted the following resolution:

Resolved: - " The Board of Governors of the Asbestos Textile Institute, having learned of the death of William E. Clark, hereby instruct the Secretary to convey to Mrs. Clark and other members of his family, their very deep sympathy."

Bill Clark was a most loyal and enthusiastic supporter of the Institute for many years, and the great warmth of his personality, as well as his valued advice and counsel, will be sorely missed by our members.

Most sincerely,

Herbert E. Sunbury
Herbert E. Sunbury
Executive Secretary

A card of appreciation for this letter has been received from Mrs. Clark.

R O S T E R

ASBESTOS TEXTILE INSTITUTE
P. O. Box 239, Pompton Lakes, N. J.

* * * *

AMERICAN ASBESTOS TEXTILE CORP.
Norristown, Pa.

GARLOCK INC.

Palmyra, New York

JOHNS-MANVILLE CORPORATION
New York 16, N. Y.

H. K. PORTER CO. INC.

Charlotte 1, N. C.

RAYBESTOS-MANHATTAN, INC.
Manheim, Pa.

TALLMAN-McCLUSKEY FABRICS CO.
St. Louis 22, Mo.

UNITED STATES RUBBER COMPANY
New York 20, N. Y.

ASBESTOS CORPORATION, LTD.
Thetford Mines, Quebec, Canada

BELL ASBESTOS MINES, LTD.

Thetford Mines, Quebec, Canada

BRITISH BELTING AND ASBESTOS, LTD.
Cleckheaton, Yorkshire, England

THE CAPE ASBESTOS COMPANY, LTD.
London, W. 1, England

CASSIAR ASBESTOS CORP., LTD.
Toronto, Canada

ENGLISH ASBESTOS COMPANY, LTD.
Bristol 4, England

LAKE ASBESTOS OF QUEBEC, LTD.
Black Lake, Quebec, Canada

SOCIETE ANONYME FRANCAISE DU FERODO
Paris, France

TURNER BROTHERS ASBESTOS CO., LTD.
Rochdale, England



ASBESTOS TEXTILE INSTITUTE

—FOUNDED 1911—

GENERAL MEETING

ASBESTOS TEXTILE INSTITUTE

GENERAL MEETING

The HOMESTEAD, Hot Springs, Va.

Meeting Schedule

Wednesday, October 5, 1966

Registration

Social Hour - 6:00 to 7:00 P.M.

Thursday, October 6, 1966

Air Hygiene & Mfg. Committee

9:30 A.M. to 12:00 Noon

Technical Committee

9:30 A.M. to 12:00 Noon

Fiber Testing Committee

9:30 A.M. to 12:00 Noon

Sales Promotion Committee

9:30 A.M. to 12:00 Noon

Board of Governors - 8:30 P.M.

Social Hour - 6:00 to 7:00 P.M.

Friday, October 7, 1966

GENERAL MEETING - 9:30 A.M.

Cocktails - 12:00 Noon

Adjournment

ASBESTOS TEXTILE INSTITUTE

President ----- J.A. Brown, Jr.
Vice President ----- J.L. Rainey
Treasurer ----- E.A. Schuman
Exec. Sec'y ----- H.E. Sunbury
Legal Counsel ----- P.Jay Plocken

BOARD OF GOVERNORS

J.A. Brown, Jr., Chairman
J.L. Rainey, W.S. Rough, J.L. Mitchell
S.J. Peele, Jr., G.P. Wiess

AIR HYGIENE & MFG. COMMITTEE

W.C. Atkinson, Chairman
D.T. Austin, Jr., A.P. Gouyeia, T.D. McCluskey
K.W. Nelson, J.L. Rainey, C.L. Sheckler
R.B. Smith, H.H. Walter, L.C. Williams

TECHNICAL COMMITTEE

J.D. McCluer, Chairman
K.Q. Beyard, J.W. Hawkins, G.E. Houghton
Wm. Maaskant, S.A. Morris, D.F. Quealy

SALES PROMOTION COMMITTEE

W.S. Rough, Chairman
M.Q. Scowcroft, J.A. Brown, Jr., S.J. Peele, Jr.
J.L. Rainey, N.L.A. Martucci, J.L. Mitchell
J.W. Christonbury, E.A. Schuman

FIBER TESTING COMMITTEE

J.P. Wronski, Chairman
I. Barnett, G.F.A. Brink, D.E. Childers
R. Dadds-Hobron, E.A. Farrell, J.W. Hawkins
B. Lincoln, D.F. Quealy, T.T. Tigert

FIBRE COMMITTEE

M.P. Carson, J.D. Christian, P.P. Smith
W.W. Chigbert, Wm. J.W. Smith, N.W. Hendry

June 9, 1967

Minutes
GENERAL MEETING

Asbestos Textile Institute

June 9, 1967

Lucerne Motel, Montreal, Canada

In Attendance:

AMERICAN ASBESTOS TEXTILE CORP.

J.L. Rainey
Wm. Maaskant
D.F. Quealy
J.W. Christenbury
G.S. Fabel

CARLOCK, INC.

G.E. Houghton

JOHNS-MANVILLE CORP.

E.A. Schuman
W.C. Atkinson
I. Barnett
W.C. Streib
C.L. Sheckler

H.K. PORTER COMPANY, INC.

J.A. Gallagher
J.D. McCluer
D.E. Childers

RAYBESTOS-MANHATTAN, INC.

J.A. Brown, Jr.
L.C. Williams
J.T. Wronski
R.B. Smith
J.W. Hawkins

UNIROYAL, INC.

S.J. Feele, Jr.
R.P. Clark
D.T. Austin, Jr.
H.W. Willingham

GUESTS

Norman L. Barr, Atlas Asbestos Co.
J.A. Norton, Atlas Asbestos Co.
T.J. Smith, A.S.T.M.
H.R. Lynch, Davis & Furber Machine Co.
Geo. J. Harris, Harco Chemical, Inc.
J.A. Bettes, Jr., Raybestos-Manhattan, Inc. (Retired)

ASBESTOS CORPORATION LIMITED

H.P. Carson
F.E. Leclerc
G.F.A. Brink

BELL ASBESTOS MINES LIMITED

Wm. J.W. Smith
R. Dodds-Hebron
Walter Smith
G.W. Smith

CANADIAN JOHNS-MANVILLE CO., LTD.

N.W. Hendry

LAKE ASBESTOS OF QUEBEC LTD.

E.A. Farrell
R.P. Gagnon

CASSIAR ASBESTOS CORP., LTD.

J.D. Christian

TURNER BROS. ASBESTOS CO. LTD.

W.F. Deckman

TURNER & NEWALL LTD.

D. Lincoln

TALLMAN-McCLUSKEY FABRICS CO.

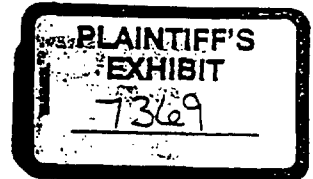
J.L. Pritchell

CADWALADER, WICKERSHAM & TAFT

F. Jay Flocken (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury (Secretary)



***** Minutes *****

1. President Rainey called the meeting to order at 9:45 A.M., and asked each person in attendance to stand and identify himself and his company affiliation. He expressed, on behalf of the members, our deep appreciation for the kind invitation from the "miners" to hold this meeting in Canada, and for their splendid hospitality and superb arrangements for our group visitation to Expo 67 on the previous day. Our sincere thanks are extended to Asbestos Corporation Limited; Bell Asbestos Mines Limited; Cassiar Asbestos Corporation Ltd.; Johns-Manville of Canada; and Lake Asbestos of Quebec, Ltd., for their most generous "hosting" of the reception and luncheon at Expo 67 on June 8th. Particularly appreciated was the fine job done by Mr. Wm. J.W. Smith, chairman of the "Miners" sub-committee, in arranging the many details incidental to transportation of our members to Expo 67, free ticket of admission, and the grand reception and luncheon held in the Quebec Pavilion! It proved to be a most enjoyable and never to be forgotten occasion!

2. The minutes of the last meeting were presented for reading. Mr. J.W. Christenbury moved that reading be omitted; seconded by Mr. W.C. Streib. So voted.

3. The Financial Report was presented by Vice President Schuman due to the absence of Treasurer Martucci. Mr. Atkinson moved it be accepted; seconded by Mr. Peele, and so voted. The report is attached to these minutes.

4. The Fibre Producers Report was given by Mr. J.D. Christian, President of the Cassiar Asbestos Corporation.

Mr. Christian, in commenting on the present situation, said that today's high level of demand is catching up with the supply, and as a consequence some grades are "tight" in respect to certain of the spinning grades. Suggested that it would be advisable for spinners to check with their sources of supply about forward requirements for special grades of spinning fibres.

5. In lieu of a prepared talk, Legal Counsel P.Jay Flocken asked if there were any questions from the floor. This proved to be an interesting innovation - quite a few questions were asked - and Mr. Flocken replied to each at considerable length. The success of this initial trial justifies its repetition by Counsel Flocken at some future meeting.

6. Mr. Harold R. Lynch, Davis & Furber Machine Co., North Andover, Mass., gave a Technical Talk entitled: "Researching a Fresh Approach for the Carding of Asbestos Fibers, and the Promising New Rubber Design for Condensing Asbestos Roving."

Mr. Lynch said that his company had developed a carding machine for synthetic fibers that would produce more pounds per hour than woolen or worsted cards. Now have 275 units in operation on synthetic fiber. Believe they have basic concept of right approach for asbestos fiber, and his company proposes to give it top priority in their development and engineering work. Some details are still to be settled such as type of card clothing, speeds, number of rolls, doffers, etc., Did

encounter difficulty on trial runs of new card using asbestos fiber - experiments are being conducted at both North Andover, Mass., and Charlotte, N.C. Has one report of a very successful spinning test at a southern asbestos plant. His company solicits advice and cooperation of asbestos plants to help bring this carding machine development to the most successful conclusion possible, and for the mutual benefit of all.

The second part of Mr. Lynch's talk was devoted to the Rub Aprons used for condensing the asbestos roving as it comes from the carding machine. The cost of the chrome tanned leather aprons is high - there is a limited supply of suitable bull-hides and these have to be bought at auction in Spain or other parts of the European continent; none are available elsewhere. Each hide has to be individually inspected before purchase. While price for chrome leather aprons is high, there is virtually no profit to Davis & Furber Co. in supplying them due to the high claims for alleged defects, short life, or whatever.

About two years ago Davis & Furber began to look for a satisfactory replacement for leather rub aprons - one that would not glaze too quickly, not be unduly affected by atmospheric changes, and be free from flat spots, glued laps, or hard "back-bone" area. At present it appears that a grooved apron is necessary, and diamond pattern of grooving is best. The number of grooves, and depth of grooves has some relation to the cut number of the roving being produced, at least that is the tentative thinking from experiments to date. There are still some obstacles, for example, pure asbestos roving (no organic content) and also the production of core roving.

Mr. Lynch asked cooperation of the industry in furthering the testing of possible replacements for leather rub aprons, saying that only thru such cooperation could success be attained.

In response to a question from the floor, Mr. Lynch stated that his company had tried to work with DuPont's CORFAM material, but found it unsuitable for rub apron use.

President Rainey thanked Mr. Lynch for his fine talk, and many favorable comments were made about it by various members following the meeting.

7. The Committee Reports were given by the respective chairmen as listed below. The full text of their reports is attached to these minutes:

Air Hygiene & Mfg. Committee - W.C. Atkinson, Chm.
Sales Promotion Committee - E.A. Schuman, Chm.
Technical Committee - J.D. McCluer, Chm.
Fiber Testing Committee - J.P. Wronski, Chm.

8. President Rainey extended congratulations to Mr. W.W. Oughtred, on his recent election as President of Asbestos Corporation Limited. Mr. M.P. Carson offered to convey this to Mr. Oughtred, as he was not present.

9. President Rainey paid tribute to Mr. Geo.W. Smith who retired from the presidency of Bell Asbestos Mines Ltd. last November, and expressed our gratification that he was in attendance at this meeting.

10. President Rainey presented Mr. Staton J. Peele, Jr., with a "Certificate of Appreciation" in the form of a handsome plaque. Mr. Peele, who served the Institute as president in 1963 and 1964, and as chairman of the Sales Promotion Committee for two years prior to that, will not be active in A.T.I. due to a realignment of his duties at UniRoyal, Inc. Mr. Peele responded to the presentation in a most suitable manner, and expressed his deep appreciation for the plaque, and his regret that he could not continue to be active in A.T.I.

11. There being no further business to come before the meeting, it was adjourned for luncheon, to which the wives of members had been invited. This proved to be a most enjoyable affair, enhanced by the thoughtful presentation of a corsage to each lady on behalf of the "Miners", for which the ladies were most appreciative. Following luncheon the meeting was addressed by President Rainey who thanked the "Miners" for their splendid and generous hospitality in entertaining A.T.I. members and their wives at Exno 67 the previous day.

12. Meeting adjourned.

Respectfully submitted,

H.E. Sunbury
H.E. Sunbury, Secretary

() ASBESTOS TEXTILE INSTITUTE ()

Report of Funds

May 8, 1967

Balance on Hand at Last Report, January 10, 1967

General Fund	\$ 447.64	
Savings Fund	19304.74	
Petty Cash Fund	<u>80.37</u>	
		\$ 19832.75

Receipts

To Savings Fund (Interest - 4 mos.)	235.00	(Est.)
To General Fund (Book Sales)	127.80	
To General Fund (Handbook Acct.)	6327.72	
To General Fund (1967 Dues)	<u>8750.00</u>	

Total On Hand and Received

15490.52
\$ 35323.27

Disbursements

Legal Retainer (3 mos ending 2/28/67)	500.00	
Legal Expense (" " ")	25.80	
Secretary's salary (4 mos)	478.00	
F.I.C.A. Tax (1st Qtr. 1967)	31.50	
Secretary's travel	130.20	
Office rent (4 mos.)	300.00	
Exhibit expense	40.24	
Handbook expense (3rd Edition)	7051.98	
Printing & office supplies	112.01	
Stenographic expense	100.00	
Meeting expense (February 1967)	803.99	
Telephone (4 mos.)	155.24	
Petty Cash vouchers (289-309 incl.)	<u>75.44</u>	

9204.40

Balance On Hand as of May 8, 1967

\$ 25518.87

Funds

General Fund (Bank Statement-May 8, 1967)	5924.20	
Savings Fund	19589.74	(*)
Petty Cash Fund	<u>4.93</u>	

Total Funds

\$ 25518.87

Assets as of May 8, 1967

General Fund	\$ 5924.20	
Savings Fund	19589.74	
Petty Cash on Hand	4.93	
Accts. Receivable (Book Sales)	48.31	
" " (Dues for 1967)	500.00	
" " (Handbook Acct.)	3210.01	
Postage on Hand	4.50	
Furniture & Equipment (Nominal Value)	<u>1.00</u>	

Total Assets

\$ 20290.69

Liabilities (None)

Net Worth

\$ 20290.69

(*) Includes \$285.00 interest estimated for period 1/1/67-4/30/67

W F Sweeney Asst. Treasurer

Minutes

ASBESTOS TEXTILE INSTITUTE
Air Hygiene and Manufacturing Committee
June 8, 1967
Lucerne Hotel - Montreal, Canada

Attending

Members:	W.C. Atkinson, Chairman	Johns-Manville Products Corp.
	C.L. Sheckler	" " " "
	L.C. Williams	Raybestos-Manhattan Inc.
	R.B. Smith	" "
	J.A. Gallagher	H.K. Porter Inc.
	H. Willingham	Uni-Royal Inc.
Absent:	H. Walter	American Asbestos Textile Corp.
	T.D. McCluskey	Tallman-McCluskey Fabrics Co.
	L. Garrison	Garlock Inc.
	K.W. Nelson	American Smelting & Refining
	A.C. Link	Uni-Royal Inc.

Bausch & Lomb Automatic Dust Counter

At the previous meeting the Board of Governors was asked to consider the purchase of a 40-2 Automatic Dust Counter for use by the member companies.

The Board of Governors, in turn, asked for some detailed information on which to base a decision.

The Committee reviewed the various advantages of the machine among which were its flexibility of use, simplicity - no training required, reproducibility - the counting is automatic and eliminates the human error. In addition, with the recording attachment it makes it possible to monitor a specific area over an extended period of time.

It was decided that the Committee would control the distribution of the machine and it was understood that all results from its use would be reported to the Committee. Arrangements for the transfer of the machine from one company to the next will be arranged between the two members. It was also decided that there would be no fee charged for its use by member companies.

The Board of Governors approved the purchase and authorized the Chairman to negotiate the purchase.

Asbestos Textile Industry Health Regulations in Great Britain

Mr. C.L. Sheckler read a list of proposed regulations for the manufacture and use of asbestos textiles in England.

The list has been submitted to the industry for review and comment.

In brief, they are proposing the manufacture of asbestos textiles shall be a totally enclosed operation in which the operators will never be exposed to any visible dust. All surfaces, building and machine, shall be polished and resist dust accumulation. All

materials shall be handled and transported in sealed containers. Vacuum cleaners shall not exhaust air into the building.

The Committee found the recommendations impractical and extreme. However, there seems to be no doubt that the British government will attempt to enforce them.

W.C. Atkinson, Chairman

minutes

SALES PROMOTION COMMITTEE MEETING
ASBESTOS TEXTILE INSTITUTE
June 8, 1967
At LUCERNE HOTEL, MONTREAL, CANADA

Attending our meeting were Messrs. J.L. Rainey and J. Christenbury of American Asbestos Textile Corp., J.A. Brown, Jr. of Raybestos Manhattan, Inc., S.J. Peele, Jr. and R.P. Clarke of U.S. Rubber Co., J.L. Mitchell of Tallman McCluskey Fabrics Inc., P.J. Flocken (legal counsel), H.E. Sunbury (secretary) and E.A. Schuman of Johns-Manville.

The four display cabinets are currently on loan to Michigan State University until October, 1967. At present there is no specific place to send them as yet at the termination of their stay at Michigan State. The cabinets need refurbishing and whether money will be spent for this or utilized to better advantage in some other promotional activity has not yet been decided.

It was reported that the asbestos textile volume from Japan seems to be increasing. In addition to asbestos cloth, we now find asbestos tape coming into the U.S. The cloth and tape appear to be acceptable products and sell for around 70¢ lb. There has even been some aluminized asbestos cloth for the safety clothing market come in from Japan. Some of us have even seen an asbestos metal reinforced yarn made by the Japanese using 5 grade fiber.

The 3rd Edition of the Asbestos Textile Handbook has been printed and distributed to all member companies. This handbook is self-supporting and no charges will be applied to the A.T.I. This edition had 12,534 copies printed at a unit cost of 66.3¢ whereas the previous 1961 edition had 15,125 copies printed at a unit cost of 72.8¢. The current edition is, therefore, 9% lower than the 1961 edition despite a smaller number of copies printed and general increases in materials and labor. Mr. W.S. Hough and all others who worked on the handbook should be complimented on putting out a high quality book at such a reasonable cost.

It was proposed that the A.T.I. buy extra copies of the Asbestos magazine and have them sent on a regular basis to prospective asbestos textile customers. Mr. Christenbury of American Asbestos Textile Corp. is to contact the magazine and report to the Sales Promotion Committee at our next meeting.

It was agreed that our Secretary, Mr. Sunbury, from now on will send in a monthly business condition report of the Asbestos Textile industry to the Asbestos magazine.

Mr. Staton Peele, Jr. is being reassigned by his company and will no longer participate in the asbestos textile branch of the business. In appreciation of his guidance and loyalty during the past few years the Board of Governors personally presented Mr. Peele with a yachting wrist watch suitably inscribed from the Board members.

Welcomed to the Sales Promotion Committee was Mr. Richard P. Clark, replacing Mr. Peele, as UniRoyal's representative.

E.A. Schuman, Chairman

MINUTES: Asbestos Textile Institute
Technical Committee Report
June 8, 1967

The meeting was held at Luceerne Motel Annex, Montreal, Canada

ATTENDANCE: William Maaskant - American Asbestos Company
Dan F. Quealy - American Asbestos Company
J.W. Hawkins - Raybestos-Manhattan, Inc.
I. Barnett - Johns-Manville Corporation
G. E. Houghton - Garlock, Inc.
D. T. Austin - Uniroyal, Fiber & Textile Inc.
J. D. McCluer - H. K. Porter Company, Inc.
Walter Deckman - Turner & Newall Limited
Paul Smith - ASTM

SUBJECTS DISCUSSED:

Revision of ASTM Specifications D 299 and D 375

Since the last regular meeting in February, the committee had an intermediate meeting on May 11th. and 12th. at ASTM Headquarter, Philadelphia, Pennsylvania. On the first day of this meeting, Thursday, further revision was made on D 299, Yarn, wherein the discussion was based on comments and recommendations from Dr. Scroggie's Sc-6 Committee, most of which were accepted, and by way of this discussion, the 6th. Draft of D 299 was set up. Dr. Scroggie met with the committee on that day, and it was believed by all members present that this draft was a very acceptable version which would require very little editorial change.

On the second day, Friday, of this meeting, the committee set up the 1st. Draft of D 375, Roving. The reason for selecting Roving next was due to it's similarity to D 299.

Revision of ASTM Specification D 1118

Also, on Friday of this meeting, Paul Nicodemus met with the committee and D 1118, Test for Magnetic Rating, was discussed with Paul Nicodemus leading the discussion. Since this will be a long range project, it was decided to start the project with a "pound robin" test wherein John Hawkins, who is chairman of the Subcommittee, offered to prepare the samples. There were to be two sets of samples, one set for the Mapes Magnetic Analyzer, 10 gram sample, and one set for the T. & N. Magnetic Analyzer, 15 gram samples. Samples were to be prepared and sealed so that the same identical samples could be circulated and tested by all members. Each set of samples were to be prepared from asbestos fibers of the following

MINUTES: TECHNICAL COMMITTEE

approximate magnetic ratings: 0.25, 0.75, 2.0, and 4.0 MR, it being understood that the samples in one set would not necessarily be of the exact MR as those of the other set. These were to be sent to all members of A.T.I. and Subcommittee A-4 who have the ASTM and/or T. & N. instrument(s). Members were to test samples, report to John Hawkins, and send samples on according to a pre-arranged routing. Included in the series of tests were to be testing the set of standards furnished with the T. & N. instrument and testing of a set of standards prepared by the late Dr. Shaw for the ASTM instrument.

In attendance at the May 11th. and 12th. meeting were:

William Maaskant.....	American Asbestos Company.....	May 11th. & 12th.
J. W. Hawkins.....	Raybestos-Manhattan, Inc.....	May 11th. & 12th.
I. Barnett.....	Johns-Manville Research Center.....	May 12th.
Phil Rogers.....	Johns-Manville Research Center.....	May 11th.
G. E. Houghton.....	Garlock, Inc.....	May 11th. & 12th.
Gary Garrison.....	Garlock, Inc.....	May 11th. & 12th.
D. T. Austin	Uniroyal, Fiber & Textile, Inc.....	May 11th. & 12th.
J. D. McCluer.....	H. K. Porter Company, Inc.....	May 11th. & 12th.
H. E. Sunbury.....	Asbestos Textile Institute.....	May 11th. & 12th.
P. Smith.....	ASTM.....	May 11th. & 12th.
Dr. A. G. Scroggie.....	ASTM.....	May 11th.
P. O. Nicodemus.....	General Electric Company.....	May 12th.

Revision of ASTM Specification D 1118

At the committee's present meeting of June 8th., the Fiber Testing and Technical Committees met jointly for a brief time and re-discussed the project on magnetic rating and "round robin" test. The decision reached at this joint meeting was that since the Fiber Testing Committee had already sent out to all members samples for the T. & N. instrument with detailed instructions for the test, that it would be less confusing to follow through on this series of tests before embarking on a new series as planned at the May 12th. meeting of the Technical Committee. Samples were distributed to all member early in the year by the Fiber Testing Committee consisting of asbestos fibers over a range of M. R.s accompanied with instructions for testing the samples. Samples were to be tested by rotating 90°, 180°, and 270° to ascertain effect of sample position. Also the effect of adjacent bodies was to be determined by plating a heavy steel pipe near the T. & N. instrument to see what effect this would have on the reading.

MINUTES: TECHNICAL COMMITTEE

Revision of ASTM Specification D 299 and D 375

Following the May 11th. and 12th. meeting, the 6th. Draft of D 299 and the 1st. Draft of D 375 as set up at that meeting were sent to Dr. Scroggie for comments. Replies on both were received prior to our present meeting. Most of the changes recommended were accepted in D 299 and by reason of the similarity of the two specifications, the recommended changes in D 375 would be equally acceptable. These two will be rewritten as the 7th. Draft of D 299 and the 2nd. Draft of D 375 and after a circulation for possible discrepancies, will be submitted for letter ballot to A-4 prior to their fall meeting.

Questions came up from Dr. Scroggie and Mr. B. Lincoln regarding the following:

- 1) Should separate columns be inserted in the yarn and roving Tables for meters per kilogram and for tex numbers? Paul Smith consulted the latest ASTM ruling and found that conversion factors in foot notes will suffice.
- 2) To use $\pm 10\%$ tolerance for yards per pound on single yarn, on average of five bobbins and withdraw tolerance on individual test. This is in contrast to the current specification of $\pm 8\%$ on the average test and $\pm 15\%$ on the individual test. The committee's decision was to retain the present tolerance.
- 3) The suggestion that a new Note 4 be inserted which refers to D 1244, Recommended Practice for Designating Yarn Construction was not accepted by the committee. Committee's decision was that it applied to cotton and not to asbestos. It would conflict and confuse.
- 4) Are the illustrations "S" and "Z" for twist necessary? The opinion of the committee was that they are necessary and are essential to readers.

The committee set August 17th. and 18th. as the next intermediate meeting of the Technical Committee in Atlanta. Paul Smith is making a meeting room reservation for these dates at the Marriott Motor Hotel.

J. D. McCluer
Chairman of the Technical Committee

Minutes: (FIBER TESTING COMMITTEE)
June 8 - 9, 1967
Lucerne Motel, Montreal Canada

Attending:

G.F.A.Brink
D.E.Childers
J.D.Christian
R.Dodds-Hebron
E.A.Farrell
B.Lincoln
W.Smith
W.C.Streib
J.Wronski

Asbestos Corp., Ltd.
H.K.Porter, Inc.
Cassiar Asbestos Corp., Ltd.
Bell Asbestos Mines, Ltd.
Lake Asbestos of Quebec, Ltd.
Turner & Newall, Ltd.
Bell Asbestos Mines, Ltd.
Johns-Manville Corp.
Raybestos-Manhattan, Inc.

Subjects Discussed

1. The first part of the meeting was held jointly with the Technical Committee members to discuss the Magnetic Rating test. The Technical Committee is currently considering re-writing this test for ASTM (D-1118). The Fiber Testing Committee is also looking into the possibility of re-writing this procedure, which is given in the Test Manual and is essentially the same as the ASTM procedure.

At the last meeting, the Fiber Testing Committee decided to run a number of round robin tests to measure the degree of variation that exists between and within laboratories in tests measuring the magnetite content of fibers. The Technical Committee agreed that it would be best to await the results of these tests before proceeding with further efforts at revising the ASTM procedure.

About half of the participants of the round robin have completed the tests and reported on them. It is anticipated that all tests will be completed by the next meeting and that meaningful data from the tests will be available at that time for a critical evaluation of current methods for measuring magnetite content of fibers.

2. Mr. Christian suggested the need for including statements in the Testing Manual that would caution users on the limitations to be placed on interpreting results obtained from the tests. He proposed to submit formal suggestions at the next meeting.
3. The Encyclopedia of Industrial Chemical Analysis is soon to publish a section in volume six on tests pertaining to asbestos. Raybestos-Manhattan was asked to contribute to this section. It was suggested that any A.T.I. member asked to contribute articles on asbestos testing in this publication in the future might first wish to present their contribution to appropriate committees within the A.T.I. for review. Such a review might produce suggestions that could result in a presentation representative of the views of the asbestos industry.

Respectfully submitted,

J. Wronski

October 6, 1967

Minutes

GENERAL MEETING

Asbestos Textile Institute

October 6, 1967

William Hilton Inn, Hilton Head Island, South Carolina

In attendance:

AMERICAN ASBESTOS TEXTILE CORP.

J.L. Rainey
J.W. Christenbury
Wm. Maaskant
G.S. Fabel
H.H. Walter

GARLOCK, INC.

N.L.A. Martucci

JOHNS-MANVILLE CORP.

E.H. Wells
E.A. Schuman
W.C. Atkinson
C.L. Sheckler
W.C. Streib

H.K. PORTER COMPANY, INC.

J.A. Gallagher
J.D. McCluer
D.E. Childers

RAYBESTOS-MANHATTAN, INC.

W.S. Simpson
S.R. Zimmerman, Jr.
J.A. Brown, Jr.
G.F. Ducker
M.W. Oliver
J.W. Hawkins
M.Q. Scowcroft
R.B. Smith
J.P. Wronski

TALLMAN-MC CLUSKEY FABRICS CO.

J.L. Mitchell

UNIROYAL, INC.

R.P. Clark
D.T. Austin, Jr.
H.M. Willingham
S.J. Peele, Jr.
F.C. Phillips
W.L. Wylie

ASBESTOS CORPORATION LIMITED

M.P. Carson
G.F.A. Brink
P.E. Leclerc

BELL ASBESTOS MINES LIMITED

Wm. J.W. Smith
R. Dodds-Hebron

LAKE ASBESTOS OF QUEBEC LTD.

E.A. Farrell
K.W. Nelson

CADWALADER, WICKERMAN & TAFT

P. Jay Flocken (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury (Secretary)

U.S. Public Health Service

Dr. L.J. Cralley

***** Minutes *****

1. President Rainey called the meeting to order at 9:40 A.M., and asked each person in attendance to stand and identify himself and his company affiliation. He mentioned that it was particularly gratifying to have the following company officials present at this Annual Meeting: Mr. W.S. Simpson, President - Raybestos-Manhattan, Inc.; Mr. S.R. Zimmerman, Jr., Exec. Vice President, Raybestos-Manhattan, Inc.; Mr. E.H. Wells, Vice President & Gen. Mgr., Johns-Manville Corp.; Mr. W.L. Wylie, Vice President & Gen. Mgr., UNIROYAL, INC. Also welcomed to the meeting were: Geo.S. Fabel, President of A.T.I. in 1949-1950; Dr. L.J. Cralley, U.S. Public Health Service; and F.C. Phillips, Marketing Manager of UNIROYAL, INC.

2. The minutes of the last meeting were presented for reading. Mr. J.A. Brown, Jr., moved that reading be omitted; seconded by Mr. N.L.A. Martucci. So voted.

3. The Financial Report was presented by Treasurer Martucci. Mr. E.A. Schuman moved that report be accepted; Mr. J.A. Brown, Jr., seconded the motion, and it was so voted. The Report is attached to these minutes.

4. Mr. P.Jay Flocken, Legal Counsel, discussed some of the legal aspects of voluntary product standards and certification programs. Mr. Flocken first analyzed the antitrust considerations relevant to individual company and trade association participation in the initiation, formulation, and approval of voluntary standards. He stated that standardization or simplification have been attacked in cases alleging price-fixing where such a program was utilized as part of a broader effort to secure uniformity of prices or to limit production and to indirectly reduce price competition.

The legality of a standards program does not depend upon the mere existence of an agreement to standardize but upon an appraisal of the program in the setting of all the circumstances, counsel stated. He briefly reviewed several cases including United States v. National Malleable and Steel Castings Company, The Douglas Fir Plywood Association and Asbestos-Cement Pipe cases.

Counsel also discussed two forms of certification, self-certification by a producer that a product complies with a given standard and third-party certification by a trade association or testing laboratory in conjunction with a registered certification mark under the trademark laws. Counsel discussed various specific certification marks registered under the Lanham Act and the provisions of that act providing for cancelation of a mark if the registrant discriminates or refuses to certify goods or services which meet the standards involved. Counsel noted that two requisites for a valid certification program using a trademark are "control" of use of the mark and availability of the mark to anyone maintaining the standards which the mark certifies, whether or not a member of the certifying organization. In this regard, the Supreme Court's decision in the case of Radiant Burners v. American Gas Association was noted.

5. The Fibre Producers Report was given by Mr. M.P. Carson, Vice President - Sales, Asbestos Corporation Limited. He mentioned that slow economic conditions in several countries had adversely affected total shipments of Canadian asbestos fibres in the first eight months of this year - down 8.8% - however, total sales of spinning fibres were up about 1% in that period. Group 4 fibres for use in asbestos-cement products were off, as were spinning fibre sales in Italy, France and Germany. Japan has made a good recovery. The embargo on Rhodesian fibre continues. However, some Rhodesian is reaching markets thru a third country.

6. President Rainey introduced Dr. Clinton H. Whitehurst, Jr., Head-Dept. of Industrial Management, Clemson University, Clemson, S.C., who gave a most interesting talk entitled: "Operations Research Techniques". We were privileged indeed to have the opportunity to hear Dr. Whitehurst, a well-known authority in the field of

Industrial Management. An abstract of his talk follows:

ABSTRACT

"It is profoundly erroneous truism, repeated by all copy books and by eminent people when they are making speeches, that we should cultivate the habit of thinking of what we are doing. The precise opposite is the case. Civilization advances by extending the number of important operations which we can perform without thinking about them."

The above quotation by Alfred North Whitehead was both an introduction and, in fact, a summary of the address "Operations Research Techniques" delivered by Dr. C.H. Whitehurst of Clemson University before the Asbestos Textile Institute at Hilton Head, South Carolina on October 6, 1967.

In specific terms the address covered in capsule form ten OR techniques that could be utilized in a typical industrial organization. Each technique was illustrated by a simple example designed to show its potential as an aid to management decision making. Included were examples making use of linear programming, Markov processes, econometrics, multiple graphic correlation analysis, input-output models, matrix algebra, industrial dynamics, and a Monte Carlo simulation model. In each case the relevance of the technique to computer programming was emphasized.

The large number of techniques discussed was made possible by distributing handouts to the audience which contained the specific example, relevant technique, and at least one library reference. The handouts together with explanatory illustrations on an easel board was successful in imparting the potential for OR analysis in a firm's operations.

7. Jack Christian, President of Cassiar Asbestos Corporation Ltd., wrote the Secretary prior to this meeting that neither he nor Tom Tiggert would be able to attend due to the fact that their new Clinton mine, at Clinton Creek, B.C., was due to start production and they would be busy there. President Rainey asked Mr. Wm.J.W. Smith, Bell Asbestos Mines Limited, sales representatives for Cassiar, to tell us something about the new mine.

Mr. Smith said the Clinton Mine is 600 to 700 miles north of the present Cassiar mine, close to the border of Alaska. Problem of transporting fibre is somewhat similar to shipments from Cassiar. The type of fibre from the Clinton Mine is generally similar to Cassiar fibre, but there could be some considerable differences. There are both long and short fibres - but Clinton will produce primarily #4 Group fibres, and a secondary grade will be Group 5. Because yield from ore is never precisely known in advance, Mr. Smith stated that perhaps grades may be produced, other than those presently anticipated.

- B. The committee reports were given by the respective chairmen as listed below:

Air Hygiene & Manufacturing Committee - W.C. Atkinson, Chm.
Sales Promotion Committee - E.A. Schuman, Chm.
Technical Committee - J.D. McCluer, Chm.
Fiber Testing Committee - J.P. Wronski, Chm.

The full text of their reports is attached to these minutes.

9. All four of the committee chairmen have now completed the normal two years service, and President Rainey expressed sincere appreciation on behalf of the Board of Governors and Members of the Institute for the faithful and efficient performance of their duties. A review of the minutes for the past two years gives abundant proof of the great amount of work done by each committee under their capable leadership.

10. Mr. J.A. Brown, Jr., Chairman of the nominating committee, reported that the members of the Board of Governors for the coming year would be:

J.A. Brown, Jr. - Raybestos-Manhattan, Inc.
E.A. Schuman, - Johns-Manville Corporation
J.L. Rainey - American Asbestos Textile Corp.
J.A. Gallagher - H.K. Porter Company, Inc.
J.L. Mitchell - Tallman-McCluskey Fabrics Co.
G.P. Wiess - GARLOCK INC.
R.P. Clark - Uniroyal, Inc.

11. Mr. J.A. Brown, Jr., informed the members that the Board of Governors had met on October 5, 1967, and re-elected incumbent officers to serve for another year, namely: President - J.L. Rainey
Vice President - E.A. Schuman
Treasurer - N.L.A. Martucci

12. President Rainey announced that the Board of Governors had appointed new committee chairmen as listed below:

Air Hygiene & Manufacturing - H.H. Walter, American Asb. Tex. Corp.
Sales Promotion - M.Q. Scowcroft, Raybestos-Manhattan, Inc.
Technical - J.W. Hawkins, Raybestos-Manhattan, Inc.
Fiber Testing - G.F.A. Brink, Asbestos Corporation Ltd.

13. President Rainey informed the members that the application of HILADOS Y TEJIDOS DE ASBESTO, S.A., Toluca, Mexico, for Associate Membership in A.T.I. had been approved by the Board of Governors. This fine company is a leading manufacturer of asbestos textiles as well as other asbestos products, in Mexico. We are very pleased to welcome them as a new member of the Institute.

14. The next General Meeting of the Institute will be held at the Hotel Roosevelt, New York City, on February 8th and 9th, 1968. Registration is on February 7th. We anticipate an interesting meeting.

15. There being no further business to come before the meeting, it recessed for luncheon to which wives of members had been invited. There were approximately thirty ladies present, making the luncheon a most enjoyable affair. There was a great deal of favorable comment on the choice of the William Hilton Inn as location for this meeting, and many expressed the hope that we could return for some future meeting. Following luncheon the meeting adjourned.

Respectfully submitted,

H.E. Sunbury
H.E. Sunbury
Secretary

() ASBESTOS TEXTILE INSTITUTE

Report of Funds

September 11, 1967

Balance On Hand at Last Report (May 8, 1967)

General Fund	\$ 5924.20
Savings Fund	19569.74
Petty Cash Fund	<u>4.93</u>

\$25518.87

Receipts

To Savings Fund (Interest)	218.60
To General Fund (Handbook Acct.)	3218.01
To General Fund (Book Sales)	151.47
To General Fund (1967 Dues)	<u>500.00</u>

4088.08

Total On Hand and Received

\$ 29606.95

Disbursements

Legal Retainer (6 mos. ending 8/31/67)	1000.00
Legal expenses (" " " ")	161.64
Secretary's salary (4 mos.)	478.00
F.I.C.A. Tax (2nd Qtr, 1967)	33.00
Secretary's travel	160.00
Office rent (4 mos.)	300.00
Revision of ASTM Specs. (Travel Exp.)	312.14
Printing & Office supplies	193.63
Stenographic expense	20.00
Meeting expense (June 1967)	1018.30
Telephone (4 mos.)	182.63
Handbook Exp. (Copyright)	6.00
Petty Cash (Vouchers 310-327 incl.)	<u>61.23</u>

3925.87

Balance On Hand Sept. 11, 1967

\$ 25680.08

Funds

General Fund (Bank Statement of 9/11/67)	\$ 832.97
Savings Fund (Interest to June 30, 1967)	24808.34 (*)
Petty Cash Fund	<u>38.77</u>

Total Funds

\$ 25680.08

Assets as of Sept. 11, 1967

General Fund	\$ 832.97
Savings Fund	24808.34
Petty Cash Fund	38.77
Accts Receivable (Book Sales)	31.71
Postage on hand	3.49
Furniture & Equipment (Nominal Value)	<u>1.00</u>

Total Assets

\$ 25716.28

Liabilities (None)

Net Worth

\$ 25716.28

(*) \$5000.00 transferred from General to Savings Fund on May 29, 1967.

Respectfully submitted,

H.E. Sunbury
H.E. Sunbury, Asst. Treasurer

Minutes

ASBESTOS TEXTILE INSTITUTE
Air Hygiene and Manufacturing Committee
October 5, 1967
William Hilton Inn
Hilton Head Island, S. C.

Attended:

Members: W.C. Atkinson, Chairman - Johns-Manville Products, Corp.
C.L. Sheckler - " " "
R.E. Smith - Raybestos-Manhattan, Inc.
J.A. Gallagher - H.K. Porter, Inc.
H. Willingham - Uni-Royal, Inc.
H. Walter - American Asbestos Textile Corp.
K.W. Nelson - American Smelting & Refining

Absent: T.D. McCluskey - Tallman McCluskey Fabrics Co.
L. Garrison - Garlock, Inc.
A.C. Link - Uni-Royal, Inc.
L.C. Williams - Raybestos-Manhattan, Inc.

Visitors: Dr. L.J. Cralley - U.S. Dept. of Health, Education & Welfare

Dausch & Lomb Automatic Dust Counter

The Chairman reported that the order for the 40-2 Automatic Dust Counter had been placed including auxiliary equipment. The order was as follows:

1 - #379940-2 Dust Counter	- \$3,985.00
1 - #370106-31 VOM-5 Recorder	- 675.00
1 - Plastic dust cover for VOM-5 Recorder	- 5.50
1 - 37-00-7643 VOM Recorder Carrying Case	- 25.00
10 - Rolls of chart papers recommended by B&L suitable for industrial dust counting in M.P.P.C.F.	
2 - Sets of printed operating instructions	

Delivery was requested to be in person by a B&L representative to W.C. Atkinson at Johns-Manville Products Corp., in Manville, N.J. Delivery is expected some time in December. In the event W.C. Atkinson is not available, Mr. C.L. Sheckler will accept delivery.

Upon delivery Mr. Sheckler will arrange to have his chief technician checked out on the instrument and at the February meeting he will instruct the other members in its use.

Federal Legislation

C.L. Sheckler discussed a bill introduced by N.J. Congressman Edward Patten which would give the U.S. Dept. of Health, Education and Welfare the power to "establish and enforce realistic standards to protect the worker by insuring safer working conditions and the public by producing safer materials". The bill has not yet been passed and there is some question whether it will be passed as written.

Federal Legislation - Continued

A number of newspaper articles regarding claims against one member company were discussed.

Environmental Health Survey

Dr. Lewis J. Cralley discussed a paper on "Exposure to Metal in the Manufacture of Asbestos Textile Products" by L.J. Cralley, R.G. Keenan and J.R. Lynch, which was accepted for publication in the Journal of American Hygiene.

The paper deals with the potential exposures of workers processing asbestos to hazardous materials other than asbestos. Investigation was undertaken to define the nature and extent of exposure to metals such as nickel, chromium, cobalt and magnesium in the manufacture of asbestos textile products.

It was concluded that the relationship between these metal exposures and the increased pulmonary and other cancer observed in asbestos workers should be investigated and, that it is no longer tenable to look only for asbestos fibers or bodies in the biological tissue and by their presence assume a cause and effect relationship with the disease.

It was announced that there will be a meeting in Antigua during the week of Thanksgiving Day, sponsored by the Q.M.A. and by special invitation. The purpose of the meeting is to discuss toxic materials, namely asbestos, and the effects of exposure.

Dr. Cralley discussed plans for obtaining additional information needed to continue the Environmental Health Survey such as health profiles and employment records, and he stated that the cooperation of the members of the industry would be needed.

It was the consensus of the Committee that the program and information is desirable and necessary and recommends to the Board of Governors that the A.T.I. continue to cooperate with the U.S.P.H.S. in continuing the clinical and environmental studies.

Miscellaneous

One company reported that after 14 years of service a set of dust bags made of cotton sateen was still in good condition.

Another company is experimenting with a totally enclosed carding machine to eliminate human exposure to dust.

The possibility of exchange visits among representatives of member companies for the purpose of cooperative advancement in dust control was discussed.

W.C. ATKINSON, Chairman

SALES PROMOTION COMMITTEE MEETING
ASBESTOS TEXTILE INSTITUTE

October 5, 1967

At WILLIAM HILTON INN, HILTON HEAD ISLAND, S.C.

Attending our meeting were Messrs. J.L. Rainey and J.W. Christenbury of American Asbestos Textile Corp., N.L.A. Martucci of Garlock, Inc., J.A. Brown, Jr., H.Q. Scowcroft and S.R. Zimmerman of Raybestos-Manhattan, Inc., J.L. Mitchell of Tallman-McCluskey Fabrics Co., R.P. Clark and S.J. Peele, Jr., of UNIROYAL, INC., P. Jay Flocken (legal counsel), H.E. Sunbury (secretary), and E.A. Schuman of Johns-Manville.

The four display cabinets are currently on exhibit at Stevens Institute at Hoboken, N.J. Mr. Sunbury and myself examined the cabinets and found they were in need of refurbishing. The Committee voted unanimously to retire the cabinets as they are 10 years old and have served the original purpose. It was voted that we offer the cabinets to our Canadian miners.

We had the Edward W. Robotham Co. submit a proposal to the A.T.I. on promoting asbestos textiles by A.T.I. magazine advertising coupled with mailed promotional literature. Preliminary ads were presented and created much interest. The Committee felt that tentatively a segment of the presentation may have merit and should be pursued. The cost for this program would run approximately \$18,000 a year. A tentative meeting was set for November with Mr. Robotham, but this was later postponed and the whole matter taken under further advisement.

It was reported that asbestos textile volume still comes in from Japan and this competition is felt to a small degree throughout the United States. The cloth prices quoted for Japanese material is in the low 70¢ lb. area.

The members of the Committee were not pleased with the U.S. Government's policy of ordering asbestos cloth. It is possible for the successful bidder to be required to supply double the quantity he bid on and to supply this material by specified time periods. On the other hand, there is no assurance that the Government at the end of the contract period will take the balance of the cloth inventory that was kept on hand to satisfy the requirements of the contract. Mr. Flocken, our legal counsel, suggested that we give him full details with specific orders and he would pursue this through his Washington office.

E.A. Schuman
Chairman

EAS/p

MINUTES: Asbestos Textile Institute
Technical Committee Report
October 5, 1967

The meeting was held at William Hilton Inn, Hilton Head Island, South Carolina

IN ATTENDANCE: J. W. Hawkins - Raybestos-Manhattan, Inc.
William Maaskant - American Asbestos Company
D. T. Austin - UniRoyal, Inc.
J. D. McCluer - H. K. Porter Company, Inc.
H. E. Sunbury - Asbestos Textile Institute

The Minutes of the meeting in Atlanta on August 17th. & 18th. at Marriott Motor Hotel are combined with the current meeting.

ATTENDANCE AT ATLANTA MEETING:

J. W. Hawkins - Raybestos-Manhattan, Inc.
D. T. Austin - UniRoyal, Inc.
W. Maaskant - American Asbestos Company
G. E. Houghton - Garlock, Inc.
J. D. McCluer - H. K. Porter Company, Inc.
P. J. Smith - ASTM
H. E. Sunbury - A. T. I.

SUBJECTS DISCUSSED:

Revision of ASTM Specifications D 299, D 375, and D 1061

At the Atlanta meeting D 299 was revised as the 8th. Draft dated August 17, 1967 and D 375 was revised as the 3rd. Draft dated August 17, 1967. These two were consequently sent to Paul Nicodemus (25 copies of each draft) for letter ballot and to Dr. Scroggie (7 copies of each draft) for editorial comments. During the interim a reply from Dr. Scroggie accepted these two drafts as written with very minor changes and he said the two drafts would be acceptable for printing with the changes he suggested. To gain time, a letter ballot was circulated to all members of the committee with the response that Dr. Scroggie suggestions would be acceptable. Without redrafting, these changes were retyped in the margins of the sheets and resent to Paul Nicodemus and Dr. Scroggie. For all practical purposes this finalizes these two specifications.

Also at the Atlanta meeting, D 1061 was revised as the 1st. Draft dated August 18, 1967. This draft was circulated to members only for possible discrepancies.

At the current meeting, the committee confirmed acceptance of all the changes suggested by Dr. Scroggie in D 299 and D 375.

D 1061 was reviewed and no sufficient changes made. Decision was made to send Paul Nicodemus a copy of this draft for his views prior to sending to Dr. Scroggie.

At the Atlanta meeting federal specifications Mil-1-15349c and SS-C-466f were revised in the light of current industry practice, both editorially and in the dimensions and weights tables. Copies of these revisions were circulated to members only for possible discrepancies.

At the current meeting, these two specifications were discussed again with further changes and decision was made to send revised copies to the appropriate government agencies, with a list of suggested changes in addition to the corrected draft. Copies of all ASTM specifications referred to in the drafts are to be enclosed for the benefit of the agencies.

The revised drafts with suggested changes on the two above specifications will be sent to H. E. Sunbury for him to submit to the appropriate government agencies with the statement that these drafts supersede all prior recommendations sent in by individual companies.

In conclusion, the committee, during the past two years, has completed revisions on specifications D 1571 - Cloth, D 315 - Tape, D 2100 - Electrical Insulation, D 1918 - Asbestos Content, D 299 - Yarn, D 375 - Roving, and partially completed revision of D 1061 - Lap. The specifications yet to be revised are: D 628 - Braided Tubing, D 1118 - Magnetic Rating, and D 1573 - Heat Ageing.

J. D. McCluer
Chairman of the Technical Committee

Minutes: FIBER TESTING COMMITTEE
October 5-6, 1967
William Hilton Inn,
Hilton Head Island, S.C.

Attending:

G.F.A. Brink
D.E. Childers
R. Dodds-Hebron
E.A. Farrell
W.C. Streib
J. Wronski

Asbestos Corp., Ltd.
H.K. Porter, Inc.
Bell Asbestos Mines, Ltd.
Lake Asbestos of Quebec, Ltd.
Johns-Manville Corp.
Raybestos-Manhattan, Inc.

Subjects Discussed

1. The Committee discussed the results of the round-robin magnetic rating tests. Ten companies participated in the tests.

Analysis of the test data led to the following tentative conclusions:

- a) Magnetic rating values obtained by either the Mapes Analyzer or the Turner-Newall equipment are not significantly different for fiber samples containing magnetite in the range of 0.3 to 6.0 magnetic rating.
- b) Magnetic rating values obtained on either the Mapes or T-N units are not significantly altered by the presence of metal in the immediate vicinity of the equipment provided the units are properly zeroed prior to test and the units are not moved from their locations after zeroing.
- c) Readings on either the Mapes or T-N units are not significantly changed when the test sample is rotated in the unit.
- d) Mapes or T-N magnetic rating values reported on fiber samples in the 0.3 - 6.0 M.R. range will probably vary by about $\pm 20\%$ between laboratories.

Some of the laboratories want to re-check their values in the round-robin. As soon as this is completed more positive conclusions can be reached.

2. The Committee agreed to request approval from the Board of Governors to allow the QAMA to set up a schedule of charges on requests for working drawings of test equipment described in the Test Manual. These drawings were prepared by the QAMA at appreciable cost in time and money. Their dissemination to applicants also takes time and money. The actual charges agreed upon by QAMA would then be submitted to the Board of Governors for final approval.

Respectfully submitted,

J. Wronski

January - 1968

JAN 1968



Founded 1944

PLAINTIFF'S
EXHIBIT

7395

ASBESTOS
TEXTILE
INSTITUTE
DIRECTORY

DIRECTORY

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ASBESTOS TEXTILE INSTITUTE

JANUARY - 1968

REGULAR MEMBERS

American Asbestos Textile Corporation, Norristown, Pa.
Garlock Inc., Palmyra, N.Y.
Johns-Manville Corporation, New York, N.Y.
H.K. Porter Company, Inc., Thermoid Division, Charlotte, N.C.
Raybestos-Manhattan, Inc., Mannheim, Pa.
Tallman-McCluskey Fabrics Company, St. Louis, Mo.
Uniroyal, Inc., Fiber & Textile Division, New York, N.Y.

ASSOCIATE MEMBERS

Asbestos Corporation Limited, Thetford Mines, Quebec, Canada
Bell Asbestos Mines Limited, Thetford Mines, Quebec, Canada
British Belting & Asbestos Ltd., Cleckheaton, Yorkshire, England
Cassiar Asbestos Corporation Ltd., Toronto, Ontario, Canada
Hilados Y Tejidos De Asbesto, S.A., Toluca, Mexico
Lakes Asbestos of Quebec Ltd., Black Lake, Quebec, Canada
Societe Anonyme Francaise Du Ferodo, Paris, France
Turner Brothers Asbestos Co., Ltd., Rochdale, England

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ASBESTOS TEXTILE INSTITUTE
P.O. Box 239
75 Center St., Pompton Lakes, N.J. 07442
U.S.A.
Phone: 839-2216 (Area Code 201)

DIRECTORY

Page -2-

ASBESTOS TEXTILE INSTITUTE

JANUARY - 1968

OFFICERS

COMPANY AFFILIATION

President ----- J.L. Rainey, American Asbestos Textile Corp.

Vice President - E.A. Schuman, Johns-Manville Corp.

Treasurer ----- N.L.A. Martucci, Garlock Inc.

Exec. Secretary - H.E. Sunbury, Asbestos Textile Institute

.....

BOARD OF GOVERNORS

COMPANY AFFILIATION

J.A. Brown, Jr. ----- Raybestos-Manhattan, Inc., Manheim, Pa.

R.P. Clark ----- Uniroyal, Inc., Fiber & Textile Division,
Winnsboro, S.C.

L.E. Moody ----- H.K. Porter Company, Inc., Thermoid Div.,
Charlotte, N.C.

J.L. Mitchell ----- Tallman-McCluskey Fabrics Company,
St. Louis, Mo.

J.L. Rainey ----- American Asbestos Textile Corporation,
Norristown, Pa.

E.A. Schuman ----- Johns-Manville Corporation, New York, N.Y.

G.P. Wiess ----- Garlock Inc., Palmyra, N.Y.

.....

LEGAL COUNSEL

P.Jay Flocken ----- Cadwalader, Wickersham & Taft,
One Wall Street, New York, N.Y. 10005

.....

ACCOUNTANT

David A. Caruso ----- David A. Caruso, CPA
26 Broadway, New York, N.Y. 10004

ASBESTOS TEXTILE INSTITUTE

JANUARY - 1968

COMMITTEES

Air Hygiene & Mfg.

H.R. Walter, Chairman (1)
K.Q. Beyard
A.C. Link
L.E. Moody
K.W. Nelson
C.L. Sheckler
R.B. Smith
L.C. Williams
H.M. Willingham

Sales Promotion

M.Q. Scowcroft, Chairman(2)
J.A. Brown, Jr.
J.W. Christenbury
R.P. Clark
N.L.A. Martucci
J.L. Mitchell
J.L. Rainey
E.A. Schuman

Technical

J.W. Hawkins, Chairman (3)
D.T. Austin, Jr.
G.E. Houghton
Wm. Maaskant
J.D. McCluer
E.A. Morris
D.F. Quealy

Fiber Testing

G.F.A. Brink, Chairman (4)
I. Barnett
D.E. Childers
R. Dodds-Hebron
E.A. Farrell
J.W. Hawkins
B. Lincoln
W.C. Streib
T.T. Tigert
J.P. Wronski

Fiber Producers (5)

M.P. Carson
J.D. Christian
N.W. Hendry
M.J. Messel
W.W. Oughtred
F.P. Smith
Wm.J.W. Smith

Company Affiliation of Chairmen

- (1) American Asbestos Textile Corporation
- (2) Raybestos-Manhattan, Inc., Manheim, Pa.
- (3) " " " " North Charleston, S.C.
- (4) Asbestos Corporation Limited, Thetford Mines, P.Q., Canada
- (5) Spokesman appointed at each General Meeting

ASBESTOS TEXTILE INSTITUTE

JANUARY - 1968

ADDRESSES - REGULAR MEMBERS

AMERICAN ASBESTOS TEXTILE CORP.	AMERICAN ASBESTOS TEXTILE CORP.
P.O.Box 228, Norristown, Pa. 19404	Plant No.2, P.O.Box 156
Phone: 215-275-4602	Meredith, N.R. 03253
	Phone: 603-279-4552

J.L. Rainey
J.W. Christenbury
Wm. Maaskant
M.J. Scanlan
H.H. Walter
J.W. Weber

D.F. Quealy

.....

GARLOCK INC., Palmyra, New York 14522 - Phone: 315-597-4811

G.E. Houghton; Alex. Kuzmuk; N.L.A. Martucci; G.Parry Wiess

.....

JOHNS-MANVILLE CORPORATION
22 East 40th St.
New York, N.Y. 10016
Phone: LE 2-7600 (A.C.212)

JOHNS-MANVILLE PRODUCTS CORP.
Manville, N.J. 08835
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E.A. Schuman
E.H. Wells

K.Q. Beyard
J.J. McCarthy

JOHNS-MANVILLE CO. of Canada, Ltd.
P.O. Box 1500
ASBESTOS, P.Q., Canada
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JOHNS-MANVILLE RESEARCH &
ENGINEERING CENTER
Manville, N.J. 08835
Phone: 201-722-9000

N.W. Hendry
K.V. Lindell

I. Barnett
P.A. Rogers
C.L. Sheckler
W.C. Streib

.....

H.K. PORTER COMPANY, INC.
Thermoid Div., P.O.Box 10516
Charlotte, N.C. 28201
Phone: 704-372-2880

H.K. PORTER COMPANY, INC.
Thermoid Division
1250 Porter Bldg.
Pittsburgh, Pa. 15219
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D.E. Childers
J.D. McCluer
L.E. Moody

E.M. Hesvig
Geo. Bohrer

ASBESTOS TEXTILE INSTITUTE

JANUARY - 1968

ADDRESSES - REGULAR MEMBERS - continued:

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RAYBESTOS-MANHATTAN, INC.
61 Vilet St., Passaic, N.J.
Phone: 201-473-2000

J.A. Brown, Jr.
R.L. Moore
M.Q. Scowcroft
E.P. Stefl
L.C. Williams
J.P. Wronski
S.R. Zimmerman, Jr.

J.F.D. Rohrbach

RAYBESTOS-MANHATTAN, INC.
Gen. Asb. & Rubber Division
North Charleston, S.C. 29406
Phone: 803-744-6261

G.F. Ducker
J.W. Hawkins
M.W. Oliver
R.B. Smith
Dr. J.L. Goodman

.....

TALLMAN-McCLUSKEY FABRICS COMPANY
236 E. Monroe Avenue, P.O. Box 3796
St. Louis, Mo. 63122
Phone: 314-965-1113

J.L. Mitchell
R.S. Tallman
Juergen Zaha

.....

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Dr. J.H. Wolfsie

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R.P. Clark
G.R. Cuthbertson
E.A. Morris

UNIROYAL, INC., Fiber & Textile Div.
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D.T. Austin, Jr.
A.C. Link
H.M. Willingham

ASBESTOS TEXTILE INSTITUTE

JANUARY - 1968

ADDRESSES - ASSOCIATE MEMBERS

ASBESTOS CORPORATION LIMITED, Thetford Mines, Quebec, Canada
Phone: 418-335-9171

E.L. Alexander; G.F.A. Brink; M.P. Carson; A.W.G. Gibb;
A.S. Johnson, Jr.; P.E. Leclerc; W.W. Oughtred;
A.L. Penhale; A.C. Steele

.....

BELL ASBESTOS MINES LIMITED, P.O.Box 99, Thetford Mines, P.Q.,
Phone: 418-335-5248 Canada

R. Dodds-Hebron; C.H. Schoch; F.P. Smith;
Wm.J.W. Smith; W.H. Smith

.....

BRITISH BELTING & ASBESTOS LIMITED
P.O.Box 12, Cleckheaton, Yorkshire, England

Sir William C. Fenton; Charles M. Fenton

.....

CASSIAR ASBESTOS CORPORATION LIMITED
Suite 1001, 85 Richmond Street West
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J.D. Christian; T.T. Tigert

Dr. R. Kuntze - Ontario Research Foundation, 43 Queen's Park,
Toronto 5, Ontario, Canada

.....

HILADOS Y TEJIDOS DE ASBESTO, S.A.
K.2 Almoloya De Juarez, Toluca, Mexico. Phone: 12-76-43

J.J. Mayer

.....

LAKE ASBESTOS OF QUEBEC LIMITED
Black Lake, Quebec, Canada. Phone: 418-423-4226

R.P. Gagnon
M.J. Messel

K.W. Nelson - American Smelting & Refining Co.,
3422 South 700 West, Salt Lake City, Utah 84119

E.A. Farrell - Lake Asbestos of Quebec Limited,
120 Broadway, New York, N.Y. 10005. Phone: RE 2-3500

DIRECTORY

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ASBESTOS TEXTILE INSTITUTE

JANUARY - 1968

ADDRESSES - ASSOCIATE MEMBERS - continued:

SOCIETE ANONYME FRANCAISE DU FERODO
64, Avenue de la Grande Armee, Paris 17^{eme}, France

Monsieur Tesniere

Societe Anonyme Francaise Du Ferodo
10 Rue Blanqui 93, St. Ouen, (Seine) France

Monsieur F. Casse; Madame Goupil; Monsieur Odier

Societe Anonyme Francaise Du Ferodo
Boite Postal No.20, Conde-Sur-Noireau (Calvados) France

Monsieur Boisson

TURNER BROTHERS ASBESTOS CO., LTD., Rochdale, England

T.R. Earnshaw; D.W. Hills; John Waddell

W.M. Deckman, Mechanicsville, Bucks County, Pa. 18934 U.S.A.
Phone: 215-794-7338

B. Lincoln, Turner & Newall Limited, Asbestos Fibre Laboratory,
c/o Turners Asbestos Cement Co., Ltd.
Trafford Park, Manchester 17, England

.....
OTHER ADDRESSES

Gedwalader, Wickersham & Taft
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P.Jay Flocken (Legal Counsel)

.....
David A. Caruso, CPA
26 Broadway, New York, N.Y. 10004 Phone: WH 4-4554 (Area 212)

David A. Caruso (Accountant for Asbestos Textile Institute)

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ASBESTOS TEXTILE INSTITUTE

PAST OFFICERS

(1)

1945 - 1946	C.H. Carlough	President
	G.W. Marshall, Jr.	Vice President
	W.C. Scott	Treasurer
	H.D. McKinney ..	Manager
1947 - 1948	G.W. Marshall, Jr.	President
	G.S. Fabel	Vice President
	W.C. Scott ..	Treasurer
	H.D. McKinney	Manager
	M.C. Shaw	Sec'y & Asst. Treas. (June 1948)
1949 - 1950	G.S. Fabel	President
	A.R. Byrnes	Vice President
	W.C. Scott	Treasurer
	M.C. Shaw ..	Sec'y & Asst. Treas.
1951 - 1952	R.E. Cryor	President
	G.S. Fabel	Vice President
	D.W. Widmayer	Treasurer
	M.C. Shaw	Sec'y & Asst. Treas.
1953 - 1954	D.W. Widmayer .	President
	F.J. Wakem	Vice President
	A.J. Scanlan	Treasurer
	M.C. Shaw	Sec'y & Asst. Treas.
1955 - 1956	F.J. Wakem	President
	J.F. Corcoran	Vice President (1955)
	J.A. Bettles, Jr.	Vice President (1956)
	J.G. Schoepf	Treasurer
	M.C. Shaw	Sec'y & Asst. Treas.
1957 - 1958	J.A. Bettles, Jr.	President
	J.T. Griffis	Vice President
	J.G. Schoepf	Treasurer (1957)
	T.C. McCluskey	Treasurer (1958)
	M.C. Shaw	Sec'y & Asst. Treas.
1959 - 1960	J.T. Griffis	President
	A.J. Scanlan	Vice President
	W.S. Hough	Treasurer
	M.C. Shaw	Sec'y & Asst. Treasurer
1961 - 1962	W.S. Hough	President
	T.C. McCluskey	Vice President
	A.E. Whitfield	Treasurer
	M.C. Shaw	Exec. Director & Asst. Treas.

(continued)

ASBESTOS TEXTILE INSTITUTE

PAST OFFICERS

(2)

1963 - 1964	S.J. Peole, Jr.	President
	J.W. Weber	Vice President
	J.A. Brown, Jr.	Treasurer
	M.C. Shaw .. (To Aug. 1, 1963)	Exec. Dir. & Asst. Treas.
	H.E. Sunbury	Exec. Sec'y & Asst. Treas. (From July 1, 1963)
1965 - 1966	J.A. Brown, Jr.	President
	J.L. Rainey	Vice President
	E.A. Schuman	Treasurer
	H.E. Sunbury	Exec. Sec'y & Asst. Treas.
1967 - 1968	J.L. Rainey	President
	E.A. Schuman	Vice President
	N.L.A. Martucci	Treasurer
	H.E. Sunbury	Exec. Sec'y & Asst. Treas.

February 8, 1968

Agenda

BOARD OF GOVERNOR'S MEETING

Asbestos Textile Institute

February 8, 1968, 3:00 pm, Hotel Roosevelt, N.Y.C.

Call to Order - John L. Rainey, Chairman

Introductions

Dr. L.J. Cralley - U.S. P. H. S. Environmental Health Program

Minutes of the last meeting

Financial Report - N.L.A. Martucci, Treasurer

Disposition of A.T.I. Exhibit (now in storage)

A.T.I. Dust Counting Equipment:

(a) Equipment was delivered to Johns-Manville, Manville, N.J. on December 4th, 1967.

(b) Insurance coverage is by Inland Marine Policy No. 18CM 102086, expires 12-1-68, in amount \$4725.00, annual premium \$120.00

(c) Responsibility for repairs, if and when needed, schedule of rotation for use of equipment by members, and method of transportation between members, remain to be decided.

"Asbestos Worker's Health Protection Act" - Bill H.R. 12913, was introduced by Congressman Patten of N.J. on Sept. 14, 1967. It has been referred to the Committee on Interstate and Foreign Commerce.

Government Supply Contracts for Asbestos Textile Products -
(Mr. Flocken may have further comment on this subject)

A.T.I. support for J.A. Bettis project: "History of Asbestos Textiles in U.S.A."

Typewriter for A.T.I. office

Speaker for the June 1968 meeting

Approval of locations for future meetings:

June 6-7th, 1968, Regency Hyatt House, Atlanta, Ga. (Firm)

October 3-4th, 1968 - Hotel Hershey, Hershey, Pa. (Firm)

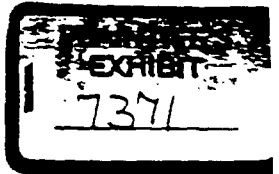
February 6-7, 1969 - Grand Hotel, Point Clear, Ala. (near Mobile)
(Firm)

June 5-6, 1969 - Open - suggestions welcomed.

October 9-10, 1969 - Our 25th Anniversary Meeting, and a location suitable for the proper celebration of that event should be chosen. We have been offered these dates by The Carolina, Pinehurst, N.C. and the Secretary has to advise them if we will accept.

Other business

Adjournment



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Minutes

BOARD OF GOVERNOR'S MEETING - February 8, 1968

Hotel Roosevelt, New York, N. Y.

In attendance:

J. L. Rainey - American Asbestos Textile Corporation
E. A. Schuman - Johns-Manville Corporation
M. Q. Scowcroft - Raybestos-Manhattan, Inc.
J. L. Mitchell - Tallman-McCluskey Fabrics Company
L. E. Moody - H. K. Porter Company, Inc.
Alex. Kuzmuk - Garlock Inc.
R. P. Clark - Uniroyal, Inc.
N. L. A. Martucci - Treasurer A.T.I.
P. Jay Flocken - Legal Counsel
H. E. Sunbury - Secretary A.T.I.

Guests: E.M. Nesvig, V.P. & Gen. Mgr., Thermoid Div., H.K. Porter Co., Inc.
Dr. J. H. Wolfsie, Medical Director, Uniroyal, Inc.
A. C. Link, Uniroyal, Inc.
C. L. Sheckler, Johns-Manville Corp.
M. P. Carson, V.P. - Asbestos Corporation Limited
R. Dodds-Hebron, V.P. - Bell Asbestos Mines Limited
E. A. Farrell, Lake Asbestos of Quebec, Ltd.
Dr. J. L. Goodman, Raybestos-Manhattan, Inc., North Charleston, S.C.
Dr. J. L. Cralley, U.S.P.H. Service, Cincinnati, Ohio
H. H. Walter, American Asbestos Textile Corp.
L. C. Williams, Raybestos-Manhattan, Inc.

***** Minutes *****

1. President Rainey called the meeting to order at 3:00 P.M. Stated that he had received a letter from Mr. G. P. Wiess, Garlock Inc., authorizing Mr. Alex. Kuzmuk to represent that company at this meeting. Also, that he had a letter from Mr. J. A. Brown, Jr., of Raybestos-Manhattan, Inc., authorizing Mr. M. Q. Scowcroft to represent that company at this meeting. Further, that he had been advised by Mr. E. M. Nesvig, V.P. & Gen. Mgr., Thermoid Division, H.K. Porter Co., Inc., that Mr. L. E. Moody would henceforth be that company's representative on the A.T.I. Board of Governors. All of these gentlemen were extended a most cordial welcome.

2. The regular order of business was changed for the convenience of our guests who were invited to hear Dr. L. J. Cralley report on the Environmental Health Study being conducted by the U.S. Public Health Service. Dr. Cralley, Scientist Director, has been a key figure in the Health Study since its inception several years ago.

Dr. Cralley reported on the progress of the Health Study to date, and plans for its continuation. Expects to resume plant studies in June of this year, but no firm schedule has been set up as to order of visiting plants. Mentioned that exposure to trace metals, as well as asbestos, was of interest as they are trying to find out if trace metals such as nickel, cobalt, manganese, etc., are hazardous and to what extent.

In connection with the plant study a "profile" is to be developed on each person, and it is hoped that this can be correlated with the person's health. The past record study of individuals is considered important, even though there is considerable work involved to examine past records. Dr. Cralley suggests they micro-film as a minimum degree of expense to individual companies. Should be ready to start this very soon.

The U.I.C.C. and Asbestosis Research Council will sponsor a Seminar in the summer of 1969, and the tentative location is Cardiff, Wales. The British Occupational Health Association have set up certain standards, by fiber length, for M.P.P.C.F.

Dr. Cralley feels that by good engineering practices the level of dust concentration can be kept at 5 MPPCF as a maximum, and this would mean safety for operators exposed to chrysotile asbestos fibre. For Amosite fibre, however, respirators should be used.

Cliff Sheckler, of Johns-Manville Corporation commented that, while important progress has been made in dust control, it could well be that changes in manufacturing operations will need to be made in future, as removal of dust by air suction may not be sufficient. Johns-Manville is trying to find an answer to the problem of better dust control. He believes also that the asbestos industry must be prepared to answer their customer's questions as to what hazards, if any, exist in handling and using products containing asbestos fibre. Mr. Sheckler said that in his opinion we don't know the dose level as yet, that constitutes a hazard of exposure.

A long discussion period followed the report by Dr. Cralley. President Rainey thanked Dr. Cralley for his attendance at this meeting. Our guests left the meeting at this point, and routine matters on the Agenda were taken up.

3. The minutes of the last meeting were presented for reading. On motion made by E.A.Schuman, seconded by L.E. Moody, it was voted to omit the reading of the minutes.

4. In the absence of Treasurer Martucci (who had to leave early) the Secretary presented the Financial Report for the period of four months ending January 9, 1968. On motion by E. A. Schuman, seconded by J.L. Mitchell, it was voted unanimously to accept the report. It is made a part of these minutes.

5. The Secretary reported that the Bausch & Lomb Dust Counting Equipment, purchase of which was approved by the Board of Governors at their meeting in June, 1967, had been received. Total cost was \$4814.00. The equipment was delivered to Johns-Manville plant at Manville, N.J. on December 4th, 1967, and has been used by that company to a limited extent since that time. The equipment was brought to the Air Hygiene & Mfg. Committee meeting on Dec. 8th, and demonstrated. It was turned over to Raybestos-Manhattan, Inc., at Manheim, Pa., for a tour of use at that location.

The Secretary reported that he had covered the equipment with insurance, in the amount of \$4785.00, by Inland Marine Policy No. 18CM 102086, expiring 12-1-68. Annual premium is \$120.00.

6. President Rainey reported that The A.T.I. Exhibit, now in storage, was to be retired on recommendation of the Sales Promotion Committee. That it had been offered to the Q.A.M. Association, but they were not interested in it. That member companies had been asked to suggest what disposition should be made of the exhibit, and the only suggestion to date was from Raybestos-Manhattan, Inc. A letter from Mr. J.A. Brown, Jr., of that company, offered to store the exhibit without charge, with the intent to use it in the lobby of their new office building in Manheim, Pa., when same was completed. Mr. Brown stated in his letter, that should the A.T.I. want the exhibit back at some future time that it could be returned to the Institute.

Mr. J.L. Mitchell moved that the Raybestos-Manhattan offer be accepted. Mr. R.P. Clark seconded this motion. So voted, unanimously. The Secretary was instructed to arrange for immediate shipment of the exhibit to Raybestos-Manhattan, Inc. at Manheim, Pa.

7. The Secretary reported that the Fiber Testing Committee had recommended that custody of the Standard Magnetite samples, turned over to Mr. P.O. Nicodemus of General Electric Co., Lowell, Mass., by Dr. Shaw, should revert to the Secretary of the A.T.I. as Mr. Nicodemus wished to be relieved of that responsibility. On motion made by Mr. J.L. Mitchell, seconded by Mr. R.P. Clark, it was voted unanimously that the Secretary should be responsible for the Standard Magnetite samples.

8. The Secretary asked the Board to approve purchase of a typewriter, stating that the Institute had never owned a typewriter so far as he could determine, as Dr. Shaw, his predecessor, used his personal typewriter, and the Secretary has been using his own typewriter since taking over from Dr. Shaw in July of 1963.

Mr. J.L. Mitchell moved that the Secretary be authorized to purchase a new typewriter at a cost not to exceed \$300.00. This motion was seconded by Mr. E.A. Schuman. So voted, unanimously.

9. The Secretary informed the Board that Mr. J.A. Bettes, Jr., (retired) a former president of A.T.I., had undertaken to write a "History of Asbestos Textiles in U.S.A.", that it was a very worthwhile project in his opinion, and asked the Board what, if any, support should be given this project of A.T.I.

There was general agreement that it was an admirable project, but inasmuch as Mr. Bettes had not asked for any support from A.T.I., that it would suffice for the Secretary to inform Mr. Bettes that the Board had been informed of his project, thought it an admirable one, and commended him for undertaking it.

10. In regard to a speaker for the June meeting, scheduled to be held June 6-7th, 1968 at the Regency Hyatt House, Atlanta, Ga.

Mr. M.Q. Scowcroft, of Raybestos-Manhattan, Inc., on learning that it was time, once again, for his company to accept responsibility for providing a speaker, offered to try and get one. Asked whether it was necessary to have a technical paper, and was assured that any appropriate subject would be acceptable.

11. Approval of location for future A.T.I. meetings:

The Secretary reported that he had received confirmed reservations for previously approved locations, namely: June 6-7, 1968 at the Regency Hyatt House in Atlanta, Ga.; and October 3-4, 1968 at the Hotel Hershey, Hershey, Penna.

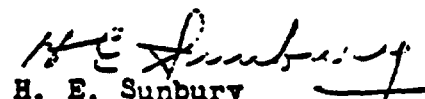
He asked for approval of February 6-7, 1969, at the Grand Hotel in Point Clear, Ala., saying that it had been very highly recommended by Mr. K.W. Nelson (Lake Asbestos of Quebec Ltd) who had attended a meeting there a year or so earlier. A brochure was passed around. Mr. L.E. Moody moved that the Grand Hotel be approved. Mr. Scowcroft seconded the motion. So voted unanimously.

The Secretary then asked for approval of The Carolina, Pinehurst, N.C., as a location for our A.T.I. meeting to be held October 9-10, 1969, stating that this would be the 25th Anniversary meeting of the Institute, and a suitable location should be chosen. There was favorable reaction to the suggestion that we return to the Carolina Hotel at Pinehurst, N.C. (we held our meeting there in Feb. 1965), and Mr. Kuzmuk moved that the Secretary accept The Carolina's offer to host our October 1969 meeting. Mr. R.P. Clark seconded this motion. So voted, unanimously.

Still open for suggestions is a location for our A.T.I. meeting to be held June 5-6, 1969.

12. There being no further business to come before this meeting, on motion duly made and seconded, it was voted to adjourn.

Respectfully submitted,


H. E. Sunbury
Secretary

()
ASBESTOS TEXTILE INSTITUTE -)

Report of Funds

January 9, 1968

Balance on Hand at Last Report (September 11, 1967)

General Fund	\$ 832.97
Savings Fund	24808.34
Petty Cash Fund	38.77

\$ 25680.08

Receipts

To Savings Fund (Interest)	573.32
To General Fund (Book Sales)	76.70

650.02

Total On Hand and Received

\$ 26330.10

Disbursements

Legal Retainer (3 mos ending 11/30/67)	500.00
Legal Expense (3 " " " " ")	270.98
Secretary's salary (4 mos)	478.00
F.I.C.A. Tax (3rd Qtr 1967)	33.00
Secretary's travel	250.00
Office rent (4 mos)	300.00
Revision of ASTM Specs.(Travel exp.)	69.25
Printing & Office Supplies	34.45
Stenographic (Labor)	22.00
Meeting expense (October 4-6,1967)	793.11
Telephone (4 mos)	135.28
Exhibit expense	129.20
Accountant (Caruso-Year ending 9/67)	300.00
Dues (I.H.F. and ASTM)	135.00
Dust Counting Equipment(Bausch & Lomb)	4814.00
Petty Cash (Vouchers 328-347 incl.)	78.92

Total Disbursements

\$ 8343.19

Balance On Hand January 9, 1968

17986.91

Funds

General Fund (Bank Statement of 1/9/68)	\$ 498.17	
Savings Fund (Interest to 12/31/67)	17467.66	(*)
Petty Cash Fund	21.08	

\$ 17986.91

Assets as of Jan. 9, 1933

Total Funds

\$ 17986.91

General Fund	\$ 498.17
Savings Fund	17467.66
Petty Cash on Hand	21.08
Accts Receivable (Book Sales)	65.09
Accts Receivable (Dues for-1968)	9000.00
Postage on hand	10.33
Furniture & Equipment (Nominal Value)	1.00

\$ 27063.33

Liabilities (None)

Total Assets

\$ 27063.33

Net Worth

\$ 27063.33

(*) Amounts transferred from Savings to General Fund were -
\$2500.00 on 10/2/67; \$600.00 on 12/14/67; \$4814.00 on 1/8/68.

Respectfully submitted,

H. E. Sunbury
H. E. Sunbury
Asst. Treasurer

ROSTER

ASBESTOS TEXTILE INSTITUTE
P. O. Box 239, Pompton Lakes, N. J. 07442

* * * * *
AMERICAN ASBESTOS TEXTILE CORP.
Norristown, Pa.

GARLOCK INC.
Palmyra, New York

JOHNS-MANVILLE CORPORATION
New York, N. Y.

H. K. PORTER CO. INC.
Charlotte, N. C.

RAYBESTOS-MANHATTAN, INC.
Manheim, Pa.

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UNIROYAL, INC.
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SOCIETE ANONYME FRANCAISE DU FERODO
Paris, Franco

TURNER BROTHERS ASBESTOS CO., LTD.
Rochdale, England



ASBESTOS TEXTILE INSTITUTE

—FOUNDED 1944—

GENERAL MEETING

ASBESTOS TEXTILE INSTITUTE

President ----- J.L. Rainey
Vice President ---- E.A. Schuman
Treasurer ----- M.L.A. Martucci
Exec. Sec'y ----- H.E. Sunbury
Legal Counsel ----- P.Jay Flocken

BOARD OF GOVERNORS

J.L. Rainey, Chairman
J.A. Brown, Jr., R.P. Clark, L.E. Moody
J.L. Mitchell, E.A. Schuman, G.P. Wiess

AIR HYGIENE & MFG. COMMITTEE

H.H. Walter, Chairman
A.C. Link, L.E. Moody, K.W. Nelson
C.L. Sheckler, R.B. Smith, L.C. Williams
H.M. Willingham

TECHNICAL COMMITTEE

J.W. Hawkins, Chairman
D.T. Austin, Jr., G.E. Houghton, J.D. McCluer
Wm. Maaskant, E.A. Morris, D.F. Quealy

SALES PROMOTION COMMITTEE

M.Q. Scowcroft, Chairman
J.A. Brown, Jr., J.W. Christenbury, R.P. Clark
N.L.A. Martucci, J.L. Mitchell, J.L. Rainey
E.A. Schuman

FIBER TESTING COMMITTEE

G.P.A. Brink, Chairman
I. Barnett, D.E. Childers, R. Dodds-Hebron
E.A. Farrell, J.W. Hawkins, B. Lincoln
W.C. Streib, T.T. Tigert, J.P. Wronski

FIBRE COMMITTEE

M.P. Carson, J.D. Christian, N.W. Hendry
M.J. Messel, W.W. Oughtred, P.P. Smith
Wm. J.W. Smith

ASBESTOS TEXTILE INSTITUTE

February 1968 Meeting

Place: The Hotel Roosevelt,
Madison Avenue, New York, N.Y.

Wednesday, February 7, 1968

Registration

Technical Committee meeting - 1:00 pm (*)

Social Hour - 6:00 pm (Rooms E & F)

Thursday, February 8, 1968

Committee meetings - 9:00 am to 5:00 pm (*)

Board of Governors meeting - 3:00 pm (*)

Social Hour - 6:00 pm (Madison Room)

Friday, February 9, 1968

GENERAL MEETING - 9:30 am (Madison Room)

Reception & Luncheon - 12:00 noon
(Vanderbilt, Rooms 3-4-5)

Adjournment

(*) Location of meetings to be posted.

Note: Ladies are invited to Social Hours,
also the Reception & Luncheon on Friday.

About the Speaker:- Mr. Paul O. Nicodemus is Senior Insulation Application Chemist, General Electric Co. Wire & Cable Dept., Lowell, Mass. He holds a B.S. degree from Penn. State, and an M.S. degree from the University of Pennsylvania.

After five years as chemist for a consulting laboratory, he joined the General Electric Company as a chemist, and has been with their Wire & Cable Dept. for 26 years.

One of his responsibilities has been applications development of asbestos wire insulation. This includes both the asbestos products involved and the treating compounds for these products. He has two patents in this field; one for a modified silicone used as a saturant and finish for asbestos insulations; the other for an asbestos tape insulated magnet wire and method of preparation of the tape (Saturating and finishing compounds).

Mr. Nicodemus is G.E.'s representative to ASTM Committee D-13, and Chairman of its Sub-committee A-4, which has responsibility for asbestos textiles. He is also ASTM's Committee D-13's representative to USASI, Committee C-59 on Insulating Materials. He is author of a paper entitled: "Significance of Iron in Asbestos Textile Insulation" that appeared in the ASTM Journal several years ago.

"Nic", as he is known to his many friends in the asbestos textile industry, is married, has two children, and resides at 14 Clear Street, Chelmsford, Mass.

ASBESTOS TEXTILE INSTITUTE

GENERAL MEETING

February 9, 1968

Agenda

Call to Order - 9:30 am - J.L. Rainey, Pres.

Introductions

Minutes of the last meeting

Financial Report - N.L.A. Martucci, Treas.

Legal Counsel Report - P.Jay Flocken

Fibre Producers Report - N.W. Hendry (*)

Talk:- "Asbestos Textile Electrical Insulations - Properties, Present and Future Importance", by Mr. P.O. Nicodemus, General Electric Company.

Committee Reports

Air Hygiene & Mfg.- H.H. Walter, Chairman
Sales Promotion - M.Q. Scowcroft, Chairman
Technical - J.W. Hawkins, Chairman
Fiber Testing - G.F.A. Brink, Chairman

Other business

Reception - 12:00 noon, Luncheon - 12:30 pm
(Vanderbilt, Rooms 3-4-5)
Adjournment

(*) V.P. and General Sales Manager,
Canadian JOHNS-MANVILLE Asbestos, Ltd.,
Asbestos, P.Q., Canada

R O S T E R

ASBESTOS TEXTILE INSTITUTE
P. O. Box 239, Pompton Lakes, N. J. 07442

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J.A. Brown, Jr., J.W. Christenbury, R.P. Clark
N.L.A. Martucci, J.L. Mitchell, J.L. Rainey
E.A. Schuman

FIBER TESTING COMMITTEE

G.F.A. Brink, Chairman
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Adjournment

(*) Location of meetings to be posted.

Note: Ladies are invited to Social Hours,
also the Reception & Luncheon on Friday.

February 9, 1968

Minutes

GENERAL MEETING -- February 9, 1968

Asbestos Textile Institute -- Hotel Roosevelt, New York, N. Y.

In attendance:

AMERICAN ASBESTOS TEXTILE CORP.

J.L. Rainey
J.W. Christenbury
H.R. Walter
D.F. Quealy
Wm. Maaskant

GARLOCK INC.

N.L.A. Martucci
G.E. Houghton
Alex. Kuzmak

JOHNS-MANVILLE CORP.

E.H. Wells
E.A. Schuman
W.C. Streib
C.L. Sheckler
R. Hindmarch
P.A. Rogers
N.W. Hendry (Can. Johns-Manville)
W.S. Hough (Retired)

H.K. PORTER COMPANY, INC.

E.H. Nesvig
Geo. Bohrer
L.E. Moody
J.D. McCluer
D.E. Childers
J.W. Echerd
G.J. Harris

RAYBESTOS-MANHATTAN, INC.

M.Q. Scowcroft
J.P. Wronski
L.C. Williams
J.W. Hawkins
J.A. Bettes, Jr. (Retired)
Dr. J.L. Goodman

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury, (Secretary)

A.S.T.M.

P.J. Smith

LUNCHEON GUESTS - Feb. 9th

David A. Caruso, C.P.A.
Mrs. T.T. Tigert
Mrs. N.L.A. Martucci

TALLMAN-McCLUSKEY FABRICS CO.

J.L. Mitchell

UNIROYAL, INC.

R.P. Clark
A.C. Link
D.T. Austin, Jr.
E.A. Morris
W.C. Hitchcock
Dr. J.H. Wolfsie
R. Roderic

ASBESTOS CORPORATION LIMITED

M.P. Carson
G.F.A. Brink
P.E. Leclerc

BELL ASBESTOS MINES LIMITED

Wm. J.W. Smith
R. Dodds-Hebron
C.H. Schoch
W.H. Smith

CASSIAR ASBESTOS CORPORATION, Ltd.

T.T. Tigert

LAKE ASBESTOS of QUEBEC, LTD.

E.A. Farrell

TURNER & NEWALL, Ltd.

B. Lincoln

CADWALADER, WICKERSHAM & TAFT

P. Jay Flocken (Legal Counsel)

GENERAL ELECTRIC COMPANY

P.O. Nicodemus (Guest speaker)

U.S. PUBLIC HEALTH SERVICE

Dr. L.J. Cralley

TURNER BROS. ASBESTOS CO. LTD.

W.M. Deckman
D.F. Roberts

1. President Rainey called the meeting to order at 9:40 A.M. and asked each person to stand and identify himself and his company affiliation. He expressed appreciation that so many company officials were in attendance. Special mention was made of the fact that two former presidents of A.T.I. were present, namely: Messrs. J.A. Bettes, Jr., and W.S. Hough. We were pleased also to have Mr. B. Lincoln, of Turner & Newall, Ltd., Manchester, England; and Dr. L.J. Cralley, of U.S.P.H.S., in attendance.
2. The minutes of the last meeting were presented for reading. It was moved by Mr. J.W. Christenbury that reading be omitted. His motion was seconded by Mr. M.Q.Scowcroft. So voted.
3. The Financial Report was presented by Mr.E.A. Schuman. It was moved by Mr.D.F. Quealy that the report be accepted. Mr. G.E. Houghton seconded the motion, and it was so voted. The report is attached to these minutes.
4. Mr. P.Jay Flocken, Legal Counsel, reported on some recent litigation under the Sherman Anti-trust Act. A brief summary of his remarks follows: Counsel reviewed a series of recent Advisory Opinions issued by the Federal Trade Commission, which differentiate between appropriate and inappropriate subjects for industry codes of behavior or trade association standards programs. He emphasized that both the antitrust agencies and the courts have been primarily concerned with the enforcement mechanisms utilized by businessmen to secure compliance with such codes or programs. In this connection, counsel also briefly reviewed industry or trade association price and profit reporting programs, standardization activities, and enforcement techniques involved in certain court decisions which have established the basic principles of permissible conduct. Counsel stated that the current attitude of the Department of Justice, as reflected by recent statements of the Assistant Attorney General, is doubtful of the good faith and the rationale of self-regulation by business and that the FTC's Advisory Opinions in this field have been very conservative and allow little room for variation from earlier restrictive decisions by the agencies or the courts.
5. The Fibre Producers Report was given by Mr. N.W. Hendry, V.P. & General Sales Manager, Canadian Johns-Manville Asbestos Limited. A summary of Mr. Hendry's fine report is attached to these minutes.
6. President Rainey introduced Mr. Paul O. Nicodemus, Senior Insulation Application Chemist, General Electric Co., Wire & Cable Dept., Lowell, Mass. Mr. Nicodemus presented an extremely interesting and most comprehensive paper entitled: "Asbestos Textile Electrical Insulations - Properties, Present and Future Importance." At conclusion of his talk Mr. Nicodemus was given a fine round of applause for his very excellent paper. Copies of his paper were distributed to those present. The Secretary has some extra copies and will honor requests for same on a first come first served basis, so long as the supply lasts. President Rainey expressed appreciation, on behalf of the members, to Mr. Nicodemus for his very fine paper.

7. The committee reports were given by the respective committee chairmen as listed below:

Air Hygiene & Mfg. Committee - H.H. Walter, Chm.
Sales Promotion Committee - M.Q. Scowcroft, Chm.
Technical Committee - J.W. Hawkins, Chm.
Fiber Testing Committee - G.F.A. Brink, Chm.

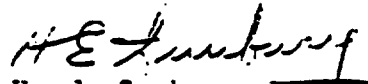
The full text of their reports is attached to these minutes.

8. President Rainey announced that the date of the next General Meeting would be June 6th and 7th, 1968, and it will be held at the REGENCY HYATT HOUSE, Atlanta, Ga. This is a fine new hotel that opened last June. It has received national publicity for its unusual construction and fine accommodations, and we are confident that A.T.I. members, and their wives, will enjoy their stay at the Regency Hyatt House!

He announced also that the fall meeting of A.T.I. would be at the Hotel Hershey, Hershey, Pennsylvania, on October 3-4, 1968.

9. There being no further business to come before the meeting it recessed for luncheon, following which the meeting adjourned.

Respectfully submitted,


H. E. Sunbury
Executive Secretary

Minutes

ASBESTOS TEXTILE INSTITUTE
Air Hygiene and Manufacturing Committee
February 8, 1968
Roosevelt Hotel
New York, N.Y.

Attended:

Members:	H.R. Walter, Chairman	- American Asbestos Textile Corp.
	C.L. Sheckler	- Johns-Manville Products, Corp.
	L.E. Moody	- H.K. Porter, Inc.
	A.C. Link	- Uni-Royal, Inc.
	Dr. J.H. Wolfstie	- Uni-Royal, Inc.
	L.C. Williams	- Raybestos-Manhattan, Inc.

Absent:	R.B. Smith	- Raybestos-Manhattan, Inc.
	H.M. Willingham	- Uni-Royal, Inc.
	K.W. Nelson	- American Smelting & Refining

Visitors:	Dr. L.J. Cralley	- U.S. Dept. of Health, Education & Welfare
	R. Hindmarch	- Johns-Manville Products, Corp.
	R. Slocomb	- Bausch & Lomb
	J.W. Brown	- Bausch & Lomb

Bausch & Lomb Automatic Dust Counter

The Bausch & Lomb Dust Counter - Model 40-2 was demonstrated to the committee by Robert Slocomb, Product Engineer of Bausch & Lomb. R. Hindmarch reported that some tests had been conducted with the instrument at the J.M. plant in Manville, New Jersey and comparisons had been made with test results obtained with the Midget Impinger. Comparative studies have shown that the results are on the same level; but that a conclusive correlation between the two methods has not yet been established. The instrument was turned over to L.C. Williams, Raybestos-Manhattan, with the understanding that it will be passed on to another member company at the next meeting. The companies using the instrument will attempt to establish a correlation with the Midget Impinger and submit their findings to Dr. L.J. Cralley. Bausch & Lomb will also participate in this program.

Environmental Health Survey

Dr. L.J. Cralley reported on a meeting with the American Conference of Governmental Industrial Hygienists.

Dust Control

The committee suggests that the Board of Governors consider the advisability of wet weaving to eliminate excess dust during the operation as well as in the use of the end product.

Minutes - Air Hygiene and Manufacturing Committee cont. Page -2-

Various other methods to reduce dust during the manufacturing process were discussed.

The committee adjourned to attend a special meeting held by the Board of Governors to hear Dr. Cralley's report on the continuation and the progress of his environmental health study.

H.H. Walter
Chairman

FIBRE PRODUCERS REPORT

Mr. N.W. Hendry, Vice President and General Sales Manager, Canadian Johns-Manville Asbestos Limited, Asbestos Fibre Division, Asbestos, Quebec, Canada, reported for the Fibre Producers.

Mr. Hendry commented first on business conditions, and said that 1967 was a pretty good year for fibre producers although a little below the exceptionally good year of 1966. Business was rather slow in England, and Western Europe has levelled off. By contrast Japan is "booming" and Australia is also good. Spain and Italy are doing well, as is South America. The future situation in the U.S.A. is somewhat in doubt as the political situation, credit restrictions and labor problems could affect many major manufacturers adversely.

Speaking of the Textile Fibres, Mr. Hendry pointed out that there has been a marked improvement in quality during the past ten years, the producers now have a great deal more knowledge of what constitutes a good textile fibre, and work to produce even better fibre will continue. He mentioned that demand for textile grades is quite strong.

In comparing total tonnages of asbestos fibre (all grades) produced in Canada vs. Russia, the Canadian mines for year 1967 produced about 1,443,000 tons as against 1,670,000 in Russia. An annual production of 2,200,000 tons by 1970 is forecast for Russia. World production in 1967 was in the neighborhood of 4,300,000 tons.

New mines, namely:- Reeves in Northern Ontario, Clinton Creek in Yukon Territory, Aktrovak and at Kiambi Kazakhstan in Russia, and one in Brazil will add to world production of asbestos fibres. The Brazilian mine is 200 or 300 miles north of Brasilia, and the production there is about 5,000 tons annually.

In commenting on the Health Aspects of asbestos, Mr. Hendry referred to the fact that the Q.A.M.A. had established the Institute of Occupational and Environmental Health to conduct research into all facets of the production, manufacturing and use of asbestos and asbestos products. While the Q.A.M.A. has decided not to publish interim reports on research projects because they are not complete, there is no evidence of any risk to human health in exposure to, or use of manufactured products containing asbestos fibres. A great deal of research on the health aspects of asbestos is being conducted at many centers in the world, to which the Canadian producers are lending their support. Adverse publicity on asbestos has prompted Johns-Manville to get out a "Position Paper" in respect to effect of asbestos on Health, for the benefit of their own organization. While this is not for general publication, members of A.T.I. could probably get a copy by writing direct to President Burnett of Johns-Manville.

In conclusion Mr. Hendry stated that his company, from present indications, would discontinue shipping asbestos fibre grades in loose jute bags due to the dusty condition resulting from this type of operation. Various types of bags can be substituted, such as multi-wall paper or polyethylene, both of which are dust proof.

N. W. Hendry

February 9, 1968

MINUTES OF THE ASBESTOS TEXTILE INSTITUTE
FIBRE TESTING COMMITTEE MEETING - 8TH FEBRUARY, 1968

LOCATION: Room E, Mezzanine Floor
The Roosevelt Hotel, New York, N.Y.

PRESENT:

Members: G.F.A. Brink, Chairman - Asbestos Corporation Limited
D.E. Childers - H.K. Porter Company, Inc.
R.J. Dodds-Hebron - Bell Asbestos Mines Limited
B. Lincoln - Turner & Newall Limited
W.C. Streib - Johns-Manville Corporation
T.T. Tigert - Cassiar Asbestos Corporation Limited
J.P. Wronski - Raybestos-Manhattan, Inc.

Visitors: C.H. Schoch - Bell Asbestos Mines Limited
W.H. Smith - " " " "

BUSINESS:

1. The outcome of the Magnetic Rating Round Robin on three asbestos fiber samples at different laboratory locations and the conclusions based on the statistical analyses of the results were reviewed with members of the Technical Committee (6), Mr. Paul O. Nicodemus, Chairman of Subcommittee A-4, ASTM Committee D-13, and other affiliated ASTM members (3) present, as follows:

1.1 Metallic influence can have a drastic result on the Mapes test, however, if the test is run correctly and the equipment zeroed properly, the influence of metallics can be overcome.

Note 1 - During the course of discussion, it was pointed out that, due to differences in construction, it was not always possible to zero all models of the Mapes apparatus in the presence of metallic influence.

1.2 The continuing F x C interaction leads to the conclusion that fiber sampling and/or fiber conditioning is an important procedural technique to be improved in all magnetic rating tests.

1.3 From the Round Robin, there is no major evidence of superiority of T. & N. over the Mapes Test from a reproducibility standpoint between companies. The advantages of the T. & N., however, are ease of operation, less susceptibility to magnetic influence, and its initial cost.

2. The recommendations of the joint session were as follows:

2.1 That the ASTM Magnetic Rating Test Method be rewritten indicating a preference for the T. & N. apparatus and retaining Procedure "A" of the present ASTM D-1118 procedure as an alternative.

- 2.2 That the custody of the remaining standard magnetite Sample No. 29(a), or equivalent reference standards, now in the possession of Mr. Paul Nicodemus be transferred to ATI for safe keeping; and that the Fibre Testing Committee take action to acquire a supply of suitable iron oxide for the preparation of calibration standards and arrange for its dispensation through the ATI Executive Secretary in the future (This recommendation was subsequently approved by the ATI Board of Governors).
- 2.3 That the Technical Committee, in conjunction with Subcommittee A-4, ASTM Committee D-13 members interested, organize a Round Robin to investigate the performance and reproducibility of the T. & N. apparatus for the testing of textile products before the new Magnetic Rating Test Method is finalized (Round Robin to include the laboratories involved in the recent Fibre Testing Committee's Round Robin plus other ATI member companies interested).
- 2.4 That the Fibre Testing Committee carry out some exploratory testing with a natural crudy fiber to investigate the effect of the sampling procedure on the reproducibility of the Magnetic Rating Test (Three member companies indicated their desire to participate in this study).
3. Interest was rejuvenated in a test method for determining the undesirable rock and spicular content of spinning fibres (Two laboratories indicated that they were currently considering suitable approaches to this particular problem).
4. Recent activities of the QAMA Technical and ASTM D-30 Committees (Subcommittee III) of interest to ATI were briefly reviewed.
5. New Business.- The chairman indicated that an agenda would be mailed out one month in advance of the next meeting to stimulate interest in the Fibre Testing Committee's activities; and to assist in guiding its future program to best meet the requirements of ATI.

G.F.A. Brink, Chairman
ATI Fibre Testing Committee

Minutes

ASBESTOS TEXTILE INSTITUTE
Sales Promotion Committee
February 8, 1968
Hotel Roosevelt - New York City

Attending this meeting were Messrs. J.L. Rainey and J.W. Christenbury of American Asbestos Textile Corporation, N.L.A. Martucci and Alexander Kuzmuk of Garlock, Inc., E.A. Schuman of Johns-Manville Corp., J.L. Mitchell of Tallman-McCluskey Fabrics Company, R.P. Clark of Uniroyal, Inc., P.Jay Flocken, (Legal counsel), H.E. Sunbury, (Secretary), and M.Q. Scowcroft of Raybestos-Manhattan, Inc.

Efforts to place the display cabinet owned by the Institute have now been exhausted. Raybestos-Manhattan offered to store the cabinets pending completion of their new office building in Manheim, Pennsylvania where it will eventually be placed in their lobby. The committee voted to accept the offer and the matter was turned over to the Board of Governors for further action.

At the meeting held in Hilton Head, S.C. last October the committee discussed a proposal presented to it by the Edward W. Robotham Company for an advertising program aimed at promoting the use of asbestos textiles in a general rather than a specific end product usage as an effort to combat the intrusion of alternate materials in many of our traditional fields. Between that meeting and the meeting held February 8th, generally discouraging reports came back from most member companies. Because of the lukewarm reception at top management level it was voted to shelve the program temporarily. However, it was recorded that most of the members of the committee felt that there was genuine merit in the program and that it should not be permanently set aside.

The purchasing policies of the Government procurement program was discussed in detail. Rather than have legal counsel pursue the matter in an attempt to influence them to adjust this policy, it was agreed that the committee assign two members to visit the D.S.A. in Columbus, Ohio in an attempt to educate ourselves as to the reasons for these purchasing policies and to attempt to obtain relief from them. R.P. Clark of Uniroyal, Inc. and M.Q. Scowcroft of Raybestos-Manhattan, Inc. were assigned this task. A full report will be submitted to the committee following the call at Columbus and prior to the next meeting.

A detailed discussion was held concerning the hazards involved in the processing and use of asbestos textiles and the affect of adverse publicity concerning asbestos in the market place. While the subject of Health Hazards is of proper concern to the Sales Promotion Committee it was felt that anything we might do at this time in the form of attempting to set industry standards on what might be called "Dust Free" or "Lint Free" fabrics would introduce far more problems than benefits for the Industry.

Information had reached members of the Institute that the U.S. Navy had eliminated the use of asbestos cloth as insulation aboard Naval

ships. This was thoroughly investigated and found to be entirely false. But it has been learned that one private shipyard has eliminated asbestos and replaced it with glass cloth in at least one popular style of cloth. Members agreed that a stepped up and continuing program of contacting the Navy Department in Washington is worth our efforts.

Competition from Japanese cloth in the United States was also discussed in detail. It was suggested that Japanese cloth does not approach the quality of fabrics manufactured by member companies particularly in relation to their flame resistant characteristics and we are working up data to use as ammunition in this area.

A specific application of rubber coated asbestos sleeving accused of being the culprit in a corrosion problem with air-frame manufacturers was discussed. No specific action was taken since it was understood that a member company was fighting this substitution with its own active task force.

Respectfully submitted,

M. Q. Scowcroft,
Chairman

Asbestos Textile Institute
Technical Committee Meeting
February 7, 1968

The meeting was held at the Roosevelt Hotel in New York City.

<u>IN ATTENDANCE:</u> Phil Rogers	- Johns-Manville
G.E. Houghton	- Garlock, Inc.
D.T. Austin	- Uniroyal, Inc.
Wm. Maaskant	- American Asbestos Textile Corp.
D.F. Quealy	- American Asbestos Textile Corp.
Ed Morris	- U.S. Rubber Co.
J.D. McCluer	- H.K. Porter Co.
P.O. Nicodemus	- General Electric Co.
George Harris	- H.K. Porter Co., Inc.
Paul Smith	- ASTM
John Hawkins	- Raybestos-Manhattan, Inc.

SUBJECTS DISCUSSED:

ASTM D 1061: The asbestos lap specification was completed at this meeting. The Editorial Committee of ASTM suggested several changes in format which were not acceptable to the Technical Committee. Other minor changes were incorporated into D 1061 and this specification will be published in October without further changes.

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A joint session was held between ASTM Committee A-4 and the Technical Committee on February 8. Mr. Nicodemus acted as chairman and matters of mutual interest were discussed. A Round Robin test will be conducted on the magnetic rating of asbestos products - lap, roving, yarn, tape, and cloth. It was also decided that when these tests are complete the specification on magnetic rating would be written up to specify the Turner Analyzer as the preferred method, and the Mapes as an alternate. The other remaining method to be revised is the Heat Aging Specification.

Asbestos Textile Institute
Technical Committee Meeting
December 14th, 15th, 1967

The meeting was held at the Sheraton Park Hotel in Washington, D.C.

<u>IN ATTENDANCE:</u>	Irving Barnett	- Johns-Manville
	J. D. McCluer	- E. K. Porter Co.
	Tex Austin	- Uniroyal, Inc.
	Wm. Maaskant	- American Asbestos Textile Corp.
	H. E. Sunbury	- Asbestos Textile Institute
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Proposed Aluminized Herringbone Cloth: The proposed specification was reviewed and it is essentially the same as MIL-C-82249A except for the Neoprene backing. Suggestions were submitted to Natick for review.

John W. Hawkins
Chairman of the Technical Committee

JWE:ch

Minutes
GENERAL MEETING
Asbestos Textile Institute

FEB 9 - 1968

Minutes

GENERAL MEETING -- February 9, 1968

Asbestos Textile Institute -- Hotel Roosevelt, New York, N. Y.

In attendance:

AMERICAN ASBESTOS TEXTILE CORP.

J.L. Rainey
J.W. Christenbury
H.H. Walter
D.F. Quealy
Wm. Maaskant

GARLOCK INC.

N.L.A. Martucci
G.E. Houghton
Alex. Kuzmuk

JOHNS-MANVILLE CORP.

E.H. Wells
E.A. Schuman
W.C. Streib
C.L. Sheckler
R. Hindmarch
P.A. Rogers
N.W. Hendry (Can. Johns-Manville)
W.S. Hough (Retired)

H.K. PORTER COMPANY, INC.

E.M. Nesvig
Geo. Bohrer
L.E. Moody
J.D. McCluer
D.E. Childers
J.W. Echerd
G.J. Harris

RAYBESTOS-MANHATTAN, INC.

M.Q. Scowcroft
J.P. Wronski
L.C. Williams
J.W. Hawkins
J.A. Bettes, Jr. (Retired)
Dr. J.L. Goodman

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury, (Secretary)

A.S.T.M.

P.J. Smith

LUNCHEON GUESTS - Feb. 9th

David A. Caruso, C.P.A.
Mrs. T.T. Tigert
Mrs. N.L.A. Martucci

TALLMAN-McCLUSKEY FABRICS CO.

J.L. Mitchell

UNIROYAL, INC.

R.P. Clark
A.C. Link
D.T. Austin, Jr.
E.A. Morris
W.C. Hitchcock
Dr. J.H. Wolfsie
R. Roderic

ASBESTOS CORPORATION LIMITED

M.P. Carson
G.F.A. Brink
P.E. Leclerc

BELL ASBESTOS MINES LIMITED

Wm. J.W. Smith
R. Dodds-Hebron
C.H. Schoch
W.H. Smith

CASSIAR ASBESTOS CORPORATION, Ltd.

T.T. Tigert

LAKE ASBESTOS of QUEBEC, LTD.

E.A. Farrell

TURNER & NEWALL, Ltd.

B. Lincoln

CADWALADER, WICKERSHAM & TAFT

P. Jay Flocken (Legal Counsel)

GENERAL ELECTRIC COMPANY

P.O. Nicodemus (Guest speaker)

U.S. PUBLIC HEALTH SERVICE

Dr. L.J. Cralley

TURNER BROS. ASBESTOS CO. LTD.

W.M. Deckman
D.F. Roberts

1. President Rainey called the meeting to order at 9:40 A.M. and asked each person to stand and identify himself and his company affiliation. He expressed appreciation that so many company officials were in attendance. Special mention was made of the fact that two former presidents of A.T.I. were present, namely: Messrs. J.A. Bettes, Jr., and W.S. Hough. We were pleased also to have Mr. B. Lincoln, of Turner & Newall, Ltd., Manchester, England; and Dr. L.J. Cralley, of U.S.P.H.S., in attendance.

2. The minutes of the last meeting were presented for reading. It was moved by Mr. J.W. Christenbury that reading be omitted. His motion was seconded by Mr. M.Q.Scowcroft. So voted.

3. The Financial Report was presented by Mr.E.A. Schuman. It was moved by Mr.D.F. Quealy that the report be accepted. Mr. G.E. Houghton seconded the motion, and it was so voted. The report is attached to these minutes.

4. Mr. P.Jay Flocken, Legal Counsel, reported on some recent litigation under the Sherman Anti-trust Act. A brief summary of his remarks follows: Counsel reviewed a series of recent Advisory Opinions issued by the Federal Trade Commission, which differentiate between appropriate and inappropriate subjects for industry codes of behavior or trade association standards programs. He emphasized that both the antitrust agencies and the courts have been primarily concerned with the enforcement mechanisms utilized by businessmen to secure compliance with such codes or programs. In this connection, counsel also briefly reviewed industry or trade association price and profit reporting programs, standardization activities, and enforcement techniques involved in certain court decisions which have established the basic principles of permissible conduct. Counsel stated that the current attitude of the Department of Justice, as reflected by recent statements of the Assistant Attorney General, is doubtful of the good faith and the rationale of self-regulation by business and that the FTC's Advisory Opinions in this field have been very conservative and allow little room for variation from earlier restrictive decisions by the agencies or the courts.

5. The Fibre Producers Report was given by Mr. N.W. Hendry, V.P. & General Sales Manager, Canadian Johns-Manville Asbestos Limited. A summary of Mr. Hendry's fine report is attached to these minutes.

6. President Rainey introduced Mr. Paul O. Nicodemus, Senior Insulation Application Chemist, General Electric Co., Wire & Cable Dept., Lowell, Mass. Mr. Nicodemus presented an extremely interesting and most comprehensive paper entitled: "Asbestos Textile Electrical Insulations - Properties, Present and Future Importance." At conclusion of his talk Mr. Nicodemus was given a fine round of applause for his very excellent paper. Copies of his paper were distributed to those present. The Secretary has some extra copies and will honor requests for same on a first come first served basis, so long as the supply lasts. President Rainey expressed appreciation, on behalf of the members, to Mr. Nicodemus for his very fine paper.

7. The committee reports were given by the respective committee chairmen as listed below:

Air Hygiene & Mfg. Committee - H.H. Walter, Chm.
Sales Promotion Committee - M.Q.Scowcroft, Chm.
Technical Committee - J.W. Hawkins, Chm.
Fiber Testing Committee - G.F.A. Brink, Chm.

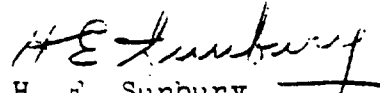
The full text of their reports is attached to these minutes.

8. President Rainey announced that the date of the next General Meeting would be June 6th and 7th, 1968, and it will be held at the REGENCY HYATT HOUSE, Atlanta, Ga. This is a fine new hotel that opened last June. It has received national publicity for its unusual construction and fine accommodations, and we are confident that A.T.I. members, and their wives, will enjoy their stay at the Regency Hyatt House!

He announced also that the fall meeting of A.T.I. would be at the Hotel Hershey, Hershey, Pennsylvania, on October 3-4, 1968.

9. There being no further business to come before the meeting it recessed for luncheon, following which the meeting adjourned.

Respectfully submitted,


H. E. Sunbury
Executive Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

January 9, 1968

Balance on Hand at Last Report (September 11, 1967)

General Fund	\$ 832.97
Savings Fund	24808.34
Petty Cash Fund	38.77

\$ 25680.08

Receipts

To Savings Fund (Interest)	573.32
To General Fund (Book Sales)	76.70

650.02

Total On Hand and Received

\$ 26330.10

Disbursements

Legal Retainer (3 mos ending 11/30/67)	500.00
Legal Expense (3 " " " " ")	270.98
Secretary's salary (4 mos)	478.00
F.I.C.A. Tax (3rd Qtr 1967)	33.00
Secretary's travel	250.00
Office rent (4 mos)	300.00
Revision of ASTM Specs.(Travel exp.)	69.25
Printing & Office Supplies	34.45
Stenographic (Labor)	22.00
Meeting expense (October 4-6,1967)	793.11
Telephone (4 mos)	135.28
Exhibit expense	129.20
Accountant (Caruso-Year ending 9/67)	300.00
Dues (I.H.F. and ASTM)	135.00
Dust Counting Equipment(Bausch & Lomb)	4814.00
Petty Cash (Vouchers 328-347 incl.)	78.92

Total Disbursements

\$ 8343.19

Balance On Hand January 9, 1968

17986.91

Funds

General Fund (Bank Statement of 1/9/68)	\$	498.17	
Savings Fund (Interest to 12/31/67)		17467.66	(*)
Petty Cash Fund		21.08	

\$ 17986.91

Assets as of Jan. 9, 1938

Total Funds

General Fund	\$ 498.17
Savings Fund	17467.66
Petty Cash on Hand	21.08
Accts Receivable (Book Sales)	65.09
Accts Receivable (Dues for 1968)	9000.00
Postage on hand	10.33
Furniture & Equipment (Nominal Value)	1.00

\$ 27063.33

Liabilities (None)

Total Assets

Met Worth

\$ 27063.33

(*) Amounts transferred from Savings to General Fund were -
\$2500.00 on 10/2/67; \$600.00 on 12/14/67; \$4814.00 on 1/8/68.

Respectfully submitted,

H. E. Sunbury
H. E. Sunbury
Asst. Treasurer

Minutes

ASBESTOS TEXTILE INSTITUTE
Air Hygiene and Manufacturing Committee
February 8, 1968
Roosevelt Hotel
New York, N.Y.

Attended:

Members: H.H. Walter, Chairman - American Asbestos Textile Corp.
C.L. Sheckler - Johns-Manville Products, Corp.
L.E. Moody - H.K. Porter, Inc.
A.C. Link - Uni-Royal, Inc.
Dr. J.H. Wolfsie - Uni-Royal, Inc.
L.C. Williams - Raybestos-Manhattan, Inc.

Absent: R.B. Smith - Raybestos-Manhattan, Inc.
H.M. Willingham - Uni-Royal, Inc.
K.W. Nelson - American Smelting & Refining

Visitors: Dr. L.J. Cralley - U.S. Dept. of Health, Education
& Welfare
R. Hindmarch - Johns-Manville Products, Corp.
R. Slocomb - Bausch & Lomb
J.W. Brown - Bausch & Lomb

Bausch & Lomb Automatic Dust Counter

The Bausch & Lomb Dust Counter - Model 40-2 was demonstrated to the committee by Robert Slocomb, Product Engineer of Bausch & Lomb. R. Hindmarch reported that some tests had been conducted with the instrument at the J.M. plant in Manville, New Jersey and comparisons had been made with test results obtained with the Midget Impinger. Comparative studies have shown that the results are on the same level; but that a conclusive correlation between the two methods has not yet been established. The instrument was turned over to L.C. Williams, Raybestos-Manhattan, with the understanding that it will be passed on to another member company at the next meeting. The companies using the instrument will attempt to establish a correlation with the Midget Impinger and submit their findings to Dr. L.J. Cralley. Bausch & Lomb will also participate in this program.

Environmental Health Survey

Dr. L.J. Cralley reported on a meeting with the American Conference of Governmental Industrial Hygienists.

Dust Control

The committee suggests that the Board of Governors consider the advisability of wet weaving to eliminate excess dust during the operation as well as in the use of the end product.

Minutes - Air Hygiene and Manufacturing Committee cont. Page -2-

Various other methods to reduce dust during the manufacturing process were discussed.

The committee adjourned to attend a special meeting held by the Board of Governors to hear Dr. Cralley's report on the continuation and the progress of his environmental health study.

H.H. Walter
Chairman

FIBRE PRODUCERS REPORT

Mr. N.W. Hendry, Vice President and General Sales Manager, Canadian Johns-Manville Asbestos Limited, Asbestos Fibre Division, Asbestos, Quebec, Canada, reported for the Fibre Producers.

Mr. Hendry commented first on business conditions, and said that 1967 was a pretty good year for fibre producers although a little below the exceptionally good year of 1966. Business was rather slow in England, and Western Europe has levelled off. By contrast Japan is "booming" and Australia is also good. Spain and Italy are doing well, as is South America. The future situation in the U.S.A. is somewhat in doubt as the political situation, credit restrictions and labor problems could affect many major manufacturers adversely.

Speaking of the Textile Fibres, Mr. Hendry pointed out that there has been a marked improvement in quality during the past ten years, the producers now have a great deal more knowledge of what constitutes a good textile fibre, and work to produce even better fibre will continue. He mentioned that demand for textile grades is quite strong.

In comparing total tonnages of asbestos fibre (all grades) produced in Canada vs. Russia, the Canadian mines for year 1967 produced about 1,443,000 tons as against 1,870,000 in Russia. An annual production of 2,200,000 tons by 1970 is forecast for Russia. World production in 1967 was in the neighborhood of 4,300,000 tons.

New mines, namely:- Reeves in Northern Ontario, Clinton Creek in Yukon Territory, Aktrovak and at Kiembli Kazakhstan in Russia, and one in Brazil will add to world production of asbestos fibres. The Brazilian mine is 200 or 300 miles north of Brasilia, and the production there is about 5,000 tons annually.

In commenting on the Health Aspects of asbestos, Mr. Hendry referred to the fact that the Q.A.M.A. had established the Institute of Occupational and Environmental Health to conduct research into all facets of the production, manufacturing and use of asbestos and asbestos products. While the Q.A.M.A. has decided not to publish interim reports on research projects because they are not complete, there is no evidence of any risk to human health in exposure to, or use of manufactured products containing asbestos fibres. A great deal of research on the health aspects of asbestos is being conducted at many centers in the world, to which the Canadian producers are lending their support. Adverse publicity on asbestos has prompted Johns-Manville to get out a "Position Paper" in respect to effect of asbestos on Health, for the benefit of their own organization. While this is not for general publication, members of A.T.I. could probably get a copy by writing direct to President Burnett of Johns-Manville.

In conclusion Mr. Hendry stated that his company, from present indications, would discontinue shipping asbestos fibre grades in loose jute bags due to the dusty condition resulting from this type of operation. Various types of bags can be substituted, such as multi-wall paper or polyethylene, both of which are dust proof.

N. W. Hendry

February 9, 1968

MINUTES OF THE ASBESTOS TEXTILE INSTITUTE
FIBRE TESTING COMMITTEE MEETING - 8TH FEBRUARY, 1968

LOCATION: Room E, Mezzanine Floor
The Roosevelt Hotel, New York, N.Y.

PRESENT:

Members: G.F.A. Brink, Chairman - Asbestos Corporation Limited
D.E. Childers - H.K. Porter Company, Inc.
R.J. Dodds-Hebron - Bell Asbestos Mines Limited
B. Lincoln - Turner & Newall Limited
W.C. Streib - Johns-Manville Corporation
T.T. Tigert - Cassiar Asbestos Corporation Limited
J.P. Wronski - Raybestos-Manhattan, Inc.

Visitors: C.H. Schoch - Bell Asbestos Mines Limited
W.H. Smith - " " " "

BUSINESS:

1. The outcome of the Magnetic Rating Round Robin on three asbestos fiber samples at different laboratory locations and the conclusions based on the statistical analyses of the results were reviewed with members of the Technical Committee (6), Mr. Paul O. Nicodemus, Chairman of Subcommittee A-4, ASTM Committee D-13, and other affiliated ASTM members (3) present, as follows:

1.1 Metallic influence can have a drastic result on the Mapes test, however, if the test is run correctly and the equipment zeroed properly, the influence of metallics can be overcome.

Note 1 - During the course of discussion, it was pointed out that, due to differences in construction, it was not always possible to zero all models of the Mapes apparatus in the presence of metallic influence.

1.2 The continuing F x C interaction leads to the conclusion that fiber sampling and/or fiber conditioning is an important procedural technique to be improved in all magnetic rating tests.

1.3 From the Round Robin, there is no major evidence of superiority of T. & N. over the Mapes Test from a reproducibility standpoint between companies. The advantages of the T. & N., however, are ease of operation, less susceptibility to magnetic influence, and its initial cost.

2. The recommendations of the joint session were as follows:

2.1 That the ASTM Magnetic Rating Test Method be rewritten indicating a preference for the T. & N. apparatus and retaining Procedure "A" of the present ASTM D-1118 procedure as an alternative.

- 2.2 That the custody of the remaining standard magnetite Sample No. 29(a), or equivalent reference standards, now in the possession of Mr. Paul Nicodemus be transferred to ATI for safe keeping; and that the Fibre Testing Committee take action to acquire a supply of suitable iron oxide for the preparation of calibration standards and arrange for its dispensation through the ATI Executive Secretary in the future (This recommendation was subsequently approved by the ATI Board of Governors).
- 2.3 That the Technical Committee, in conjunction with Subcommittee A-4, ASTM Committee D-13 members interested, organize a Round Robin to investigate the performance and reproducibility of the T. & N. apparatus for the testing of textile products before the new Magnetic Rating Test Method is finalized (Round Robin to include the laboratories involved in the recent Fibre Testing Committee's Round Robin plus other ATI member companies interested).
- 2.4 That the Fibre Testing Committee carry out some exploratory testing with a natural crudy fiber to investigate the effect of the sampling procedure on the reproducibility of the Magnetic Rating Test (Three member companies indicated their desire to participate in this study).
3. Interest was rejuvenated in a test method for determining the undesirable rock and spicular content of spinning fibres (Two laboratories indicated that they were currently considering suitable approaches to this particular problem).
4. Recent activities of the QAMA Technical and ASTM D-30 Committees (Subcommittee III) of interest to ATI were briefly reviewed.
5. New Business.- The chairman indicated that an agenda would be mailed out one month in advance of the next meeting to stimulate interest in the Fibre Testing Committee's activities; and to assist in guiding its future program to best meet the requirements of ATI.

G.F.A. Brink, Chairman
ATI Fibre Testing Committee

Minutes

ASBESTOS TEXTILE INSTITUTE
Sales Promotion Committee
February 8, 1968
Hotel Roosevelt - New York City

Attending this meeting were Messrs. J.L. Rainey and J.W. Christenbury of American Asbestos Textile Corporation, N.L.A. Martucci and Alexander Kuzmuk of Garlock, Inc., E.A. Schuman of Johns-Manville Corp., J.L. Mitchell of Tallman-McCluskey Fabrics Company, R.P. Clark of Uniroyal, Inc., P. Jay Flocken, (Legal counsel), H.E. Sunbury, (Secretary), and M.Q. Scowcroft of Raybestos-Manhattan, Inc.

Efforts to place the display cabinet owned by the Institute have now been exhausted. Raybestos-Manhattan offered to store the cabinets pending completion of their new office building in Manheim, Pennsylvania where it will eventually be placed in their lobby. The committee voted to accept the offer and the matter was turned over to the Board of Governors for further action.

At the meeting held in Hilton Head, S.C. last October the committee discussed a proposal presented to it by the Edward W. Robotham Company for an advertising program aimed at promoting the use of asbestos textiles in a general rather than a specific end product usage as an effort to combat the intrusion of alternate materials in many of our traditional fields. Between that meeting and the meeting held February 8th, generally discouraging reports came back from most member companies. Because of the lukewarm reception at top management level it was voted to shelve the program temporarily. However, it was recorded that most of the members of the committee felt that there was genuine merit in the program and that it should not be permanently set aside.

The purchasing policies of the Government procurement program was discussed in detail. Rather than have legal counsel pursue the matter in an attempt to influence them to adjust this policy, it was agreed that the committee assign two members to visit the D.S.A. in Columbus, Ohio in an attempt to educate ourselves as to the reasons for these purchasing policies and to attempt to obtain relief from them. R.P. Clark of Uniroyal, Inc. and M.Q. Scowcroft of Raybestos-Manhattan, Inc. were assigned this task. A full report will be submitted to the committee following the call at Columbus and prior to the next meeting.

A detailed discussion was held concerning the hazards involved in the processing and use of asbestos textiles and the affect of adverse publicity concerning asbestos in the market place. While the subject of Health Hazards is of proper concern to the Sales Promotion Committee it was felt that anything we might do at this time in the form of attempting to set industry standards on what might be called "Dust Free" or "Lint Free" fabrics would introduce far more problems than benefits for the Industry.

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Competition from Japanese cloth in the United States was also discussed in detail. It was suggested that Japanese cloth does not approach the quality of fabrics manufactured by member companies particularly in relation to their flame resistant characteristics and we are working up data to use as ammunition in this area.

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Respectfully submitted,

M. Q. Scowcroft,
Chairman

Asbestos Textile Institute
Technical Committee Meeting
February 7, 1968

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	D.F. Quealy	- American Asbestos Textile Corp.
	Ed Morris	- U.S. Rubber Co.
	J.D. McCluer	- H.K. Porter Co.
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Asbestos Textile Institute
Technical Committee Meeting
December 14th, 15th, 1967

The meeting was held at the Sheraton Park Hotel in Washington, D.C.

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John W. Hawkins
Chairman of the Technical Committee

JWH:ch

ANNOUNCING A NEW PUBLICATION: "INDUSTRIAL HYGIENE HIGHLIGHTS"

VOLUME I
by the INDUSTRIAL HYGIENE FOUNDATION

A Message from the Managing Director:

"This volume highlights a basic concept of INDUSTRIAL HYGIENE: that exposures below a certain threshold are safe, allowing the engineer to incorporate human factors in the design of facilities, processes, and products to the optimum advantage.

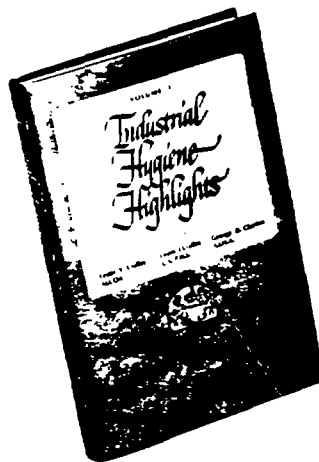
Fifteen highly competent Industrial Hygienists summarize and comment upon the status of Industrial Hygiene knowledge and practice in the areas listed.

By sponsoring this publication, IHF hopes to further progress in application of existing knowledge to the benefit of the public—especially those who are productively employed—while focusing attention of the scientific community upon areas in which further research is needed.

This text is a must on the desk of everyone responsible for the health and safety of the work force."

Robert T. P. de Treville, M.D.

Publication Date: JUNE 1968



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What are we doing?

What do we need to do?

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6 Alex Kozmuk
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Minutes
GENERAL MEETING
Spring 1968
ALAN 571 (1968)

ASBESTOS TEXTILE INSTITUTE

Minutes - GENERAL MEETING - June 7, 1968

The Regency Hyatt House, Atlanta, Ga.

In Attendance:

AMERICAN ASBESTOS TEXTILE CORP.

J.L. Rainey
J.W. Christenbury
D.F. Quealy
H.E. Walter

GARLOCK Inc.

G.E. Houghton

JOHNS-MANVILLE CORP.

E.A. Schuman

H.K. PORTER COMPANY, Inc.

L.E. Moody
J.D. McCluer

RAYBESTOS-MANHATTAN, Inc.

J.A. Brown, Jr
M.Q. Scowcroft
J.W. Hawkins
L.C. Williams
Dr. E.P. Stefl

TALLMAN-McCLUSKEY FABRICS CO.

J.L. Mitchell

UNIROYAL, Inc.

Dr. G.R. Guthbertson
A.C. Link
E.A. Morris
H.M. Willingham

ASBESTOS CORPORATION LIMITED

G.F.A. Brink
P.E. Leclerc

BELL ASBESTOS MINES LIMITED

Wm. J.W. Smith
W.H. Smith

CASSIAR ASBESTOS CORP. LTD.

J.G. Berry
T.T. Tigert

LAKE ASBESTOS OF QUEBEC LTD.

C.E. Stiefken

TURNER BROS. ASBESTOS CO. LTD.

W.M. Deckman

CADALADER, WICKERSHAM & TAFT

P.JAY Flocken (Legal Counsel)

A.S.T.M.

P.J. Smith

U.S. Public Health Service

Dr. L.J. Cralley

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury (Secretary)

GUESTS

Dr. G.C. Holroyd - Uniroyal, Inc.
Marion Smith ---- Uniroyal, Inc.
Earl Wells ----- Uniroyal, Inc.
P.A. Meyer ----- Nicolet Industries, Inc.
J.K. Whittaker --- Nicolet Industries, Inc.

In addition, approximately thirteen wives of members were present at Social Hours and at the luncheon on Friday noon, June 7th.

***** Minutes *****

1. President Rainey called the meeting to order at 9:30 A.M. and asked each person to stand and identify himself and his company. He expressed particular appreciation that Dr. E.P. Stefl, Vice President of Raybestos-Manhattan, Inc., was in attendance. Also welcomed to the meeting were: Dr. G.R. Guthbertson, Dr. G.C. Holroyd, Earl Wells and Marion Smith, all from Uniroyal, Inc.; and Messers P.A. Meyer and J.K. Whittaker of Nicolet Industries, Inc.

2. The minutes of the last meeting were presented for reading. It was moved by Mr. J. M. Christenbury that the reading be omitted. This motion was seconded by Mr. E. A. Schuman. So voted.

3. The Financial Report was presented by the Secretary. Mr. J. A. Brown, Jr. moved that it be accepted, and Mr. G. E. Houghton seconded the motion. It was so voted. The report is attached .

4. Mr. P. Jay Flocken, Legal Counsel, discussed several subjects, including carelessness in corporate writing or speech which, under certain circumstances, may suggest antitrust problems which actually are non-existent; the Federal Trade Commission decision against American Brakeshoe's (Abex Corp.) acquisition of S. K. Welman Co. because of the adverse impact on competition in the manufacture and sale of sintered metallic friction materials; Department of Justice informal consultation with Canadian officials on enforcement activities affecting each other's country; and the Department of Justice and Federal Trade Commission merger guidelines.

Counsel reviewed the background and stated purposes of the enforcement officials in issuing merger guidelines as well as the standards applicable to enforcement decisions with reference to horizontal, vertical and conglomerate mergers contained in the guidelines. It was pointed out that conglomerate mergers, as currently defined and understood by the government, constitute a very sizeable portion of all corporate mergers today. The FTC, for example, estimates that of 155 "large" acquisitions it counted in 1967, 83% were of the conglomerate type. Counsel noted that the Department of Justice guidelines on conglomerate mergers are less well defined than on horizontal or vertical mergers and that case-by-case enforcement action will have to spell out further the meaningful law in this area. It was noted that the Department of Justice guidelines issued May 30, 1968 have been preceded by three separate industry guidelines issued by the FTC on vertical integration in the cement industry, food distribution and food products.

Counsel answered numerous questions from members, after his talk.

5. The Fibre Producer's Report was given by Mr. Wm. J. W. Smith, Director, Vice President & General Sales Manager of Bell Asbestos Mines Limited.

Mr. Smith said, commenting on the overall sales picture for asbestos fibres (all grades), that 1966 was a "good year", 1967 was slightly less, and that 1968 is moving toward the 1966 level based on year-to-date figures. Further, that the sales of spinning fibre grades are in step with the overall picture.

In Europe, events of the past few weeks in France and other countries, may have an adverse effect on progress, although there is still considerable optimism there. In England, a more hesitant view is taken. In Japan, which he visited a few weeks earlier, Mr. Smith found that a good start has been made, and they should have a good year even if money gets "tight" as some fear may occur later this year.

6. President Rainey introduced Dr. G.R. Cuthbertson, Technical Director of the Fiber and Textile Division, UNIROYAL, Inc., and expressed our pleasure at his willingness to be our main speaker at this meeting. Dr. Cuthbertson's talk, entitled - "The ACCELERATION OF TEXTILE TECHNOLOGY" or How to take a Giant Step Without Saying "May I?", was most constructive and of great interest to a most appreciative audience. We are indebted to Dr. Cuthbertson for supplying copies of his talk for inclusion with these minutes. President Rainey thanked Dr. Cuthbertson on behalf of the Institute and it's mambbers.

7. The committee reports were given by the respective committee chairmen as listed below:

Air Hygiene & Mfg. Committee - H.H. Walter, Chairman
Sales Promotion Committee - M.Q. Scowcroft, Chairman
Technical Committee - J.W. Hawkins, Chairman
Fiber Testing Committee - G.F.A. Brink, Chairman

The full text of their reports is attached to these minutes. President Rainey expressed his appreciation, and that of the Institute, for the fine work of our several committees, and mentioned also the valuable assistance given the Technical Committee by Mr. Paul J. Smith of A.S.T.M. in regard to the revision of ASTM Specifications for Asbestos Textiles.

8. President Rainey announced that the date of the next General Meeting would be October 3-4, 1968, at Hotel Hershey, Hershey, Pa. This is a fine hotel, located in the interesting Pennsylvania Dutch country, with much to see and do. As is customary at our annual meeting each October, members are urged to make a special effort to bring their wives to this meeting!

Mr. Rainey announced also, that the winter meeting of A.T.I. would be at the GRAND HOTEL, Point Clear, Ala. (near Mobile) and the dates are February 6-7, 1969. This is a very famous hostelry and those who have attended meetings of other associations there are sure that A.T.I. members and their wives will greatly enjoy their visit to the GRAND HOTEL!

9. There being no further business to come before the meeting it recessed for luncheon, following which the meeting adjourned.

Respectfully submitted,

H. E. Sunbury
H. E. Sunbury
Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

May 8, 1968

Balance on Hand at Last Report (Jan. 9, 1968)

General Fund	\$ 498.17	
Savings Fund	17467.66	
Petty Cash Fund	21.08	
		\$ 17986.91

Receipts

To Savings Fund (Interest, 4 mos.)	225.00 (Est.)	
To Savings Fund (1968 Dues)	3000.00	
To General Fund (1968 Dues)	6000.00	
To General Fund (Book Sales)	82.74	
To General Fund (Ins. Refund)	29.16	
		9336.90
Total On Hand and Received		\$ 27323.81

Disbursements

Legal Retainer (3 mos. ending 2/29/68)	500.00	
Legal Expense (" " " ")	----	
Secretary's Salary (4 mos.)	478.00	
F.I.C.A. Tax (4th Qtr '67, 1st Qtr '68)	66.00	
Secretary's Travel	69.00	
Office Rent (4 mos.)	300.00	
Printing & Office Supplies	127.83	
Stenographic (Labor)	90.00	
Meeting Expense (Feb. 7-9, 1968)	861.99	
Telephone (4 mos.)	77.09	
Exhibit Expense	116.60	
Insurance (Dust Counting Equipment, 1 yr.)	120.00	
New Typewriter (for ATI office)	267.80	
Petty Cash (Vouchers 348-359 incl.)	64.77	
Total Disbursements		3139.08

Balance On Hand May 8, 1968	\$	<u>24184.73</u>
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Funds

General Fund (Bank Statement 5/8/68)	\$ 3456.84	
Savings Fund	20692.66 (*)	
Petty Cash Fund	35.23	
Total Funds		\$ <u>24184.73</u>

Assets as of May 8, 1968

General Fund	\$ 3456.84	
Savings Fund	20692.66	
Petty Cash Fund	35.23	
Accts Receivable (Book Sales)	24.65	
Postage on hand	11.42	
Furniture & Equipment (Nominal Value)	1.00	
Total Assets		\$ <u>24221.80</u>

Liabilities (None)

Net Worth		\$ <u>24221.80</u>
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(*) Includes \$225.00 interest estimated for period 1/1/68-4/30/68

Respectfully submitted, *H.E. Sunbury* H.E. Sunbury, Asst. Treasurer

Air Hygiene & Manufacturing Committee
Asbestos Textile Institute
June 6, 1968 - Regency Hyatt House, Atlanta, Ga.

In attendance:

H.R. Walter, Chairman - American Asbestos Textile Corp.
L.B. Moody - E.K. Porter Company, Inc.
H.H. Willingham - Uniroyal, Inc.
L.C. Williams - Raybestos, Manhattan, Inc.

Absent:

R.D. Smith - Raybestos-Manhattan, Inc.
C.L. Sheckler - Johns-Manville Corp.
K.W. Nelson - American Smelting & Refining Co.
A.C. Link - Uniroyal, Inc.
K.D. Seyard - Johns-Manville Products Corp.

Guests: Dr. L.J. Cralley - U.S. Department of Health, Education & Welfare.

Bausch & Lomb Automatic Dust Counter

Mr. L.C. Williams gave a report on the tests conducted at the Raybestos-Manhattan plant in Charleston, S.C. The instrument has performed to the fullest satisfaction and proven it's feasibility for spot checks as well as for the dust control (recording) over extended periods of time in connection with the Strip Chart Recorder.

To find a correlation between the Impinger and the Bausch & Lomb Dust Counter, the instruments were placed approximately one foot apart and operated simultaneously over a period of one-half hour. The strip chart was running at a speed of 12 inches per hour, therefore charting the dust counts over a length of 6 inches on No. 37-01-31 chart paper. To find the average dust concentration during the test period, the following method was applied:

The highest and the lowest points between each pair of verticle green lines - selecting the ones touched by the recorder pen - were determined, subsequently totaled and divided by the number of readings, resulting in the averages of the high and low dust concentrations respectively. Then the average between the average high and the average low dust concentration was determined, resulting in the average dust concentration during the test period. The results were then compared with the ones from the Impinger. A comparison shows that the figures are - with few exceptions - very close together. Variations between the figures do not show any clear pattern.

A number of advantages of the Bausch & Lomb Dust Counter versus the Impinger has evolved:

1. Dust concentrations can be shown and documented at any given moment over any length of time.
2. The chart paper represents a permanent record.
3. Any extreme dust concentrations can be traced to their cause, for example, opening of windows, increased vibration, broken ends, etc.
4. The evaluation of dust counts is simple, and not readily susceptible to human error.

5. The instrument can be used for continuous unattended monitoring.
6. The operation does not require a skilled technician.
7. One person can easily conduct 25 to 30 tests per day, including the time needed for evaluation of the tests.
8. The dust counts can easily be broken down as to particle size.
9. The efficiency and simplicity of the instrument results in savings in labor cost. The instrument therefore should pay for itself in a relatively short period of time.

For the proper use of the Dausch & Lomb Dust Counter the following points should be watched carefully:

1. The air intake has to be protected by a screen in areas where many large fiber particles become airborne, to prevent the intake from clogging.
2. The instrument shall not be placed near a humidifier since it will record water droplets as dust.
3. The daily calibration requires special care and the instructions are to be followed closely.
4. Use of a pushcart is recommended whenever a series of tests in various locations is to be conducted.
5. For the use of the instrument over a longer period of time in same location, the use of an electrical outlet rather than of the batteries, is recommended.

The Dust Counter will be used at the Raybestos-Manhattan plant in Manheim, Penna., until the middle of July; then will be shipped to the Uniroyal Plant in Hogansville, Ga. The instrument may be shipped without any danger of damage, in a sturdy wooden box lined with Styrofoam.

Dust Control in the Manufacturing Process:

A member of the committee suggested that experiments should be conducted in wet spinning and/or wet twisting, since, due to proper enclosure the dust concentrations in the blending and carding operations are already reduced to a minimum. Although changes in the structure and appearance of the woven material will be unavoidable, it appears to be advisable to experiment in that direction for the protection of our employees and those of our customers. The application of proper finishing methods should also be explored to restore or even improve the appearance of material woven with wet spun and/or wet twisted yarns.

All committee members reported that their respective companies have discontinued the use of Lenox Anti-Fly SD-5. Most companies continue, however, the use of standard mineral oil in their blending operation. Efforts to find new spraying components to hold moisture in mixes are being made.

Environmental Health Survey

Dr. L.J. Cralley, U.S. Public Health Service, reported on the progress made in research of the influence of toxic trace metals in connection with asbestos fiber. Various important publications are to be expected in the near future.

Hygiene and Labor Relations:

All committee members present agreed that it seems to be imperative to improve working conditions, rest rooms, and the general plant appearance to an extent that the asbestos textile industry can compete successfully with other industries in attracting labor, inasmuch as a higher wage level does no longer mean a decisive factor in obtaining desirable operators. Air conditioning might become a "must" in the near future.

Respectfully submitted,

H. H. Walter
Chairman

Minutes

SALES PROMOTION COMMITTEE
Asbestos Textile Institute
June 6, 1968 - Regency Hyatt House, Atlanta, Ga.

The Sales Promotion Committee met on June 6, 1968 with representatives of four member companies in attendance.

Many of you will recall past reports of this committee which described our concern of the threat of imported Japanese asbestos cloth. The latest reports obtained thru the Department of Commerce show that cloth imported into the U.S. from Japan increased 30% in 1967 versus 1966. Such a large percentage increase is alarming and the committee spent much of its time discussing weapons available to combat this threat. Some members feel that, because of the extremely low prices that this cloth is selling for, a possible charge of "dumping" might be leveled against the Japanese industry. We requested Counsel to investigate this possibility through an approach to the Board of Trade Commission. Many felt that an effective approach to the problem would be to attack in the marketplace since reports indicate that the Japanese are producing a generally inferior textile product. Since members reported a conflict in test results of Japanese cloth, it was decided to ask the Board of Governors to approach the Technical Committee for a cooperative effort on correlating test data in this area. Hopefully, this data will prove conclusively that Japanese cloth is demonstrably inferior and that this data will be available for the use of all members in the field.

At our last meeting it was reported that the Government procurement policy was such that member companies were discouraged in bidding. We felt that the Government procedures hindered us in submitting our best bids because of the excessive inventories that must be maintained in order to fulfill their oftentimes abnormal demands. Mr. Richard Clark and I visited their offices in Columbus, Ohio, in order to educate ourselves on the reasons for their policy and to ascertain whether or not we could influence them to change the procedure. We discussed this subject in detail at our meeting and arrived at the conclusion that as long as the system presently employed was, in truth, working to the best advantage to the Government, (though indeed not to the industry) we stood little chance of success to alter it.

As has become customary, we discussed at length the problem of the hazards involved in the processing and use of asbestos textile products. We remain vitally concerned about the problem and seek avenues leading to cooperative efforts of the other committees. Many suggestions were made and discussed thoroughly but each seemed to introduce more problems than solutions. However it does seem desirable to make a beginning in educating salesmen in the field so that they can answer queries concerning the health hazard. We feel that this should be the responsibility of each member company and it was decided that, for the time being, we should not try to approach the problem by collective action.

Respectfully submitted,

H.Q. SCOCROFT, Chairman

Minutes:- TECHNICAL COMMITTEE Meetings

Asbestos Textile Institute

April 4-5, 1968 at the Sheraton-Park Hotel, Washington, D.C.

In Attendance: William Maaskant - American Asbestos Textile Corp.
G.E. Houghton - Garlock, Inc.
J.D. McCluer - H.K. Porter Company, Inc.
D.T. Austin, Jr, - Uniroyal, Inc.
E.A. Morris - Uniroyal, Inc.
P.J. Smith - ASTM
J.W. Hawkins - Raybestos-Manhattan, Inc. (Chm)

The minutes of the Washington meeting are being combined with the minutes of the June meeting, below.

June 5 and 6, 1968, at the Regency Hyatt House, Atlanta, Ga.

In Attendance: G.E. Houghton - Garlock, Inc.
J.D. McCluer - H.K. Porter Company, Inc.
E.A. Morris - Uniroyal, Inc.
D.F. Quealy - American Asbestos Textile Corp.
P.J. Smith - ASTM
J.W. Hawkins - Raybestos-Manhattan, Inc. (Chm)
H.E. Sunbury - A.T.I.

Minutes:

The Washington meeting was devoted to completing the draft of ASTM Standard D 628 on Braided and Woven Sleaving. This was accomplished and submitted to Dr. Scroggie for editorial comments.

At the Washington meeting Mr. Irving Barnett of J/M was recommended to serve on USASI representing Sc.A-4 of ASTM D-13 and Mr. William Maaskant would be an alternate. The group will work on "Protective Occupation Apparel".

At the Atlanta meeting comments from Dr. Scroggie were reviewed on ASTM D 628 (Braided Sleaving). The 4th draft of this specification is complete and should be ready for a letter ballot before October.

Work has been started on the 1st draft of the Heat Aging Specification D 1573. The round-robin test on asbestos textile products is underway and will be completed prior to the October meeting.

A joint meeting will be held in October between the Fiber Testing Committee and the Technical Committee, also, a joint meeting will be held with Sc.A-4 of ASTM D-13.

Respectfully submitted,

John W. Hawkins
Chairman

MINUTES OF THE FIBER TESTING COMMITTEE

Asbestos Textile Institute

6th June, 1968 - The Regency Hyatt House, Atlanta, Ga.

Present:

Members: G.F.A. Brink, Chairman - Asbestos Corporation Limited
C.E. Stiefken (*) - Lake Asbestos of Quebec Limited
T.T. Tigert - - - Cassiar Asbestos Corporation Limited
Visitors: W.H. Smith (**) - Bell Asbestos Lines Limited
J.G. Berry - - - - Cassiar Asbestos Corporation Limited

(*) Replacing Mr. E.A. Farrell

(**) Substituting for Mr. R.J. Dodas-Hebron

Business:

1. Magnetic Rating Test

- 1.1 Calibrating Standards - The preparation and use of calibrating standards for the T. & N. Magnetic Rating apparatus, as well as other details relative to the new test method, were reviewed and discussed at some length. The chairman advised that 20 grams of the original U.S. Bureau of Standards magnetite Sample No. 29a was being turned over to the ATI Executive Secretary for safe keeping and future correlation work; and that correspondence was in progress to locate a suitable replacement for 29a.
- 1.2 The chairman was delegated to write Mr. Bernard Lincoln concerning the preparation of calibrating standards for the T. & N. apparatus, replacement of existing glass specimen holders with plastic cells; and the reproducibility of the test in the higher M.R. range.
- 1.3 The results of some preliminary tests to investigate the effect of sampling and conditioning on the M.R. results were reviewed. It was recommended that magnetic rating tests be performed on fibre samples in the "as received state", obtained by the normal sampling procedure outlined in the manual of "Testing Procedures for Chrysotile Asbestos Fibre, 1966 Edition", rather than to specify any special preparational treatment; but that reference be made to the fact that magnetic ratings are affected by degree of openness, or particle size, in a suitable preamble under the "Scope" of the test in the final write-up.
- 1.4 It was agreed that a tentative procedure for the Magnetic Rating Test in ASTM format be prepared for consideration at the next meeting. The interest of Subcommittee III, ASTM Committee D-30, in the magnetic rating test was mentioned.

- 1.5 The possible need for a combined meeting with the Technical Committee, when the results of their current Round Robin on textile products become available, was expressed.
2. Objectionable Spicular & Rock Content Test, - Possible approaches to develop a test method for the determination of the undesirable spicular and rock content of spinning fibres were discussed at some length. It was decided that a wet procedure based on the use of hydrocyclones had better possibilities than any known dry classification method. Accordingly, it was agreed that some preliminary work be carried out with hydrocyclones and that the test data and fractions recovered be presented at the next meeting of the Fiber Testing Committee.
3. Recent activities of the QAIA Technical and ASTM D-30, Sub.Com.III, of interest to ATI were briefly reviewed.
4. New Business, - Although no new business was tabled, member companies were requested to submit any problems and ideas they might have on fiber testing to the chairman prior to the October meeting. This will assist in guiding the activities of the Fiber Testing Committee to meet the requirements of ATI and make future meetings more interesting and worthwhile attending.

Respectfully submitted,

G.F.A. Brink
Chairman

THE ACCELERATION OF TEXTILE TECHNOLOGY

Or, How to Take A Giant Step

Without Saying "May I?"

Guest Speaker: Dr. G. R. Cuthbertson
Technical Director
Fiber & Textile Division
UNIROYAL, Inc.

Asbestos Textile Institute Meeting
Atlanta, Georgia
June 7, 1968

Gentlemen . . .

As every schoolboy knows, Spencer Tracy invented the electric light . . . Don Ameche invented the telephone . . . Paul Muni became one of humanity's great benefactors with his development of pasteurization . . . and it is entirely possible that Elvis Presley will some day remove his agile fingers from a guitar long enough to accomplish the world's first successful transplant of the human heart.

Now I'm sure you all recognize these very familiar names as those of actors who have portrayed . . . or may some day portray . . . the lives of such men of genius as Thomas Edison, Alexander Graham Bell, Louis Pasteur and Dr. Christian Barnard.

In a sense, the highly colored motion picture biographies have succeeded in corrupting our appreciation of just how the great developments in technology and science are really accomplished.

Reason tells us that most scientific breakthroughs are the end-product of distinctly unglamorous, long-drawn-out years of effort. . . with many people contributing bits and pieces of incremental knowledge to what may in the end become a major advance in any given field and the building of a technological pyramid.

But . . . even though we know all this . . . even though we who have devoted years of work in the textile field are well aware of how much painstaking effort was required to develop and improve our own technology . . . still we cannot rid ourselves entirely of the romantic notion that innovations and inventions in other fields are accomplished . . . as the movies would have us believe . . . in a far more revolutionary manner as a blinding flash of pure inspiration.

And who's to say that they are not.

Take, for example Einstein's Theory of Relativity. I have here in my hand a letter that Dr. Einstein wrote many years ago to his brother, Wilhelm. Let me read it to you . . .

My dear Wilhelm . . .

I think E equals $M.V.^2$. Otherwise, there's nothing else that's new. By the way, could you let me have another five dollars? That plus the five I already owe you will make it an even eight.

Your loving brother,

Albert

I must confess that the letter I've just read to you is an invention of my own. I don't know if Dr. Einstein ever had a brother named Wilhelm. And if he did, I'm not sure he ever borrowed a red cent from him. But I do know that he did discover the Theory of Relativity . . . and that this was a basic and fundamental and revolutionary discovery . . . as was Fulton's invention of the steam engine . . . Edison's invention of the light bulb. . . Franklin's discovery of electricity . . . Fermi's postulation of the theory of atomic energy . . . and in our own field . . . Charles Goodyear's discoveries of the vulcanization of rubber . . . of the first polystyrene plastic by Simon in 1839 . . . and the first synthetic nylon fiber by Dr. Carothers.

Very few inventions and discoveries belong in that category. For the most part, inventions are really improvements and embellishments of past discoveries. But since those of us in one field of technology always tend to believe that the grass is growing much faster and greener in another field, we in the textile business are likely to judge as revolutionary such developments as . . . heart transplants . . . laser instruments for dentistry and for cornea transplants . . . computer technology . . . jet propulsion . . . antibiotics . . . television . . . communications via satellite. . . polio vaccine and scientific farming.

The truth is that a good case could be made to prove that each of these developments should be classified as evolutionary rather than revolutionary.

Take heart transplant, for example. Despite the flood of publicity heralding recent accomplishments in this field, it is by no means a revolutionary development. For heart transplants were preceded by kidney transplants in humans, and before that by a great deal of experimentation in the transplantation of both these organs in animals. It took long, hard years of research to perfect the surgical techniques and to gain some measure of control over body chemistry before transplantation of organs in humans became feasible.

And what about jet propulsion? We think of it as a relatively recent and revolutionary development. It is, in fact, a rather old one for which the patents have long since expired. The phenomenon upon which it is based is something we observed as children whenever we inflated a balloon and released it without closing the opening. Remember how it would jet through the air with remarkable speed!

And as for Television . . . well the fact is that a major company had worked out all the details on TV broadcasting and receiving before 1935 . . . with the exception of the difficulty they were having in focusing the electron beams. This prevented them from broadcasting and receiving a sharp image. But they hired a young Ph.D. from the

Physics Department of Harvard and assigned him the task of solving this problem. Needless to say, he was successful and the company honored him by broadcasting his picture every five minutes in their TV exhibit at the 1939 World's Fair in New York.

But what about color TV? Surely that was a revolutionary development. It was not until 1964-65 that the same company was broadcasting pictures of pretty girls in color at the World's Fair exhibit. So sorry to disappoint you, but laboratory work on color TV preceeded the introduction by many years.

All of the ooh-ing and ah-ing about color reminds me of an experience I myself had in this area as long ago as 1935. A friend of mine who also happened to be a reporter for the Boston Post called to tell me that a number of financiers in the Boston area had been contacted by an individual who claimed to have developed phosphors which, when exposed to the light of a match, gave off a glow of such magnitude that it provided sufficient illumination to read a newspaper in a darkened room for hours.

My own reaction was one of disbelief. I recall quoting the theory that "energy could not be created or destroyed". . .and I told him that the light from a match would not be sufficient to accomplish what the inventor claimed.

My friend then asked if I would be willing to discuss the subject with the inventor himself, the press and with some of the potential financiers. I agreed. So they all came to the Harvard Chemical Labs. . .where I succeeded in exposing the promoter/inventor. He subsequently left town and everybody seemed happy.

But, about a week later, I got a frantic phone call from one of the financiers. To my surprise, he wanted to know how he could get in touch with the inventor. And when I asked him why he wanted to contact such an obvious fraud, he told me that despite the inventor's over-promotion of the phosphors, it was possible that some profitable application could be made of them. In fact, the financier himself had some great ideas on how the phosphors could be used in paints. He was sure he could make a fortune with them . . . and I had to admit that the phosphors I had seen were excellent ones that gave off beautiful colors when compared to the standards of that day.

Now. . .if in telling you this story I seem to be suggesting that you should welcome the next scientific fraud you encounter with open arms . . .that's not what I had in mind. My point is that many of the scientific marvels that have become old and familiar and taken-for-granted with the passage of time. . .can sometimes find new and exciting and profitable applications in other directions. This was certainly true of phosphorescent and fluorescent materials. They had been known for at least a century. . .and all it took was the development of a mechanical marvel . . . the color TV tube and circuitry . . . to take advantage in

still another way of their God-Given characteristics. With few exceptions, this is true of all progress in scientific research. It takes both revolutionary and evolutionary paths. . .with all sorts of criss-crossings between discovery, development and practical application.

For the most part, of course, we can count on long years to elapse from the time when a basic discovery is made to the time when it is developed into an important practical application or put to profitable commercial use.

There are times, however, when extenuating circumstances force an acceleration of the pace . . . with the result that the elapsed time between discovery and end-use is greatly compressed. This was certainly true with respect to Atomic Energy . . . which was both discovered and put to use with revolutionary speed. In this instance, the extenuating circumstance was nothing less than the second World War. At stake were our whole political system and freedom itself. Is there any wonder then that we were prepared to muster the country's top technical brains and provide them with the full backing of our nation's resources to transform atomic energy into the atomic bomb at revolutionary speed?

During the same World War II period, the demands of modern warfare dictated another technical revolution that led to the quick development of a full blown synthetic rubber business in the U.S.A. With our natural rubber supply cut off and the subsequent shortage of truck tires threatening our mobility, American business . . . aided by an amazing degree of governmental cooperation . . . responded by developing synthetic rubber which had been discovered 100 years earlier into an industry capable of 670,000 tons annually within the short space of two years.

The lesson is plain for all to see. . .unless there is some extraordinary driving force. . .such as a war. . .or a national emergency. . .or some great shortage of a vital product. . .our progress in research and development is apt to be evolutionary. . .to move forward at quite a leisurely and unhurried pace.

It might even be possible to express this as a formula. You could take all of the available information. . .such as existing patents . . .growth of population. . .labor statistics. . .research and development activities. . .competitive pressures both domestic and foreign . . . the amount of investment required . . . et cetera. . . and putting all these factors together . . . you could probably come up with a good estimate as to the rate of progress that is likely to occur in product development and commercialization in any given field.

It's entirely possible that you wouldn't even have to take all of these factors into account. It's possible that just one of them would so

overwhelm the others that no charting or weighing of factors would be required.

Let me cite a case in point. You may remember that about eight years ago, the development of the air-car was announced. As a matter of fact, some versions of this car are now in use on a limited scale in swamp lands.

Essentially, it is a car with a coated fabric skirt that's suspended above the ground by air pressure and propelled by jets or a propeller. Naturally, we were quite interested in this development. . .and for two reasons. First. . .because it meant that if this type of vehicle should replace the conventional automobile, it would open up a big market for coated fabrics. And secondly. . .because it would, at the same time, have a tremendously adverse effect on our tire market.

So we hastened to acquire every possible bit of engineering and performance data obtainable about the air-car. . .and it quickly became obvious to us that in spite of the manufacturer's claims . . . this type of vehicle could not operate effectively on conventional highways.

Wind and draft factors made it impossible for the air-car to travel at acceptable rates of speed and manage, at the same time, to stay in traffic lanes or even on the highways. So it was concluded. . .quite correctly. . .that the air-car was not usable on our present highway system. It became clear, too that because of the tremendous investment in both manpower and dollars required. . .it would take at least 25 years before suitable highways could be constructed.

However, we were able to foresee that the air-car could be used in specialized situations. . .and, as a result, a coated fabric business for air-car use is evolving on a limited basis.

The analysis of this particular situation was easy enough. But . . . there are others that tend to be much more complicated . . . and in these cases it is important that we take every single factor into consideration.

Off hand, I can think of at least 8 vital factors that will undoubtedly influence whatever revolutionary and evolutionary developments are in store for American fibers and textiles in the foreseeable future.

First . . . the pressure of foreign imports;

Second . . . the demands of our own Safety Codes (especially with respect to Air Pollution in the manufacturing processes and Inflammability of product at the consumer end);

Third . . . the developments of Creative Chemistry.

Fourth . . . the advances made in Automated Manufacturing Equipment.

Fifth . . . industrial requirements for specialized fibers & textiles:

Sixth . . . evolving fads and fashions in Styling:

Seventh . . . an insistence upon improved Household Performance
(particularly in the area of wrinkle-free, permanently
pressed and easy-to-maintain fabrics):

And Eighth. . . the requirements of our Military Establishment.

All of these factors. . . as well as others that you yourself may wish to include. . . are bound to have an important bearing on the progress of our textile technology.

Let's consider them individually.

Most important of all is the impact of foreign imports. Unfortunately, this is one area in which most of us tend to be dangerously complacent. After all, the current level of apparel and textile imports constitutes only about 12% of our domestic production. But. . . that 12% figure is a deceptive one. In terms of sheer tonnage it adds up to a huge influx of foreign fibers and textiles. Bear in mind that no single U.S. textile producer accounts for 12% of domestic production, and that will give you some idea of how many jobs and plant facilities could be added here in the U.S.A. if that 12% wasn't coming in from overseas.

And the situation is likely to get much worse before it gets better. The recent agreement reached in the so-called "Kennedy Round" of tariff negotiations at Geneva, Switzerland, could have serious consequences for our own industry. Under the terms of that agreement, tariff reductions are scheduled for some 6,000 products between 1968 and 1972. Among other things, the agreement calls for a sharp reduction in tariffs on spun yarns from both natural and man-made fibers, asbestos products, knitted fabrics, elastic yarns and tire cord. Passenger tires and polypropylene products competitive with those made in the U.S. will fall under the 50% tariff cut.

These tariff reductions have been well publicized abroad. As a result, European producers have an intensified awareness of the tremendous market potential that exists here in the U.S.A. It is reasonable to expect that they are gearing up to take fuller advantage of it.

Our own politicians are now giving some consideration to imposing import quotas in an effort to correct the situation. But this is, at best, only a short-term expedient. It does not provide us with an answer over the long haul.

What's more, the problem is complicated by the fact that many of these foreign imports are not only lower in price but of good quality as well. It's often mentioned that we're competing with much lower labor costs from abroad. For example, it averages about 50 cents an hour in Japan, and 25 cents an hour in South Korea as compared with a \$2.00-per-hour average in the U. S. textile business.

But lower labor costs are not the only factor. Very little has been said about the fact that U. S. companies have sold American technology abroad. This includes both product and processing technology . . . and it is one of the big reasons why our foreign competition can make products of good quality through automated processes. Add that to their low labor costs and it's no wonder foreign competition is so rugged.

And the big question that faces us is simply this: Aside from political maneuverings, just what exactly are we going to do about this threat from abroad?

How will we meet the challenge?

Well, for one thing, I'd suggest that we make much more effective use of the most powerful weapon we have in our arsenal . . . Research and Development. It happens to be a weapon that we in the textile business have been woefully laggard in utilizing . . . especially in comparison with the way it has been brought to bear by other industries.

The figures speak for themselves. We in the textile business are spending somewhere in the neighborhood of .6% of sales for research and development . . . which is just about one-seventh of the percentage that all U. S. industry averages in R & D expenditures.

In fact, U. S. industry as a whole is in a mood to do some tall R & D spending over the next few years. Surveys taken by McGraw Hill's Economics Department, as reported in the May 18 issue of Business Week, indicate that the top U. S. companies plan to increase their R & D spending between now and 1971 by a full 25%. And they expect to see some substantial rewards for their efforts in the form of marketable new products. On the average, U. S. businessmen predict that 17% of their sales in 1971 will be derived from new, or substantially new, products. In terms of 1967 dollars,

these U. S. producers are counting on sales of \$121-billion from new products just three years from now.

And how do we in the textile industry fit into that picture?

The answer is, we don't! That same Business Week article charts the expenditures for R & D by 15 separate industries, producers of both durable and non-durable goods. And where do we stand on that chart? Dead last. We were last in 1966 . . . last in 1967 . . . we'll be last again this year . . . and it's predicted that we'll have the dubious distinction of being last in 1971 . . . as well. It's estimated, for example, that \$50 million will be spent for research and development by textile mill product and apparel producers. Compare that with the six-billion three-hundred-and-forty-seven million-dollars that the aerospace industry alone will spend this year for research and development. Compare it with the \$4.2 billion to be spent for R & D by the electrical machinery and communications equipment industry. By comparison, our expenditures are a drop in the bucket. And by 1971, the situation won't be much better . . . unless we decide to do something about it now. Business Week estimates our R & D outlays in 1971 at something like \$62 million. The aerospace people will be up to \$8.4 billion by then and the electrical machinery and communications equipment people will be spending \$5.3 billion.

The total R & D in 1967 was \$16,789 million which is 2.1% of the Gross National Product of \$785 billion while textile and apparel R & D was 46 million or .25% of \$18,700 million contribution to the Gross National Product. .25% is only 1/8 of the average industry rate. These figures remind me of another statement of facts which goes like this. The U.S.A. has 6% of the World's population but does 50% of the work and consumes 40% of the raw material. Something to be proud of . . . but if what we read and hear is true, it is not because of textiles. Here we are on the defensive and must catch up. The only way appears to be through increased R & D.

That doesn't mean the picture is all bad. Despite the low level of expenditures, our R & D has already managed to offset foreign competition in some areas.

For instance, a number of U. S. companies have developed a synthetic backing for tufted carpets that is making inroads into the use of imported jute.

We're also using synthetic fabrics to replace imported jute in the fabrication of sandbags for the government. And in the sophisticated tire cord field, American-made products are still holding their own.

Even when the foreign competition is particularly tough, R & D ingenuity can frequently find an answer. One example that comes to mind has to do with the marketing of soft side bags. About 60% of the bags sold in this country come from Japan and Korea. They're indistinguishable from the U. S.-made bags . . . but they're not made in factories . . . they're put together from pre-cut parts in private homes by women and children. So despite the import tax, these bags can be sold in the U.S.A. for 25% less than the ones we make. It would seem that this presents American competition with a hopeless task. Yet one American company is managing to meet the challenge. Through their own Research and Development, they've come up with a 100% molded bag of good appearance. And it is selling. So there's no reason to doubt that we can . . . by developing new automated production processes. . . challenge the imports in other areas as well.

Automation is, in still another way, a major factor governing the acceleration of our technology. Here again, we find ourselves lagging behind our foreign competition. In almost every area of textile equipment development . . . for weaving . . . knitting . . . and false twist texturizing . . . you'll find that the most efficient equipment has not been developed in the U.S.A. Our own textile equipment makers are not as active as their foreign competition.

But one thing is certain. All of the current developments in patents, lab equipment, pilot equipment and certain forms of production . . . reveal quite clearly that new automated yarn and new fabric-forming processes are evolving. This could literally revolutionize the textile industry within the next 15 years. And it points up the fact that there is a very pressing need for American companies to gain leadership in the development of automated equipment.

Still another factor that will influence the directions in which textile technology must evolve is the effect of our new Safety Codes. As you know, the Federal Government is very much concerned about reducing the number of injuries and fatalities caused by accidents in our industry. This is particularly true with respect to accidents caused by flammable fabrics, including clothing, drapes, carpets, bedding, etc. I have no doubt that the Safety Codes dealing with inflammability requirements will result in major changes in our fibers and textiles. Since the objective is worthwhile . . . and the government's pressure unrelenting . . . these changes could be brought about at revolutionary speed.

A third factor influencing our technology will be the role played by creative chemistry. The chemist has discovered how to put together a multitude of monomers to make fiber-forming polymers. So it appears now that instead of a limited number of polymers being used in fibers, a great number will emerge and be used for quality and styling at lower cost. Perhaps you've already seen how one major fiber producer has been tantalizing the public with a mystery ad for a new fiber that is claimed to be better than the best we now have. There'll be many more new and better fibers. Our tremendous volume of over 8 billion pounds of natural and synthetic fiber can economically support large quantities of specialty polymers and fibers. You can look forward to the appearance of inorganic fiber-forming polymers as well as organic. It's feasible that asbestos will be replaced with a synthetic fiber . . . which could be a synthetic asbestos or a substitute that has the same characteristics of the asbestos fiber.

It has been said that necessity is the mother of invention. The necessities involved in the military requirements of our Armed Forces will certainly affect our technology in many ways.

For example, our military people feel that there is a need to cut the weight of their equipment by as much as 50% without any loss in performance. In the fabrics field, they're pursuing a very aggressive program to accomplish this objective. The process of developing lightweight, synthetic tentage to replace cotton tentage is well under way. Improvements in ballistic fabrics are being pushed . . . as well as in fabrics for military clothing. What they're looking for are super fabrics made from super fiber. And since military requirements tend to be very urgent in this day and age, you can expect developments in this area to proceed at a very fast pace.

Demands on our technology will also be coming thick and fast as a result of new and varied industrial requirements. In addition to the demand for a chemical filter fiber, there's rising pressure for the development of special fibers and fabrics for use in both air and water pollution control. And the new field of oceanography is already making demands on us for both new fibers and fabrics. For example, a synthetic sea weed fabric has been developed as a curtain to protect harbors from storms and drifting sands. It is conceivable this will be used in tremendous quantities. One thing is certain. . . industrial requirements are going to be so far-ranging and varied that an entire speech could be devoted to the many ways in which this will make accelerating demands on our technology.

And who can doubt that we're going to be challenged by rapidly evolving fads and fashions in styling as well. We in the textile business live in a world of styling. Clothes, furniture, homes, automobiles and offices make great demands on our ingenuity for creating beautiful but durable fabrics. These demands will increase . . . and you can look for an even greater emphasis on colors. I wouldn't be surprised to see phosphors used for pigmentation. Patents have already been issued and small samples of fibers with fluorescent and phosphorescent pigments have been seen. The timing is right for such a development .

And, finally, you can look forward to stringent demands for improved Household Performance. The housewife wants much more than she's getting from our industry.

She wants carpets that do not retain soil. . . and that are capable of keeping their good appearance for a generation.

She wants drapes that don't fade and that resist soiling.

She wants upholstery that has good abrasion and resists soiling.

She wants sheets and pillow cases that can be washed and dried wrinkle-free. . . and still have a good feel to them.

She wants all of this. . .plus inflammability . . . beauty . . . and lower prices as well.

So it looks as if we've got our work cut out for us. There's a great deal that needs to be done. And I, for one, am proud to say that we at UNIROYAL are determined to do more than our share in bringing about an acceleration of technology in the textile field.

And that's not all. There are many projects we're working on that I wish I was at liberty to discuss. But the important fact is not what we're doing . . . but that we've got to do much more!

When we were children, there was a game we played in which we could only take a giant step by requesting permission to do so. We had to ask, "May I?" And if we didn't, we were penalized. We are not children now. . .and this is not a game we're playing. If we're really determined to face up to our foreign competition and assure a great future for our industry, we've got to meet the challenge by accelerating our textile technology . . . by spending far more for Research and Development. Only those who wait and ask, "May I?" before proceeding will be penalized. For the others . . . for those of us who are determined to seize the Research and Development initiative. . .the opportunities and the rewards can be limitless.



October 3, 1968

PLAINTIFF'S
EXHIBIT

ATI 66

Minutes

BOARD OF GOVERNOR'S MEETING

October 3, 1968 - 9:00 P.M., Hotel Hershey, Hershey, Pa.

In attendance:

J.L. Rainey - American Asbestos Textile Corporation
E.A. Schuman - Johns-Manville Corporation
J.A. Brown, Jr. - Raybestos-Manhattan, Inc.
L.E. Moody - E.I. Porter Company, Inc.
R.P. Clark - Uniroyal, Inc.
P. Jay Flocken - Legal Counsel, Cadwalader, Wickersham & Taft
H.E. Sunbury - Secretary, A.T.I.

Absent: J.L. Mitchell - Tallman, McCluskey Fabrics Co.
G.P. Wiess - Garlock, Inc.

Guests: C.L. Sheckler, Johns-Manville Corporation

*** Minutes ***

1. President Rainey called the meeting to order and deferred the regular order of business to permit Mr. C.L. Sheckler to address the Board.
2. Mr. Sheckler explained what he felt the A.T.I. should attempt to accomplish in the way of industry-wide efforts to reduce the dust hazard to operatives. For example, "wet-weaving" should be adopted industry wide. Stated that the British asbestos textile industry have done this. Feels also, that in the future there will be a law making wet-weaving mandatory.
- Mr. Sheckler recommended that A.T.I. set up an "Environmental Control Committee" and offered suggestions as to its membership. He visualized that this committee would release news on Health Problems, handle liaison between companies on mutual problems, and liaison with other groups like Insulation Mfgs. Association. He mentioned that his company was now cooperating with Dr. Selikoff, widely known for his research work on health of asbestos pipe-coverers, who has recently been named to head an "Insulation Industry Hygiene Research Program", a combined effort involving an international labor union, industry, medical science, and the Federal Gov't.
3. Mr. J.A. Brown, Jr. moved that A.T.I. set up a committee as recommended by Mr. Sheckler. Motion was seconded by Mr. L.E. Moody. Approval was unanimous.
4. President Rainey offered for consideration a suggested resolution:
"The Board of Governors of the Asbestos Textile Institute, recognizing that every effort to control environmental dust problems should be encouraged wherever feasible and acting on the advice of the Air Hygiene & Manufacturing Committee, recommends that all member companies of the Institute consider adoption of the 'wet-weaving' process with all deliberate speed."

Mr. R.P. Clark moved that the Resolution be approved, his motion was seconded by J.A. Brown, Jr., and approval was by unanimous vote.

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EX 7373

5. The minutes of the last meeting were presented for reading. On motion made by R.P. Clark, seconded by E.A. Schuman, it was voted to omit the reading of the minutes.

6. The Financial Report as of September 10th, 1968, was presented by the Secretary. R.P. Clark moved that the report be accepted, and this motion was seconded by E.A. Schuman. So voted, and the Report is attached to these minutes. Mr. Rainey reported that the Annual Audit of the Institute's books had been made by Mr. James D. Smith, accountant employed by our member company, GARLOCK INC., and that he had a letter from Mr. Smith dated September 23, 1968, stating that the Report of September 10th, 1968 as presented by the Secretary, represented the financial position of the Institute on that date. A copy of the auditor's letter is attached to these minutes.

7. Mr. J.A. Brown, Jr., Chairman of the Nominating Committee, reported that he had canvassed the member companies to determine who would represent them on the Board of Governors for the coming year, and that the following have been designated by their respective companies:

John A. Brown, Jr. - Raybestos-Manhattan, Inc.
R.P. Clark - Uniroyal, Inc.
J.L. Mitchell - Tallman-McCluskey Fabrics Co.
L.E. Moody - E.E. Porter Company, Inc.
J.L. Rainey - American Asbestos Textile Corp.
E.A. Schuman - Johns-Manville Corp.
G.F. Wiess - Garlock Inc.

8. Election of Officers: - Mr. J.A. Brown, Jr., Chairman of the Nominating Committee, submitted a slate of officers for the coming year:-

For President -- E.A. Schuman
" Vice President - R.P. Clark
" Treasurer - M.Q. Seewerdt (Raybestos-Manhattan)

There being no other nominations it was moved by J.A. Brown, Jr., and seconded by L.E. Moody, that the slate of officers as submitted be accepted. Election was by unanimous vote.

9. It was agreed that the respective chairman of our four working committees should be continued for another year, inasmuch as each has completed only one year of the normal two-year term.

10. The Secretary presented a suggested Institute Budget for the year 1969. President Rainey deferred discussion of same until later in the meeting.

11. President Rainey read a letter from Syracuse University stating they had a three year contract (or grant) from the Dept. of HEW to study the origin, quantities, and characteristics of wastes which result from production in our industry, and requesting the cooperation of his company in supplying the needed information for their research. Several of the members stated they also had received the same letter from Syracuse University. No discussion or comments were made.

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6. President Rainey introduced Dr. G.R. Cuthbertson, Technical Director of the Fiber and Textile Division, UNIROVAL, Inc., and expressed our pleasure at his willingness to be our main speaker at this meeting. Dr. Cuthbertson's talk, entitled - "The ACCELERATION OF TEXTILE TECHNOLOGY" or How to take a Giant Step Without Saying "May I?", was most constructive and of great interest to a most appreciative audience. We are indebted to Dr. Cuthbertson for supplying copies of his talk for inclusion with these minutes. President Rainey thanked Dr. Cuthbertson on behalf of the Institute and its members.

7. The committee reports were given by the respective committee chairmen as listed below:

Air Hygiene & Mfg. Committee - H.E. Walter, Chairman
Sales Promotion Committee - M.G. Scovcroft, Chairman
Technical Committee - J.W. Hawkins, Chairman
Fiber Testing Committee - G.F.A. Brink, Chairman

The full text of their reports is attached to these minutes. President Rainey expressed his appreciation, and that of the Institute, for the fine work of our several committees, and mentioned also the valuable assistance given the Technical Committee by Mr. Paul J. Smith of A.S.T.M. in regard to the revision of ASTM Specifications for Asbestos Textiles.

8. President Rainey announced that the date of the next General Meeting would be October 3-4, 1965, at Hotel Hershey, Hershey, Pa. This is a fine hotel, located in the interesting Pennsylvania Dutch country, with much to see and do. As is customary at our annual meeting each October, members are urged to make a special effort to bring their wives to this meeting!

Mr. Rainey announced also, that the winter meeting of A.T.I. would be at the GRAND HOTEL, Point Clear, Ala. (near Mobile) and the dates are February 6-7, 1969. This is a very famous hotel and those who have attended meetings of other associations there are sure that A.T.I. members and their wives will greatly enjoy their visit to the GRAND HOTEL!

9. There being no further business to come before the meeting it recessed for luncheon, following which the meeting adjourned.

Respectfully submitted,

H. E. Sunbury
H. E. Sunbury
Secretary

GENERAL MACHINE

MADE IN U.S.A.

1963

MINUTES

SALES PROMOTION COMMITTEE
Asbestos Textile Institute
October 3, 1968
Hotel Hershey, Hershey, Pa.

Page -1-

The Sales Promotion Committee met on October 3, 1968 with representatives of four member companies in attendance.

One area of concern of this committee is the very real threat of imported Japanese asbestos textiles. At our meeting in Atlanta last June, it was suggested that we investigate the possibility of instituting "dumping" charges against the Japanese industry. We requested counsel to proceed through an approach to the Board of Trade Commission. Mr. Flocken has submitted his comprehensive report on the subject. It can be summarized briefly at this time by saying that we all feel that this approach has little chance of success. "Dumping" charges have been successful in a ratio of about 3 in 50. After exhaustive discussion, we feel that our complaint is indeed flimsy and the entire subject has been shelved.

Many members have reported that Japanese cloth is demonstrably inferior to cloth made in U.S.A. With this in mind, we obtained a roll of Japanese cloth and asked the Technical Committee to arrange physical tests on it by each company. At this time we wish to express our appreciation to the Technical Committee under the leadership of John Hawkins for the report on the results of this testing. The test results of each company were sent to John Hawkins who compiled and submitted them to this committee. In general, the physicals were standard. However, they do reveal two areas which we feel could be exploited in the market. Despite the fact that they have a high asbestos content-ASTM Grade "A"--it was reported that they failed to pass a standard flame test. Members felt that this was because they (the Japanese) used acrylic fibers as a carrier. The cloth also had a relatively poor warp tensile. This was particularly revealed and emphasized in the heat aging test whereby the residual tensiles after heat aging were decidedly inferior to standards maintained by all member companies. In addition, one company was able to determine that the Japanese seemed able to use shorter fibers in their cloth than we in this country. This contributes to their lower costs but, in addition, causes lower tensile strengths. Copies of the report were given to member companies in attendance and copies will be sent to those companies who were unable to attend.

It was decided that no collective action would be taken as a result of these tests but each member can use the report as he sees fit. We feel that the cloth does not represent an economic purchase in relation to its projected life and that the data can be helpful in proving this premise.

(continued)

regulatory statutes. With careful qualification, Counsel ventured to predict that the election of either of the major party candidates would not fundamentally alter the nature or substance of federal regulation of business practices. Experience under the Eisenhower Administration suggests that antitrust enforcement would be at least as significant in another Republican administration as it has been under the succeeding Democratic administration. However, Mr. Flocken suggested that new legislative action on the "conglomerate" problem was more likely under a Democratic administration.

5. The Fibre Producer's Report was given by Mr. M.P. Carson, Vice President - Sales, ASBESTOS CORPORATION LIMITED, Thetford Mines, P.Q. and his interesting and informative report is attached.

6. Guest-of-Honor, Miss Edith E. Cox, retired editor of ASBESTOS Magazine, was introduced by Mr. J.A. Bettes, Jr., a former president of the Institute. Mr. Bettes paid fitting tribute to Miss Cox for her service to the asbestos industry for a period of more than fifty years. President Rainey presented Miss Cox with a memento of the occasion, and there was a standing ovation in her honor. Miss Cox responded most graciously, and said she appreciated very much the opportunity to attend the meeting.

7. President Rainey introduced Dr. A.G. Matamoros, Chief Economist of Armstrong Cork Company. A nationally recognized economist, Dr. Matamoros spoke on the subject: "Business Prospects and Problems in the Year Ahead". His talk was extremely interesting, and was followed by many questions from his audience. President Rainey thanked Dr. Matamoros on behalf of the members.

8. The committee reports were given by the respective chairmen:

Air Hygiene & Mfg. Committee - H.H. Walter, Chairman
Sales Promotion Committee - M.Q. Scowcroft, Chairman
Technical Committee - J.W. Hawkins, Chairman
Fiber Testing Committee - G.F.A. Brink, Chairman

The full text of their reports is attached to these minutes.

9. President Rainey, following the report of the Air Hygiene & Mfg. Committee, stated that the Board of Governors had voted unanimous approval of that committee's recommendation in respect to adoption of 'wet-weaving' of asbestos fabrics, and had passed the following Resolution: - "The Board of Governors of the Asbestos Textile Institute, recognizing that every effort to control environmental dust problems should be encouraged wherever feasible and acting on the advice of the Air Hygiene & Mfg. Committee, recommends that all member companies of the Institute consider adoption of the 'wet-weaving' process with all deliberate speed."

10. President Rainey announced that the Board of Governors had voted unanimously to set up a new committee tentatively titled "Environmental Control Committee", and asked Mr. C.L. Sheckler, Manager of Occupational Environmental Control, Johns-Manville, Corp., to comment on its purpose. Mr. Sheckler mentioned that the new committee, as presently envisaged, would release news on Health Problems, handle liaison between companies on mutual problems, and also handle liaison with other groups like Insulation Mfgs. Assoc.,

(continued)

as part of the activities of the new committee, and felt that it would render a very important service to our industry.

11. President Rainey announced that representatives of the member companies now serving on the Board of Governors would continue without change, and also, that the members of the Board had elected new officers to serve for the coming year, namely:

President - E.A. Schuman, Johns-Manville Corp.
Vice President - R.P. Clark, Uniroyal, Inc.
Treasurer - M.Q. Scowcroft, Raybestos-Manhattan, Inc.

12. Mr. Rainey announced that the next meeting of the A.T.I. would be held at the GRAND HOTEL, Point Clear, Ala. (near Mobile) and the dates are February 6-7, 1969. This is a very famous hostelry, and those who have attended meetings of other associations there are sure that A.T.I. members and their wives will greatly enjoy their visit to the GRAND HOTEL.!

13. The meeting recessed for luncheon, during which "Jack" Rainey, retiring president was presented with an Atmos clock in appreciation of his outstanding leadership of the Institute during the past two years. Mr. Rainey thanked the members for the gift and for their cooperation during his tenure as president, and received a fine hand and standing ovation following his remarks.

14. After the luncheon the meeting adjourned.

Respectfully submitted,

H.E. Sunbury
H.E. Sunbury
Secretary

ASSOCIATION TOXIC FILM INSTITUTE

Report of Funds

September 10, 1968

Balance on Hand at last Report (May 8, 1968)

General Fund	\$ 3156.84
Savings Fund	20692.66
Petty Cash Fund	35.23

\$24184.73

Receipts

To Savings Fund (Interest to 6/30/68)	252.28
To General Fund (Book Sales)	28.00

281.08

Total On Hand and Received

\$24465.81

Disbursements

Legal Retainer (3 mos. ending 5/31/68)	500.00
Secretary's Salary (4 mos.)	478.00
F.I.C.A. Tax (2nd qtr 1968)	33.00
Secretary's Travel	210.00
Office Rent (4 mos.)	300.00
Printing & Office Supplies	37.60
A.T.I. Meeting Expense (June 5-7, 1968)	720.45
Telephone (4 mos.)	152.23
Revision of ASTM Specifications	110.30
Purchase of Imported Asbestos Cloth (Test)	135.46
Petty Cash (Vouchers 360-372 incl.)	62.02

Total Disbursements

2739.06

Balance On Hand September 10, 1968

\$21726.75

Funds

General Fund (Bank Statement 9/10/68)	743.83
Savings Fund	20944.94
Petty Cash Fund	37.98

Total Funds

\$21726.75

Assets as of September 10, 1968

General Fund	743.83
Savings Fund	20944.94
Petty Cash Fund	37.98
Accts Receivable (Book Sales)	18.03
Postage on Hand	2.83
Furniture & Equipment (Nominal Value)	1.00

Total Assets

\$21748.61

Liabilities

Accts Payable as of Sept. 10, 1968

100.00

Net Worth

\$21648.61

Respectfully submitted,

H. E. Sunbury
H. E. Sunbury
Asst. Treasurer

ASBESTOS HEALTH SEMINAR

October 2nd, 1968 - 2:00 P.M.

Hotel Hershey, Hershey, Pa.

Sponsor: Asbestos Textile Institute

Program Chairman: Mr. C.L. Sheckler

AGENDA

1. Introduction
J.L. Rainey, President of Asbestos Textile Institute
Vice President, American Asbestos Textile Corporation
C.L. Sheckler, Manager of Occupational Environmental Control,
Johns-Manville Corporation
2. News Headlines and Public Relations
W.P. Raines, Director of Public Relations, Johns-Manville Corp.
3. Biological Effects of Asbestos
Dr. George W. Wright, St. Lukes Hospital, Cleveland, Ohio
Chairman, Institute of Environmental and Occupational Health
4. Organizing and Engineering for Dust Control
E.M. Fenner, Director of Environmental Control, Johns-Manville Co.
5. Asbestos Research Progress
Dr. L.J. Cralley, Director of Epidemiological and Field Studies
United States Public Health Service
6. Legislation, Litigation and Action Programs
C.L. Sheckler, Johns-Manville Corp.
7. Question and Answer Period
8. Summary
J.L. Rainey, President of A.T.I.

Note: The program is scheduled for approximately three hours duration.

ASBESTOS FIBRE REPORT

Page -1-

October 4, 1968

By: Mr. M.P. Carson, Vice President-Sales
ASBESTOS CORPORATION LIMITED, Thetford Mines, P.Q., Can.

" You might be interested to have an outline of 1967 production figures for chrysotile asbestos fibre from major producing countries:

U.S.S.R.	1,750,000 tons
Canada	1,500,000 "
Rhodesia	200,000 "
U.S.A.	130,000 "
Italy	100,000 "
South Africa	40,000 "
Cyprus	22,000 "
Swaziland	40,000 "

Canada continues to be the major exporter of chrysotile in spite of Russia's position as the largest producer. Incidentally, it is doubtful that Russia is exporting spinning fibre in any quantity and Russian exports of asbestos cement grades have remained relatively stable over the past seven years at 250,000 to 280,000 tons per annum, with about 150,000 tons shipped to the free world.

Reports indicate that Rhodesian fibre is all being sold, although the market pattern has changed significantly since U.D.I.

Of interest to A.T.I. members is the fact that spinning fibre shipments from Quebec production were running about 17% ahead of 1967 at the end of August. and I believe this will continue through the balance of 1968 and possibly be higher at the close of the year. The U.S. market had not been a significant factor in this increase. Improved economic conditions in Western Europe, Japan, and greater activities in some of the Socialist countries of Europe have contributed to the increase in spinning fibre shipments.

It has been reported that Cassiar production has been reduced to 75,000 tons per annum and Clinton Creek is approaching full production. Nicolet has announced that its mine will be closed at the expiration of its labour contract on February 28, 1969.

(continued on Page -2-)

Pacific Asbestos in California is reportedly back to a 6-day week, 3 shifts per day, for an annual production rate of 45,000 tons.

Reports continue to appear concerning new properties in Quebec, namely Albitibi and McAdam, but there is much uncertainty concerning the future of these Prospects.

Western European economic recovery in 1968 has brought increased markets for all grades of fibre from Quebec. Although France was a serious question mark a few months ago, it is believed that the asbestos consuming industries in France will consume almost as much fibre as in 1967. The textile manufacturers seem to be less uncertain at present time than they were a few months ago. Japan's improved economic conditions have meant increased consumption and the much rumoured expectation of a reduced rate of growth in the second half of 1968 has not materialized.

The outlook for the remainder of 1968 looks favourable for all grades of fibre. The textile markets in Europe and Japan appear to be doing well and the expectation that the upward trend will continue is a good possibility. The domestic market does not convey as optimistic signs for 3-Group fibre.

Price increases have been announced by a number of producers with 5% the increase for textile fibres effective January 1, 1969. Cassiar has announced price increases averaging 6%. "

Air Hygiene & Manufacturing Committee
Asbestos Textile Institute
October 3, 1968, Hotel Hershey, Hershey, Pa.

In attendance:

H.H. Walter, Chairman	-	American Asbestos Textile Corp.
L.E. Moody	-	H.K. Porter Company, Inc.
H.M. Willingham	-	Uniroyal, Inc.
R.C. Hunt	-	" "
L.C. Williams	-	Raybestos-Manhattan, Inc.
C.L. Sheckler	-	Johns-Manville Corp.
W.C. Seeds	-	" " "
R.B. Smith	-	Raybestos-Manhattan, Inc.

Absent: K.W. Nelson - American Smelting & Refining Co.

Guests: R.M. Billings - Johns-Manville Corp.

Asbestos Health Seminar: The Seminar on October 2, 1968 was attended by all members of the committee and the topics presented there-in were subsequently discussed at the committee meeting.

Bausch & Lomb Automatic Dust Counter: Mr. J.P. Wronski gave a report on the tests that were conducted at the Raybestos-Manhattan plant in Manheim, Pa. The attempt to find a correlation between the Impinger and the Bausch & Lomb Dust Counter lead to the conclusion that little correlation between the two instruments exists, particularly in regards to large particle size as well as in areas of high dust concentrations. This phenomenon is due to the low trapping velocity of the Bausch & Lomb Dust Counter, which is therefore not to be considered as a replacement for the Impinger. However, the Bausch & Lomb Dust Counter has proven its feasibility as an excellent monitoring device.

Mr. C.L. Sheckler reported on the Membrane-Filter Method and will present a paper on that method at the next meeting.

Dust Control in the Manufacturing Process: Equipment designed for the reduction of dust in the various operations of textile manufacturing was extensively discussed:

1. A bag opening, emptying and storage system, designed by Barkley & Dexter, Inc.
2. A bag dumper, designed by the Wilkra Co.
3. Bag opening and handling devices, designed by the member companies.
4. Various systems of moving blends to cards.
5. Balloonless spinning and twisting.
6. Wet weaving

One member company reported on a balloonless spinning frame based on the woolen system. Balloonless spinning seems to be desirable inasmuch as the absence of a balloon results in a much lower dust count. Woolen type spinning frames operate usually at a considerable higher spindle speed than those now being used in the asbestos textile industry. As a result broken ends will stir up a great deal of dust. It is therefore imperative that the spindle will stop as soon as an end breaks. The manufacturer of the spinning frame has designed an automatic spindle stop motion and is at present experimenting with such a device, which is similar to the one already being used on balloonless twisting frames.

(continued)

Minutes - Air Hygiene & Manufacturing Committee - continued:

It is hoped that top management will agree to an open exchange of health safety ideas, including designs, plans, photographs and visitors in areas of mutual interest in regards to the reduction or (if ever possible) total elimination of dust in the manufacturing process. The members of the committee agreed to have technical information concerning health safety practices on hand at the next meeting.

Members of the committee stressed the point that dry weaving of asbestos cloth presents one of the greatest health safety problems in the production of asbestos textiles. To achieve the tentative ACGIH threshold limit values of 2MPPCF of air or the alternate, 12 fibres per cc-5 microns+, engineering asbestos dust abatement in the dry weaving process is, it appears, an impossible task. Wet weaving throughout the industry, however, will achieve tremendous strides towards accomplishing the standards recommended by the United States Public Health Service and the American Conference of Governmental Industrial Hygienists.

It is also essential to produce and manufacture a product that will provide the fabricator and user maximum health safety. Again this can only be accomplished by the process of wet woven cloth.

This material (wet woven cloth) is less dusty and therefore less hazardous.

The Air Hygiene & Manufacturing Committee respectfully urges immediate action by the Board of Governors to coordinate this matter with all ATI standing committees and follow up with specific recommendation for industry-wide action.

Respectfully submitted,

H.H. Walter
Chairman

MINUTES

Page -1-

SALES PROMOTION COMMITTEE
Asbestos Textile Institute
October 3, 1968
Hotel Hershey, Hershey, Pa.

The Sales Promotion Committee met on October 3, 1968 with representatives of four member companies in attendance.

One area of concern of this committee is the very real threat of imported Japanese asbestos textiles. At our meeting in Atlanta last June, it was suggested that we investigate the possibility of instituting "dumping" charges against the Japanese industry. We requested counsel to proceed through an approach to the Board of Trade Commission. Mr. Flocken has submitted his comprehensive report on the subject. It can be summarized briefly at this time by saying that we all feel that this approach has little chance of success. "Dumping" charges have been successful in a ratio of about 3 in 50. After exhaustive discussion, we feel that our complaint is indeed flimsy and the entire subject has been shelved.

Many members have reported that Japanese cloth is demonstrably inferior to cloth made in U.S.A. With this in mind, we obtained a roll of Japanese cloth and asked the Technical Committee to arrange physical tests on it by each company. At this time we wish to express our appreciation to the Technical Committee under the leadership of John Hawkins for the report on the results of this testing. The test results of each company were sent to John Hawkins who compiled and submitted them to this committee. In general, the physicals were standard. However, they do reveal two areas which we feel could be exploited in the market. Despite the fact that they have a high asbestos content-ASTM Grade "A"--it was reported that they failed to pass a standard flame test. Members felt that this was because they (the Japanese) used acrylic fibers as a carrier. The cloth also had a relatively poor warp tensile. This was particularly revealed and emphasized in the heat aging test whereby the residual tensiles after heat aging were decidedly inferior to standards maintained by all member companies. In addition, one company was able to determine that the Japanese seemed able to use shorter fibers in their cloth than we in this country. This contributes to their lower costs but, in addition, causes lower tensile strengths. Copies of the report were given to member companies in attendance and copies will be sent to those companies who were unable to attend.

It was decided that no collective action would be taken as a result of these tests but each member can use the report as he sees fit. We feel that the cloth does not represent an economic purchase in relation to its projected life and that the data can be helpful in proving this premise.

(continued)

As has now become customary, the greatest proportion of our time was consumed in the discussion of the problems of air hygiene. Everyone was impressed with the impact of the symposium held on Wednesday, afternoon (October 2, 1968). No one can be more concerned than the responsible members of our committee. And yet we are frustrated at our inability to come up with concrete proposals for collective action. We are not short on suggestions. But after thorough discussion, and excellent professional advice from Mr. Flocken (Counsel) we end up deciding that collective action would introduce far more problems than it would solve. Education of our sales forces and our customers seems to be the only constructive tool we have at this time.

Finally, we discussed once more the purchasing procedures of the Federal Government and the hardships they impose on members. Though we made an attempt this year to try to have them alter the system, we were not successful. As long as the system works--as it does-- to the advantage of the Government, there is no chance here to alter it. Again, no collective action seems advisable and efforts will be discontinued.

Respectfully submitted,

M.Q. Scowcroft
Chairman

Minutes: TECHNICAL COMMITTEE MEETING
Asbestos Textile Institute

October 3, 1968 at the Hotel Hershey, Hershey, Pa.

In Attendance: G. E. Houghton - Garlock, Inc.
J. D. McCluer - H. K. Porter Co., Inc.
E. A. Morris - Uniroyal, Inc.
D. T. Austin - Uniroyal, Inc.
William Maaskant - American Asbestos Textile Corp.
I. Barnett - Johns-Manville
J. W. Hawkins - Raybestos-Manhattan, Inc.

Minutes:

The Technical Committee, Fiber Testing Committee, and ASTM D-13, A-4 met in a joint session to discuss data recently obtained from the Round Robin test on asbestos textile products. The information was studied statistically and the conclusions were that there is too much variation between laboratories to consider writing an ASTM Magnetic Specification at this time, both the Turner and Mapes gave questionable values.

Recommendations were heard that a second series of tests be started and to have a representative from Bell Asbestos Mines, Mr. Walter Smith, monitor techniques and personally bring the samples into the member companies laboratory. This assignment should be completed prior to the February meeting.

Magnetic standards were discussed and Mr. Lincoln and Mr. Nicodemus will consider using electrical techniques in the preparation and measurements of the proposed standards.

The ATI technical group and ASTM A-4 met after the first session. Mr. Nicodemus acted as chairman and Mr. Harris as secretary. Mr. Nicodemus stated that a volume resistivity test would be of value and that an ASTM method should be included to cover this type of test. Mr. Nicodemus will work on this method.

The Heat Aging test was discussed and an additional Round Robin test will be necessary before working on this procedure. ASTM 1573, as written up, will require modifications.

The data obtained from a Round Robin test on a Japanese cloth was reviewed and the variations between laboratories noted. It is thought that the Japanese cloth in general is inferior to most American made equivalents.

The mercury contamination clause in several military specifications was discussed and the problems encountered by the manufacturer in complying.

Respectfully submitted,

John W. Hawkins
Chairman

Minutes
FIBER TESTING COMMITTEE

Page -1-

Asbestos Textile Institute
October 3, 1968, Hotel Hershey, Hershey, Pa.

Present:

Members: G.F.A. Brink, Chairman - Asbestos Corporation Ltd.
D.E. Childers - H.K. Porter Company, Inc.
R.J. Dodds-Hebron - Bell Asbestos Mines Ltd.
B. Lincoln - Turner & Newall Ltd.,
Asbestos Fibre Laboratory
C.E. Stiefken - Lake Asbestos of Quebec Limited
W.C. Streib - Johns-Manville Corporation
J.P. Wronski - Raybestos-Manhattan, Inc.

Visitors: J.G. Berry - Cassiar Asbestos Corporation Limited
S.G. Dixit - Garlock Inc.
J.W. Echerd - H.K. Porter Company, Inc.
Paul O. Nicodemus - General Electric Company

BUSINESS:

1. Magnetic Rating Test

- 1.1 The outcome of the recent Magnetic Rating Round Robin on eight asbestos textile products at different laboratory locations and the conclusions based on the statistical analyses of the results were reviewed at a joint meeting with members of the Technical Committee (7) and ASTM Committee D-13, Sub A-4(2) as follows:
 - 1.1.1 There is no discernible difference in results between the two test methods.
 - 1.1.2 On either test, some participating laboratories got odd results on some samples.
 - 1.1.3 The test variation between companies may be due to differences in the products sent to each firm, or to differences in test procedures used; and/or to variations in the method of loading the test specimen in the cell.
 - 1.1.4 Before the present magnetic rating tests on asbestos textiles are really meaningful and acceptable, consistency in sample handling, machine operating techniques, and the like must be greatly improved.
- 1.2 It was mutually agreed that another joint Technical and Fiber Testing Committee Round Robin should be carried out under the supervision of a suitable trainer. The Bell Asbestos Mines people kindly offered to supply a gentleman for this purpose. The number of samples, etc., to meet statistical requirements will be investigated by Bill Streib and detailed instructions for the Round Robin will be issued by the Technical Committee chairman.
- 1.3 It was recommended that the primary standard for magnetic rating be defined in terms of a basic electrical measurement, i.e., so many millivolts at a definite applied voltage. Mr. Bernard Lincoln and Paul Nicodemus agreed to commence work on this specification.

(continued)

- 1.4 The preliminary work done since the June meeting to find a suitable source for iron ore as a secondary calibrating standard to replace NBS magnetic sample 29a was reviewed. A graph was circulated indicating that an almost perfect correlation was possible, if an iron ore supplied by the Department of Energy, Mines & Resources, Ottawa, was ground fine enough.
- 1.5 The replacement of the present T. & N. glass specimen holders with a suitable plastic to eliminate breakage was recommended and the packing thereof was discussed. A specimen holder fabricated from Nylon 101 - Type 66 was circulated for examination.
2. Spicular & Grit Content of Spinning Fibers:- The results of preliminary experimental work to develop a suitable test method for measuring the spicular & grit content of spinning fibers were discussed. Fractions recovered by hydrocycloning were circulated for examination. The committee is faced with determining what constitutes an objectionable spicule, etc. It was agreed that exploratory work on this test procedure would continue.
3. Recent activities of the QAMA Technical (Dust study, Product Handling & Colour Test) and ASTM D-30 (Sub III) Committee (Reorganization, T. & N. Wet Classifier & Rotap Test) of interest to ATI were briefly reviewed.
4. The need for a better method for measuring fibre length was expressed by Joe Wronski. The work being done on this score at the QAMA Sherbrooke Laboratory was mentioned. As requested at the June meeting, suggestions from ATI members, especially fiber consumers, as to the test methods they wish to have the Fiber Testing Committee study would be appreciated to guide its activities.

Respectfully submitted,

G.F.A. Brink
Chairman
31st October, 1968

GENERAL MEETING - ASBESTOS TEXTILE INSTITUTE

October 4, 1968 - Hotel Hershey, Hershey, Pa.

In attendance:AMERICAN ASBESTOS TEXTILE CORP.

J.W. Weber
J.L. Rainey
G.S. Fabel
H.H. Walter
J.W. Christenbury
Wm. Maaskant

GARLOCK INC.

G.E. Houghton
S.G. Dixit

JOHNS-MANVILLE CORP.

E.H. Wells
R.M. Billings
W.P. Raines
E.A. Schuman
C.L. Sheckler
E.M. Fenner
I. Barnett
W.C. Seeds
W.C. Streib
N.W. Hendry (Can. J.M. Co.)

H.K. PORTER COMPANY, INC.

L.E. Moody
J.D. McCluer
D.E. Childers
G.J. Harris
J.W. Echerd

RAYBESTOS-MANHATTAN, INC.

J.A. Brown, Jr.
M.Q. Scowcroft
J.W. Hawkins
L.C. Williams
R.B. Smith
J.P. Wronski
J.A. Bettes, Jr. (Retired)
A.R. Patterson

ASBESTOS CORPORATION LIMITED

H.P. Carson
P.E. Leclerc
G.F.A. Brink

BELL ASBESTOS MINES LIMITED

Wm. J.W. Smith
R.J. Dodds-Hebron

CASSIAR ASBESTOS CORP., LTD.

J.G. Berry

LAKE ASBESTOS OF QUEBEC LTD.

E.A. Farrell
C.E. Stiefken

TURNER & NEWALL LTD.

B. Lincoln

CADWALADER, WICKERSHAM & TAFT
P. Jay Flocken (Legal Counsel)U.S. PUBLIC HEALTH SERVICE

Dr. L.J. Cralley

UNIROYAL, INC.

R.P. Clark
R.C. Hunt
D.T. Austin, Jr.
H.M. Willingham
E.A. Morris
Dr. J.G. Wells

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury (Secretary)

GUESTS

Miss Edith E. Cox (Guest-of-Honor) Asbestos Mag'ne
Mr. A.G. Matamoros (Guest Speaker)
Mr. D.R. Holmes, Astin-Hill Mfg. Co.
Mr. C.J. Stover, Asbestos Magazine

In addition, approximately twenty-four wives of members were present at Social Hours and at the luncheon on Friday noon, October 4th.

(continued)

12

Ministry
GENERAL MEETING
At 5:00 P.M. on Thursday
February 1969

ASBESTOS TEXTILE INSTITUTE

MINUTES - GENERAL MEETING - February 7, 1969

GRAND HOTEL - Point Clear, Ala.

In attendance:

AMERICAN ASBESTOS TEXTILE CORP.

J. L. Rainey
J. W. Christenbury
H. H. Walter

GARLOCK INC.

G. E. Houghton
R. E. Moore

JOHNS-MANVILLE CORP.

E. A. Schuman
C. L. Sheckler
W. C. Seeds
W. C. Atkinson (Ret'd)

H. K. PORTER COMPANY, INC.

L. E. Moody
J. D. McCluer

RAYBESTOS-MANHATTAN, INC.

M. Q. Scowcroft
J. W. Hawkins
A. R. Patterson
R. B. Smith
Dr. J. L. Goodman

TALLMAN-McCLUSKEY FABRICS CO.

J. L. Mitchell

UNIROYAL, INC.

R. C. Hunt
D. T. Austin, Jr.
R. P. Clark
H. M. Willingham
E. A. Morris

ASBESTOS CORPORATION LIMITED

P. E. Leclerc

BELL ASBESTOS MINES LIMITED

Wm. J. W. Smith
W. H. Smith

CASSIAR ASBESTOS CORP., LTD.

Dr. R. Kuntze

LAKE ASBESTOS OF QUEBEC, LTD.

R. P. Gagnon
E. A. Farrell
K. W. Nelson

TURNER BROS. ASBESTOS CO., LTD.

W. M. Deckman

TURNER & NEWALL, LTD.

B. Lincoln

CADWALADER, WICKERSHAM & TAFT

H. C. Roosevelt (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE

H. E. Sunbury (Secretary)

GUESTS

J. W. Frampton, Raybestos-Manhattan, Inc.
C. D. Colson, Raybestos-Manhattan, Inc.
F. C. Phillips, Uniroyal, Inc.
J. W. Bolmeyer, E. I. DuPont de Nemours Co.

***** Minutes *****

1. President Schuman called the meeting to order at 9:40 A.M. and asked each person present to stand and identify himself and his company.
2. The minutes of the last meeting were presented for reading. On motion by Mr. R.P. Clark, seconded by Mr. D.T. Austin, Jr., it was voted to omit the reading.
3. The Financial Report was presented by Treasurer Scowcroft. It was moved by Mr. E. A. Farrell that report be accepted. The motion was seconded by Mr. G. E. Houghton, and so voted. The report is attached.

4. President E. A. Schuman introduced Mr. Haven C. Roosevelt of Cadwalader, Wickersham & Taft, who replaces Mr. P. Jay Flocken as Legal Counsel for the Institute. A brief summary of Mr. Roosevelt's remarks follows: "Counsel briefly outlined the antitrust activity of the Justice Department during 1968 and then discussed a problem which he termed the unreal security of governmental assistance in private standardization activities. Counsel noted that although the federal government may encourage and eventually approve private voluntary standards, the activities of a trade association and its members are not immune from antitrust attack by either the government or private parties. He cited the case Structural Laminates vs Douglas Fir Plywood Association for the proposition that private standardization and certification activities may involve litigation from private plaintiffs. He also reviewed the recent case of U. S. vs Automobile Manufacturers Association, et al and the position of the Justice Department with respect to informal standards developed by the Bureau of Standards and industry representatives, noting that voluntary standards resulting from a cooperative government - industry effort could involve undue or unreasonable restraints of trade. Counsel cited the Noerr doctrine and explained its impact as a major exception to vulnerability from antitrust attack on unreasonably restrictive standards."

5. The Fibre Producers Report was given by Mr. R. P. Gagnon, Vice President, ASARCO INTERNATIONAL CORPORATION, Black Lake, Quebec, and who is also Director of Sales for Lake Asbestos of Quebec, Ltd. President Schuman thanked Mr. Gagnon for his excellent report and same is attached to these minutes.

6. President Schuman introduced Mr. James W. Bolmeyer, Marketing Manager for "NOMEX", E. I. DuPont de Nemours & Co. "Nomex" is the trademark for DuPont's High Temperature Resistant Nylon. An abstract of Mr. Bolmeyer's talk follows: "The unusual behavioral properties of "Nomex" nylon, a high temperature resistant fibre and its industrial applications in 100% form were covered. Also covered was the complementary role played by "Nomex" in fiber and yarn blend fabrics with asbestos as a means of opening new market opportunities for both fibers. Laboratory data illustrating the performance properties of "Nomex" was shown. Samples of industrial fabrics and protective garments were displayed." Mr. Bolmeyer's talk was very interesting, and he plans to send literature to those in attendance at the meeting. (The mailing list, including members who could not be at this meeting, was given to him by the Secretary.)

7. President Schuman reported the passing of Mr. R. S. Tallman, the president of Tallman-McCluskey Fabrics Company on December 17, 1968, and Mr. John F. D. Rohrbach, Chairman of the Board, Raybestos-Manhattan, Inc., on December 25, 1968, asking that members stand for a moment in tribute to them. Both of these men were staunch supporters of the Institute over a period of many years.

8. President Schuman expressed our appreciation for the attendance at this meeting of Mr. and Mrs. Wm. J.W. Smith of Bell Asbestos Mines, Ltd., who traveled over nearly impassable roads from Thetford Mines to Montreal (due to heavy snowstorm) in order to be present. Also, he mentioned our pleasure at having Mr. B. Lincoln present (who flew in from Manchester, England) and Mr. K. W. Nelson who journeyed from Salt Lake City, Utah. Other welcome guests were; Mr. and Mrs. W. C. Atkinson (Retired); J. W. Frampton and C. D. Colson of Raybestos-Manhattan, Inc., and F. C. Phillips of Uniroyal.

9. President Schuman read a letter from Mr. Jesse T. Griffis, a former president of the Institute, who is convalescing at his home in Charlotte, North Carolina from a heart attack, in which Jesse expressed his appreciation of the poinsetta sent him by the A.T.I. last Christmas.

10. The committee reports were given by the respective chairmen as listed below:

Air Hygiene & Mfg. Comm. - H. H. Walter, Chm.

Sales Promotion Comm. - M. Q. Scowcroft, Chm.

Technical Comm. - J. W. Hawkins, Chm.

Fiber Testing Comm. - J. W. Hawkins (for G.F.A. Brink, Chm.)

The full text of their reports is attached to these minutes.

11. President Schuman announced that the next General Meeting would be held at the Seaview Country Club, Absecon, N. J. (near Atlantic City) on June 18-20, 1969. Also, that dates for future meetings following the June meeting would be October 8-10, 1969 at The Carolina, Pinehurst, N.C., and February 4-6th, 1970 at the Regency Hyatt House, Atlanta, Ga. Further, that the possibility of holding a meeting at Thetford Mines in June of 1970 was being explored. He invited suggestions from members as to locations for future meetings.

12. There being no further business to come before the meeting it recessed for a group luncheon following which it was duly adjourned.

Respectfully submitted,

H. E. Sunbury
Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

January 10, 1969

Balance On Hand at Last Report (Sept. 10, 1968)

General Fund	\$ 743.83	
Savings Fund	20944.94	
Petty Cash Fund	<u>37.98</u>	
		\$21726.75

Receipts

To Savings Fund (Interest to 12/31/68)	463.97	
To General Fund (Book Sales)	<u>21.36</u>	
		485.33

Total On Hand and Received

\$22212.08

Disbursements

Legal Retainer (3 mos ending 8/31/68)	500.00
Legal Expenses (3 mos " 8/31/68)	217.65
Secretary's salary (4 mos)	478.00
F.I.C.A. Tax (3rd & 4th Qtrs 1968)	66.00
Secretary's travel	170.62
Office Rent (4 mos)	300.00
Accountant (Caruso, year ending Sept. 1968)	300.00
A.T.I. Meeting Expense (Oct. 2-4, 1968)	955.03
Printing & Office Supplies	87.17
Telephone (4 mos)	106.30
Insurance on Dust Counting Equipm't (1 yr)	113.00
Dues (I.H.F. and ASTM)	135.00
Miscellaneous (Gifts, flowers, etc.)	158.50
Petty Cash (Vouchers 373-395 incl.)	<u>113.35</u>

Total Disbursements

3700.62

Balance On Hand January 10, 1969

\$18511.46

Funds

General Fund (Jan. 10, 1969)	\$ 1025.57	
Savings Fund (Dec. 31, 1968)	17408.91	(*)
Petty Cash Fund	<u>76.98</u>	

Total Funds

\$18511.46

Assets as of January 10, 1969

General Fund	\$ 1025.57
Savings Fund	17408.91
Petty Cash Fund	76.98
Accts Receivable (Book Sales)	1.34
Accts Receivable (1969 Dues)	9000.00
Postage On Hand	9.94
Furniture & Equipm't (Nominal Value)	<u>1.00</u>

Total Assets

\$27523.74

Liabilities (None)

Net Worth

\$27523.74

(*) \$4,000.00 transferred from Savings to General Fund on 10/7/68

Respectfully submitted,

H.E. Sunbury
H.E. Sunbury, Asst. Treasurer

ASBESTOS FIBRE REPORT

ASBESTOS TEXTILE INSTITUTE

POINT CLEAR, ALA. FEBRUARY 6, 1969

The asbestos fibre report this year will sound quite different from what you have been used to hearing in the past.

The supply and demand situation has changed during the course of 1968, and we seem to be entering into a period where demand will exceed supply.

The general booming economics throughout the world have brought increased demand for chrysotile asbestos. This has been true in practically all types of asbestos manufacturing.

At the end of 1968, the Q.A.M.A. inventories are at their lowest level for many years, reduced by 47,000 tons from that of last year. Inventories of spinning fibres have been cut in half from what they were in 1967. This will further indicate the different supply conditions our industry now faces.

It would seem to me therefore, that the asbestos producers will have to take an entirely different marketing approach in 1969. As it seems a distinct possibility that a shortage of chrysotile fibre could develop during the course of the year.

As a matter of information, I would like to give you a brief resume of the present outlook in the various areas.

The United States market, as you all know, has been one of growth in demand particularly during the last six months.

Outside the U.S., the United Kingdom and Continental Europe are our most important market. Their economies generally seem buoyant and it is believed that 1969 will be a year of continued growth in demand.

The Far East, and more specifically, Japan is presently selling an unprecedented amount of asbestos cement sheets. One can assume that much of this growth is due to Expo 70; however, in Japanese business circles, it is believed that after the fair, there will be considerable emphasis given to housing projects which should increase the demand for asbestos.

Strangely enough, the countries that can least afford asbestos are those that require the product most. The underdeveloped countries are still very much in need of our product, and efforts must be made by both industry and government to find ways and means to insure a continuity of supply to these emerging nations.

The number of inquiries for the supply of Canadian asbestos fibre being received from the Eastern Countries is constantly growing. The tonnage required is such that it is difficult to even consider their request. This would indicate that Russia will not increase their exports to the Satellite Countries in 1969. It is also felt that their overall export policy will not change to any extent in the coming year. In other words, Russian fibre will not have any alleviating effect on the supply/demand conditions expected to prevail in our market areas.

As to production, we do not anticipate much increase over what was produced in 1968 although producers may endeavour to increase their output with their increased demand.

Therefore, in general, we can look for greater demand, a possible shortage and hopefully for all concerned, better revenues.

R. P. Gagnon
Director of Sales
Lake Asbestos of Quebec, Ltd.

MEMBERS - AIR HYGIENE & DUST-REDUCING COMMITTEE
Asbestos Textile Institute
February 6, 1969 - Grand Hotel, Point Clear, Ala.

In attendance:

H.H. Walter, Chairman	-	American Asbestos Textile Corp.
L.T. Moody	-	H.K. Porter Company, Inc.
H.A. Willingham	-	Uniroyal, Inc.
R.C. Hunt	-	Uniroyal, Inc.
C.L. Sheckler	-	Johns-Manville Corp.
W.C. Seeds	-	Johns-Manville Corp.
R.D. Smith	-	Raybestos-Manhattan, Inc.
A.R. Patterson	-	Raybestos-Manhattan, Inc.
K. Nelson	-	American Smelting & Refining Co.

Absent: - L.C. Williams - Raybestos-Manhattan, Inc.

Guests: Dr. J.L. Goodman, North Charleston, S.C.

Formation of the New Environmental Study Committee: The members of the Air Hygiene & Dust-Reducing Committee met with Mr. J.L. Rainey of American Asbestos Textile Corp.; Dr. J.L. Goodman, Raybestos-Manhattan Inc.; Mr. R.P. Clark, Uniroyal, Inc.; and Mr. B. Lincoln, Turner Newall LTD.; on February 5, 1969 to hear a report from Mr. C.L. Sheckler about the latest development of legislation and litigation in regard to occupational and environmental health. The objectives of the newly formed Environmental Study Committee were discussed.

Bausch & Lomb Automatic Dust Counter: Mr. H.A. Willingham reported about his experience with the Bausch & Lomb Dust Counter. He found a rather consistent correlation between the Midget Impinger and the Bausch & Lomb Dust Counter. It was agreed upon to exchange data, charts and reports concerning both dust counting methods between member companies and to forward the material to the chairman of this committee for distribution. It was also taken into consideration to forward said material to Dr. C.J. Cralley for further evaluation.

Membrane-Filter Method: The membrane-filter method was explained in detail by Mr. Sheckler, and a paper distributed to committee members. This method appears the most suitable one for fiber counts.

Dust Control in the manufacturing Process: One member company reported about a totally enclosed blending line, vacuum cleaning of bags at the receiving point, use of rubber gloves during the process of bag opening, and discontinuance of the use of burlap bags. Another member reported about balloonless spinning and twisting frames equipped with automatic spindle stop motion. The same company reported also about humidification and exhaust systems. All member companies contributed openly and freely to a most valuable exchange of ideas in regard to dust reducing equipment and mfg. methods. Numerous pictures showing a variety of dust reducing equipment were circulated among committee members.

Wet Weaving: The necessity of wet-weaving to provide adequate dust control at that operation was again stressed by all members of the committee. It is recognized that improved finishing methods are needed for wet-woven fabrics to obtain customer acceptance.

Respectfully submitted, H.H. Walter - Chairman

MINUTES - SALES PROMOTION COMMITTEE

Asbestos Textile Institute - February 6, 1969, Grand Hotel,
Point Clear, Ala.

The Sales Promotion Committee met on February 6, 1969 with representatives of five member companies in attendance.

This committee is concerned, as are all members of the Institute, with the problems of health hazards involving the processing and use of asbestos textile materials and the resulting publicity. As sales people, we find ourselves most frequently involved in responding to our own field forces and our customers. The committee was greatly pleased to learn that a new committee had been formed in the Institute headed by Mr. C.D. Checkler of Johns-Manville. This new committee will be called the Environmental Study Committee. We feel that the work to be performed by this committee can be immensely beneficial to our industry. It was suggested that the data gathered and presented in the form of a report could be used by member companies when responding to inquiries regarding health hazards. The impact behind an Institute report, it was felt, would be more impressive than comments from any single company.

The problem of imported asbestos cloth from Japan was discussed. Between meetings, it was suggested to the committee that an effort be made to persuade the Federal Trade Commission to have asbestos protective equipment manufactured from Japanese cloth be so labeled. Counsel, both in and out of the committee, was consulted. The sum advice was that the chore of successfully attaining such lofty goals would be far beyond the scope of the Institute. One move made recently in this area was a letter written by the president of the Institute to the president of the United States Steel Corp. complimenting him on his recent public statement whereby he urged that employees of his company purchase American-made automobiles to help preserve the position of domestic steel producers.

Most will remember that the committee used to have the task of placing the ATI display cabinets in universities around the country. Some months ago, this asbestos display (needing extensive refurbishing) was "retired" from circulation and placed in storage at Raybestos-Manhattan, Inc., Mannheim, Pa. R/H's new office building will be completed in October 1969, and it is planned to display the cabinets in the lobby of that building upon its completion.

One major problem discussed in detail at our meeting was the serious shortage of better grades of asbestos fiber. The reason for existence of the Sales Promotion Committee is to find and exploit new markets for asbestos textile products. We wonder whether we are creating a sort of "Frankenstein" when we develop such markets in view of the fiber shortage and we view with alarm information presented to this meeting this morning such as the report on fiber presented by a representative of the mining member companies.

Respectfully submitted,

M.Q. Scowcroft - Chairman

Minutes: TECHNICAL COMMITTEE MEETING

Asbestos Textile Institute

February 6, 1969 at the Grand Hotel, Point Clear, Alabama

In Attendance:	G. E. Houghton	-	Garlock, Inc.
	R. Moore	-	Garlock, Inc.
	J. D. McCluer	-	H. K. Porter Co., Inc.
	E. A. Morris	-	Uniroyal, Inc.
	D. T. Austin	-	Uniroyal, Inc.
	William Maaskant	-	American Asbestos Textile Corporation
	J. W. Hawkins	-	Raybestos-Manhattan, Inc.

Minutes:

The Technical Committee met with the Fiber Testing Committee in joint session to discuss the Round Robin test conducted by Mr. Walter Smith of Bell Asbestos Mines. In addition to Mr. Smith, others in attendance were - Mr. Lincoln, Mr. Kuntze, and Mr. Ed Farrell. The conclusions from the Round Robin test are:

1. Calibration standards in different laboratories were not the same.
2. The textiles being sampled had a great variation.
3. Using the identical standard with the identical textile sample, the same magnetic rating was obtained on all T & N apparatuses.
4. Many of the test instruments were not working properly and the instruments, other than the T & N, were constructed differently.

Test data will be considered at the March 5, ASTM meeting prior to starting on Specification D 1118. Information will be sent to J/M for statistical study.

Specification D 628 on Woven and Braided Tubing was reviewed, several changes were necessary for clarification on the specification. Several of these changes were suggested by the Editorial Committee.

In June we will begin work on the Heat Aging Specification, ASTM D 1573.

There has not been any activities on Military or Federal Specifications recently.

Respectfully submitted,

John W. Hawkins
Chairman

June 20, 1969

PLAINTIFF'S
EXHIBIT

7374

GENERAL MEETING
JUN 20 1969

Minutes - General Meeting

1. President Schuman called the meeting to order at 9:30 A. M.
2. The minutes of the last meeting were presented for reading. R. P. Clark moved the reading be omitted, seconded by J. L. Rainey, and so voted.
3. The Financial Report was presented by Treasurer Scowcroft. It was moved by R. P. Clark that report be accepted. The motion was seconded by J. W. Christenbury, and so voted. The report is attached.
4. Mr. Haven C. Roosevelt, Legal Counsel, addressed the meeting, and a brief summary of his remarks follows:

"Counsel reported on the hard line taken by the Department of Justice in the antitrust field. He reviewed the FTC's pre-merger notification requirements and recent remarks by Attorney General Mitchell regarding mergers. Counsel also briefly recited some of the reasoning and policy behind the Administration's hard line in attacking mergers and attempting to slow merger activity. He dealt primarily with one of the reasons - reciprocity, or other forms of unfair buyer-seller leverage - noting that reciprocity was a problem which almost all businessmen encounter in one form or another. Counsel explained the recent complaint in the case against United States Steel and reviewed some of the terms of the proposed consent decree. He concluded that in order to avoid successful attack, all purchasing decisions of a company should be made on the basis of price, quality and service rather than on the basis of whether or not a prospective seller is also a good customer of the company."

5. At this point in the meeting President Schuman asked each person present to stand and identify himself and his company.
6. President Schuman announced that the Board of Governors had unanimously approved the application of Nicolet Industries, Inc., for Regular Membership in the Institute, and extended to that company a most cordial welcome to participate in our activities.
7. President Schuman announced that the resignation of Tallinan-McCluskey Fabrics Company from the Institute had been accepted due to the acquisition of that company by the H. K. Porter Company, Inc.
8. Our next meeting, to be held October 8-10, 1969, at Pinehurst, N. C., will be the 25th Anniversary meeting of the Institute and President Schuman announced that Mr. J. L. Rainey had been appointed Program Chairman for that important occasion. He asked that everyone make a special effort to attend, bringing their

certified

Minutes - General Meeting

wives if possible. Also that we would like a large attendance by company officials in addition to those who regularly attend our meeting.

9. The Fibre Producers Report was prepared by Mr. M.P. Carson, V.P.- Sales, ASBESTOS CORPORATION LIMITED, Thetford Mines, Quebec, and was given by Mr. Paul E. Leclerc, Regional Sales Manager of ASBESTOS CORPORATION LIMITED, as Mr. Carson was confined to his room due to sudden illness. The full text of the excellent report is attached to these minutes.

10. President Schuman introduced our guest speaker, Mr. Edward W. Fisher, Supervisor of Product Engineering, GARLOCK INC. Palmyra, New York. Mr. Fisher talked about - "The Use of Asbestos Textiles in the Packing Industry". Speaking from a background of over 35 years experience in the Packing Industry Mr. Fisher gave a most interesting and informative talk on various forms of packings and the design principles involved in making them effective for a multiplicity of applications and operating conditions. Many samples were displayed illustrating points made as his talk progressed, and at its conclusion copies of his paper were given to those in attendance. President Schuman thanked Mr. Fisher on behalf of the Board of Governors and Members and a fine round of applause was given Mr. Fisher in recognition of an outstanding talk. We are most appreciative of the cooperation of GARLOCK INC. in permitting Mr. Fisher to give his fine talk!

11. The committee reports were given by the respective chairmen as listed below:

Fiber Testing Committee - G.F.A. Brink, Chm.
Technical Committee - J.W. Hawkins, Chm.
Sales Promotion Committee - M.Q. Scowcroft, Chm.
Air Hygiene & Mfg. Committee - H.H. Walter, Chm.

The full text of their reports is attached to these minutes.

12. President Schuman asked Mr. C.L. Sheckler, Chairman of the recently formed Environmental Study Committee, to give a brief report on the current activity of that committee. Mr. Sheckler said that one major objective of the committee was to keep members of the Institute informed on legislation affecting our industry, and in this connection he urged everyone to read the revised Walsh-Healy act now in effect for public contracts in respect to environmental working conditions involving dust counts and also noise levels.

Mentioned his current discussions with the U.S.P.H. Service in reference their policy and procedure on reporting significant findings of clinical examinations of employees to the individual's family physician, but not to the company physician. He stressed the necessity for the company physician to know which employees are in need of medical attention.

(continued)

Mr. Sheckler reported that he had written Mr. C.A. Gnam, in the U.S. Dept. of Commerce, on May 6, 1969, giving Mr. Gnam on behalf of the Asbestos Textile Institute, comments pertaining to the proposed legislation HR 2503. Mr. Sheckler pointed out to Mr. Gnam that HR 2503 is too broad and non-specific in its provisions, and as it related only to asbestos would vest all authority in the Dept. of HEW, including inspection authority which would, in effect, duplicate the existing and proposed responsibilities of the Dept. of Labor. Hence a separate act, such as the proposed HR 2503 relating only to the asbestos industry, is unnecessary and also undesirable.

Mr. Sheckler touched on some miscellaneous medical scientific reports concerning the biological effects on animals of asbestos in conjunction with pulmonary diseases.

In concluding his remarks Mr. Sheckler announced that a new member of his committee was Dr. J.M. Wolfsie, Corporate Medical Director, Uniroyal, Inc.. Other members of the Environmental Study Committee are:-Dr. J.L. Goodman, Raybestos-Manhattan, Inc. at North Charleston, S.C.; J.L. Rainey, Vice President, American Asbestos Textile Corporation; and R.P. Clark, Sales Mgr. for asbestos textiles, Uniroyal, Inc. (Mr. Sheckler, the Chairman, is Manager - Accident Prevention and Health Administration, Johns-Manville Corporation, New York City.)

13. President Schuman announced these dates for future meetings:

October 8-10, 1969 - The Carolina, Pinehurst, North Carolina
February 4-6, 1970 - The Regency Hyatt House, Atlanta, Ga.
June 10-12, 1970 - The Hotel La Provence, Thetford Mines, Que.
October 7-9, 1970 - The Statler Hilton Inn, Williamsburg, Va.

In respect to the meeting scheduled for June 10-12, 1970 at Thetford Mines, President Schuman expressed the sincere appreciation of all members for the invitation extended to the Institute by the mining companies, namely:- Asbestos Corporation Limited; Bell Asbestos Mines Limited; Canadian Johns-Manville Co., Ltd.; Cassiar Corporation Ltd.; and Lake Asbestos of Quebec, Ltd.

14. There being no other business to come before the meeting it recessed for a group luncheon after which it was duly adjourned.

Respectfully submitted,

H.E. Sunbury
H.E. Sunbury
Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

May 8, 1969

Balance On Hand at last report (January 10, 1969)

General Fund	\$ 1025.57	
Savings Fund	17408.91	
Petty Cash Fund	<u>76.98</u>	
		\$18511.46

Receipts

To Savings Fund (Interest - 4 mos.)	\$ 275.00	(Est)
To Savings Fund (1969 Dues)	3000.00	
To General Fund (1969 dues)	6000.00	
To General Fund (Book Sales)	<u>79.74</u>	
		<u>9354.74</u>

Total On Hand and Received

\$ 27866.20

Disbursements

Legal Retainer (7 mos. ending 3/31/69)	1250.00
Legal Expenses (7 " " " "	434.94
Secretary's salary (4 mos.)	476.00
F.I.C.... Tax (First qtr. 1969)	36.00
Secretary's Travel Expense	254.86
Office rent (4 mos.)	300.00
A.T.I. meeting expense (Feb. 5-7, 1969)	703.78
Printing & Office supplies	56.48
Telephone (4 mos.)	80.61
Petty Cash (Vouchers 396-411 inclusive)	<u>59.77</u>

Total Disbursements

3652.44

Balance On Hand as of May 8, 1969

\$24213.76

Funds

General Fund (Bank Statement of 5/8/69)	\$ 4512.64	(*)
Savings Fund	19683.91	(**)
Petty Cash Fund	<u>17.21</u>	

Total Funds

\$24213.76

Assets as of May 8, 1969

General Fund	\$ 4512.64
Savings Fund	19683.91
Petty Cash Fund	17.21
Accts Receivable (Book Sales)	1.32
Postage on Hand	10.36
Furniture & Equipment (Nominal Value)	<u>1.00</u>

Total Assets

\$24226.44

Liabilities (None)

Net Worth

\$24226.44

(*) \$1000.00 transferred from Savings to General Fund on 1/16/69
 (**) Includes \$275.00 estimated interest for period 1/1-4/30/69

Respectfully submitted,

H. E. Sunbury
 H. E. Sunbury, Asst. Treasurer

ASBESTOS TEXTILE INSTITUTE

MINUTES - GENERAL MEETING - JUNE 20, 1969

Seaview Country Club, Absecon, N. J.

In Attendance:

AMERICAN ASBESTOS TEXTILE CORP.

J. L. Rainey
J. W. Christenbury
E. H. Walter

GARLOCK INC.

G. E. Houghton
S. G. Dixit
E. W. Fisher (Guest speaker)

JOHNS-MANVILLE CORP.

E. A. Schuman
R. M. Billings
C. L. Sheckler

H. K. PORTER COMPANY, INC.

L. E. Moody
J. D. McCluer
D. E. Childers
J. L. Mitchell
J. W. Echerd

RAYBESTOS-MANHATTAN, INC.

M. Q. Scowcroft
A. R. Patterson
J. W. Hawkins
R. B. Smith

UNIROYAL, INC.

R. P. Clark
R. C. Hunt
D. T. Austin, Jr.
H. Fleming
J. H. Wolfsie, M. D.

ASBESTOS CORPORATION LIMITED

P. E. Leclerc
G. F. A. Brink

BELL ASBESTOS MINES LIMITED

W. H. Smith
C. H. Schoch

CASSIAR ASBESTOS CORP. LTD.

Dr. R. A. Kuntze

LAKE ASBESTOS OF QUEBEC LTD.

C. E. Stiefken

TURNER BROS. ASBESTOS CO., LTD.

W. M. Deckman

NICOLET INDUSTRIES, INC.

Geo. Griswold, Jr.
D. Frost

CADWALADER, WICKERSHAM & TAFT

H. C. Roosevelt (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE

H. E. Sunbury (Secretary)

GUESTS

W. S. Hough, Sec'y-Treas., Mech. Packing
Association.
J. L. Tucker, Consultant on Textiles
B. E. Shirey, Raybestos-Manhattan, Inc.

Note: Those attending committee meetings the previous two days,
but not the General Meeting, are listed on committee
reports.

FIBRE PRODUCER'S REPORT

Asbestos Textile Institute - June 20, 1969

By: M. P. Carson, Vice Pres. - Sales, ASBESTOS CORPORATION LTD.

Shipments from Quebec were down 6.7 percent at the end of May 1969 as compared with the five-month period in 1968. This was partly due to the unsettled labour situation in the St. Lawrence River earlier in the spring. Shipping companies in many cases refused to place vessels in Montreal, Quebec and Three Rivers pending a settlement of disputes. The settlement was forthcoming in the ports and shipping at present has returned to normal.

Most companies in Quebec have recently settled labour negotiations with unions. In our company's case, an agreement to the end of 1971 has been negotiated. Thus, one can expect a period of stability.

There are acute shortages of quality Group 3 fibre. While there has been no apparent change in shipments to the U. S. market as compared with last year, there appears to be a decrease in availability of Group 3. This decrease in availability has been referred to in past reports as far as British Columbia is concerned, and a similar situation has developed in Quebec.

Overseas markets have been strong generally in Group 3. It is notable that the Q.A.M.A. inventory for Group 3 has been reduced by 70% since May 31st, 1968.

In asbestos cement grades, strong demand continues for Groups 4, 5 and 6. Market reports from various areas highlight shortages in quality 4 Group fibres. Group 5 and 6 are in quite short supply for a/c applications, although some quantities of brake lining 5's and 6's are still available.

Shorts seem to be moving as well as in 1968, with some shortfalls reported. The closing of the Nicolet Mine earlier this year has reduced the availability of shorts.

To attempt to satisfy part of the apparent demand of the next few years, our company is increasing production in the Thetford area. We are hopeful of adding 10% to last year's total production. Plans to bring Asbestos Hill into production at the rate of 100,000 tons per year are progressing favourably. Mid-1972 is the target date. The ore will be concentrated at Ungava, transported to Europe, where a finishing plant will complete the job. The Penhale orebody is under development. This latter will not mean additional tonnage, as it will replace Normandie, which will be depleted by 1974.

There are other prospects still under study in Canada and Australia, but these are not considered to be at the stage where future production can be anticipated.

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Fibre Producer's Report

As far as one can confirm, Rhodesian fibre is still finding markets, and it is assumed there is no build-up of inventory there. Russia has made no new moves to increase its share of world markets and still retains about 250,000 tons, including shipments to Socialist Europe. Some Socialist countries in Europe are increasing their purchases of Canadian fibre, perhaps indicating some difficulties in obtaining more Russian supplies.

Minutes of the A.T.I. Fiber Testing Committee

Meeting held June 18 and 19, 1969 at the
Seaview Country Club, Absecon, N.J.

PRES. ENT:

<u>Members:</u> G.F.A. Brink, Chairman	- Asbestos Corporation Ltd.
D.E. Childers	- H.K. Porter Company, Inc.
W.C. Streib	- Johns-Manville Corp.
C.E. Stiefken	- Lake Asbestos of Que., Ltd.

<u>Visitors:</u> E.W. Fisher	- Garlock Inc.
D.J. Frost	- Nicolet Industries, Inc.
C.H. Schoch	- Bell Asbestos Mines Ltd.
W.H. Smith	" " " "

BUSINESS:

1. Magnetic Rating Test

- 1.1 The outcome of the recent Magnetic Rating Round Robin on three (3) asbestos fibers and ten (10) textile products, conducted under the guidance of Mr. Walter Smith at different laboratory locations, and the conclusions based on the statistical analyses of the results by the Johns-Man-Corp. were reviewed at a joint session with members of Sub A-4, ASTM Committee D-13, and the ATI Technical Committee on the 18th June. Eighteen persons were in attendance at the joint session. The findings of the statistical analyses were as follows:
 - 1.1.1 The two test methods give essentially the same average, but are not necessarily the same for each sample.
 - 1.1.2 There was no difference due to company alone on either test.
 - 1.1.3 Isolated odd results seemed to occur with both the asbestos fibers and the asbestos textile products which could not be fully explained. However, in the case of the latter, these were probably due to variations in the magnetic content of the samples sent to each laboratory.
 - 1.1.4 Although there were some erratic results, the Round Robin Test was an improvement over the previous one.
- 1.2 It was mutually agreed at the joint session that the new ASTM procedure would be based on the T. & N. apparatus on account of its apparent advantages; and a motion to this effect was passed at the 19th June meeting of the Fiber Testing Committee. Work was commenced on the first draft of the new ASTM Method of Test for Magnetic Rating of Asbestos Fiber and Textile Products under the guidance of Mr. Paul Nicodemus, Chairman of Sub A-4, ASTM Comm. D-13.
- 1.3 A number of important items relative to the magnetic rating

(continued)

test were discussed at the 19th June meeting, and it was recommended that a list of these be submitted to the Chairmen of the committees involved for consideration when writing up the new procedure.

2. National Stockpile Purchase Specification Asbestos-Chrysotile P-3-R4, Dated 18th November, 1965

- 2.1 In response to a request from Mr. Carl Gnam of the Miscellaneous Metals & Minerals Division (DSA) of the Department of Commerce in March, it was recommended that page (F) of Specification P-3-R4 be amended to read as follows:

(F) Magnetic Rating:

The following types of chrysotile asbestos shall qualify in terms of magnetic rating as follows:

<u>Magnetic Rating</u>	<u>Recommended Use</u>
Less than 1.0	--- Electrical.
1.0 but less than 2.0	-- Certain Electrical & General Purpose.
2.0 and above	----- General Purpose.'

- 2.2 The Technical Committee Chairman will advise Mr. Gnam of the joint session's recommendation

3. Recent activities of the QAMA Technical (Colour Test) and ASTM D-30 (Sub III) Committees (Rotap & Moisture Content Tests) of interest to ATI were briefly reviewed.

4. Spicular and Grit Content of Spinning Fibers

- 4.1 The results of experimental work to develop a suitable test method for measuring the spicular & grit content of spinning fibers were discussed and fractions recovered from three hydrocyclones in series were examined. The Committee recommended that work on this score be continued; and that other approaches such as the elutriation of the longer McNett fractions in the Crudy Content apparatus be considered as well as hydrocycloning. A progress report is to be submitted at the next meeting.

Respectfully submitted,

G.F.A. Brink, Chairman
ATI Fiber Testing Committee

Minutes:

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TECHNICAL COMMITTEE MEETING

Asbestos Textile Institute

June 18-19, 1969 at the Seaview Country Club, Absecon, New Jersey.

In Attendance: Irving Barnett - Johns-Manville
 William Maaskant - American Asbestos
 D. T. Austin - Uniroyal
 J. D. McCluer - H. K. Porter Co.
 G. E. Houghton - Garlock, Inc.
 J. W. Hawkins - Raybestos-Manhattan, Inc.

During the Wednesday afternoon session (June 18), Messrs. George Harris, Paul Nicodemus, Paul Smith, and Bill Eckerd attended as ASTM A-4 members. Also, members of the Fiber Testing Committee - Messrs. Dewey Childress, Wm. Strieb, Walter Smith, Karl Shock, Donald Frost, and Sudhakas Dixit.

Minutes:

The first draft of ASTM Specification D-1118, Magnetic Rating of Asbestos was started. Information is being obtained from Mr. Lincoln of T & N on the electrical circuit to be included in the specification. Mr. Walter Smith is supplying information on sample preparation.

The National Stockpile Specification P-3-R4 on Spinnable Asbestos Fibers was discussed; recommendations are being made that three categories be included - 1 MR and under, over 1 MR but less than 2, and fibers over 2 MR.

MIL-I-3053, Insulation, Electrical, Asbestos Fiber, Treated and Untreated. This specification needed a lot of changes and the Technical Committee of the ATI has offered to assist the appropriate representatives in the revision.

MIL-P-16404 on Asbestos Packings was reviewed and several changes suggested.

HR-P-41C on Asbestos Rope & Wick was reviewed and a tolerance on weight for this specification was recommended.

MIL-I-24244 was reviewed and this specification is currently undergoing changes in the chemical analysis.

A new technique for determining the asbestos content by the fluoroborate technique was discussed.

The next ASTM specification to be revised will be D-1573 on Heat Ageing.

Respectfully submitted,

John W. Hawkins
Chairman

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MINUTES - SALES PROMOTION COMMITTEE

Asbestos Textile Institute - June 19, 1969
Seaview Country Club, Absecon, New Jersey

The Sales Promotion Committee met on June 19th with representatives of five member companies in attendance.

The major topic of discussion was the letter written on May 5th by the Naval Ship Engineering Center of the Department of the Navy to, we presume, all companies involved or interested in high-temperature insulating materials. This letter said in part ... "The serious hazards of asbestos have recently received widespread publicity and have generated a high level of interest concerning its use by the U. S. Navy as an insulating material." It went on to point out that the chief hazard existed wherever there was a possibility of dust evolution during fabrication, installation and rip-out. Further, it said ... "In order to minimize the hazards associated with the use of asbestos and therefore reduce the possibility of deleterious effects to the workers, a comprehensive study has been initiated by the Naval Ship Engineering Center, Hyattsville, Md. to investigate the feasibility of substituting alternate materials for asbestos used as lagging, piping and boiler insulation."

Our committee discussed this problem in depth as it related to an important segment of our business - textiles. Several member companies responded individually to the Navy with letters of protest. There was no direct action taken by the committee itself.

A motion was passed to recommend to the Board of Governors that representatives of the Environmental Study Committee contact the concerned persons at the Navy in Hyattsville for a conference on the problem. We felt that our current concern is involved with learning as much as we could about their progress and the degree of their intent and that information could best be obtained by the environmental Study Committee rather than the Sales Promotion Committee.

In an effort to have information on the Asbestos Textile Industry get wider distribution, we discussed the possibility of arranging free subscriptions to the trade magazine "Asbestos." We are thinking of engineering college libraries among other institutions. It was agreed to propose a program to the Board of Governors. A motion to do so was made and passed at this meeting.

Two Years ago, we investigated the possibility of instituting an advertising program sponsored by the Institute. After some preliminary work was accomplished, each member of the committee checked the subject with his own corporate executives. The reports back at that time were lukewarm at best and the matter subsequently was dropped. However, the Committee itself has not lost its enthusiasm for the project. Because of the increase in unfavorable publicity on asbestos during the ensuing time, members felt that their respective managements might be more receptive and that the program should be reinvestigated. The subject attracted spirited

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Minutes - Sales Promotion committee

discussion but no specific action was taken at this meeting other than to put the subject on the agenda for the October meeting.

The meeting was adjourned early in order that members could attend the important meeting of the Air Hygiene and Manufacturing Committee meeting attended by two representatives of the U. S. Public Health Service.

Respectfully submitted,

M. Q. Scowcroft
Chairman

MINUTES - AIR HYGIENE & MANUFACTURING COMMITTEE
Asbestos Textile Institute

June 19, 1969 - Seaview Country Club, Abescon, N. J.

In Attendance:

H. H. Walter, Chairman	-	American Asbestos Textile Corp.
L. E. Moody	-	H. K. Porter, Inc.
H. Fleming	-	Uniroyal, Inc.
R. C. Hunt	-	Uniroyal, Inc.
R. B. Smith	-	Raybestos-Manhattan, Inc.
A. R. Patterson	-	Raybestos-Manhattan, Inc.
S. G. Dixit	-	Garlock, Inc.

Bausch & Lomb Automatic Dust Counter:

The members of the committee agreed to further pursue the development of a method for correlating dust counts obtained by the Midget Impinger and the Bosch & Lomb Dust Counter. This attempt appears to be important in regards to the acceptance of datas from the Bosch & Lomb Dust Counter by governmental agencies as well as for the evaluation of such datas within the plants.

The Bosch & Lomb Dust Counter will be transferred shortly from the Uniroyal plant in Hogansville to H.K. Porter. Mr. Earl Wells - dust count technician of Uniroyal - will discuss his datas and experience with the technician of H.K. Porter. It is planned that at a later date the dust count technicians of all member companies get together, exchange their datas and experience and develop a method for the proper use of the Bosch & Lomb Dust Counter and a correlation to the Midget Impinger.

Wet Weaving:

Samples of wet woven asbestos garment cloth before and after application of a finish proved that a wet woven asbestos garment cloth, which without the application of a proper finishing method, would be unacceptable for garment use, can be finished in such a way that it shows the same as or even improved characteristics of dry woven cloth. Problems arising from rust formation as well as from clogging of heddle eyes and reeds in the wet weaving process can be overcome by the use of stainless steel oval reeds and stainless steel heddle eyes.

Noise Exposure:

The problems of reducing the noise level, particularly in weave rooms, were discussed in regards to the "Revised Safety & Health Standards Under the Walsh-Healey Public Contracts Act". Copies of that act and an analysis of the revised standards will be distributed to the committee members.

cont'd.

Minutes - Air Hygiene & Manufacturing Committee

Dr. L. J. Cralley and Dr. William W. Lainhart of the U. S. Public Health Service, the Environmental Study Committee and members of the Board of Governors joined the committee meeting at 10:45 A.M. Dr. Cralley, Dr. Lainhart and Mr. C. L. Shackle discussed procedures for the continuation of the study of the asbestos textile industry by the U. S. Public Health Service.

Respectfully submitted,

H. H. Walter
Chairman

Minutes
GENERAL MEETING
Asbestos Textile Institute

JUN 20 1969

ASBESTOS TEXTILE INSTITUTE
MINUTES - GENERAL MEETING - JUNE 20, 1969
Seaview Country Club, Absecon, N. J.

In Attendance:

AMERICAN ASBESTOS TEXTILE CORP.

J. L. Rainey
J. W. Christenbury
H. H. Walter

GARLOCK INC.

G. E. Houghton
S. G. Dixit
E. W. Fisher (Guest speaker)

JOHNS-MANVILLE CORP.

E. A. Schuman
R. M. Billings
C. L. Sheckler

H. K. PORTER COMPANY, INC.

L. E. Moody
J. D. McCluer
D. E. Childers
J. L. Mitchell
J. W. Echerd

RAYBESTOS-MANHATTAN, INC.

M. Q. Scowcroft
A. R. Patterson
J. W. Hawkins
R. B. Smith

UNIROYAL, INC.

R. P. Clark
R. C. Hunt
D. T. Austin, Jr.
H. Fleming
J. H. Wolfsie, M. D.

GUESTS

W. S. Hough, Sec'y-Treas., Mech. Packing
Association.
J. L. Tucker, Consultant on Textiles
B. E. Shirey, Raybestos-Manhattan, Inc.

ASBESTOS CORPORATION LIMITED

P. E. Leclerc
G. F. A. Brink

BELL ASBESTOS MINES LIMITED

W. H. Smith
C. H. Schoch

CASSIAR ASBESTOS CORP. LTD.

Dr. R. A. Kuntze

LAKE ASBESTOS OF QUEBEC LTD.

C. E. Stiefken

TURNER BROS. ASBESTOS CO., LTD.

W. M. Deckman

NICOLET INDUSTRIES, INC.

Geo. Griswold, Jr.
D. Frost

CADWALADER, WICKERSHAM & TAFT

H. C. Roosevelt (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE

H. E. Sunbury (Secretary)

Note: Those attending committee meetings the previous two days, but not the General Meeting, are listed on committee reports.

Minutes - General Meeting

1. President Schuman called the meeting to order at 9:30 A. M.
2. The minutes of the last meeting were presented for reading. R. P. Clark moved the reading be omitted, seconded by J. L. Rainey, and so voted.
3. The Financial Report was presented by Treasurer Scowcroft. It was moved by R. P. Clark that report be accepted. The motion was seconded by J. W. Christenbury, and so voted. The report is attached.
4. Mr. Haven C. Roosevelt, Legal Counsel, addressed the meeting, and a brief summary of his remarks follows:

"Counsel reported on the hard line taken by the Department of Justice in the antitrust field. He reviewed the FTC's pre-merger notification requirements and recent remarks by Attorney General Mitchell regarding mergers. Counsel also briefly recited some of the reasoning and policy behind the Administration's hard line in attacking mergers and attempting to slow merger activity. He dealt primarily with one of the reasons - reciprocity, or other forms of unfair buyer-seller leverage - noting that reciprocity was a problem which almost all businessmen encounter in one form or another. Counsel explained the recent complaint in the case against United States Steel and reviewed some of the terms of the proposed consent decree. He concluded that in order to avoid successful attack, all purchasing decisions of a company should be made on the basis of price, quality and service rather than on the basis of whether or not a prospective seller is also a good customer of the company."
5. At this point in the meeting President Schuman asked each person present to stand and identify himself and his company.
6. President Schuman announced that the Board of Governors had unanimously approved the application of Nicolet Industries, Inc., for Regular Membership in the Institute, and extended to that company a most cordial welcome to participate in our activities.
7. President Schuman announced that the resignation of Tallman-McCluskey Fabrics Company from the Institute had been accepted due to the acquisition of that company by the H. K. Porter Company, Inc.
8. Our next meeting, to be held October 8-10, 1969, at Pinehurst, N. C., will be the 25th Anniversary meeting of the Institute and President Schuman announced that Mr. J. L. Rainey had been appointed Program Chairman for that important occasion. He asked that everyone make a special effort to attend, bringing their

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Minutes - General Meeting

wives if possible. Also that we would like a large attendance by company officials in addition to those who regularly attend our meeting.

9. The Fibre Producers Report was prepared by Mr. M.P. Carson, V.P. - Sales, ASBESTOS CORPORATION LIMITED, Thetford Mines, Quebec, and was given by Mr. Paul E. Leclerc, Regional Sales Manager of ASBESTOS CORPORATION LIMITED, as Mr. Carson was confined to his room due to sudden illness. The full text of the excellent report is attached to these minutes.

10. President Schuman introduced our guest speaker, Mr. Edward W. Fisher, Supervisor of Product Engineering, GARLOCK INC. Palmyra, New York. Mr. Fisher talked about - "The Use of Asbestos Textiles in the Packing Industry". Speaking from a background of over 35 years experience in the Packing Industry Mr. Fisher gave a most interesting and informative talk on various forms of packings and the design principles involved in making them effective for a multiplicity of applications and operating conditions. Many samples were displayed illustrating points made as his talk progressed, and at its conclusion copies of his paper were given to those in attendance. President Schuman thanked Mr. Fisher on behalf of the Board of Governors and Members and a fine round of applause was given Mr. Fisher in recognition of an outstanding talk. We are most appreciative of the cooperation of GARLOCK INC. in permitting Mr. Fisher to give his fine talk!

11. The committee reports were given by the respective chairmen as listed below:

Fiber Testing Committee - G.F.A. Brink, Chm.
Technical Committee ----- J.W. Hawkins, Chm.
Sales Promotion Committee - M.Q. Scowcroft, Chm.
Air Hygiene & Mfg. Committee - H.H. Walter, Chm.

The full text of their reports is attached to these minutes.

12. President Schuman asked Mr. C.L. Sheckler, Chairman of the recently formed Environmental Study Committee, to give a brief report on the current activity of that committee. Mr. Sheckler said that one major objective of the committee was to keep members of the Institute informed on legislation affecting our industry, and in this connection he urged everyone to read the revised Walsh-Healy act now in effect for public contracts in respect to environmental working conditions involving dust counts and also noise levels.

Mentioned his current discussions with the U.S.P.H. Service in reference their policy and procedure on reporting significant findings of clinical examinations of employees to the individual's family physician, but not to the company physician. He stressed the necessity for the company physician to know which employees are in need of medical attention.

(continued)

Mr. Sheckler reported that he had written Mr. C.A. Gnam, in the U.S. Dept. of Commerce, on May 6, 1969, giving Mr. Gnam on behalf of the Asbestos Textile Institute, comments pertaining to the proposed legislation HR 2503. Mr. Sheckler pointed out to Mr. Gnam that HR 2503 is too broad and non-specific in its provisions, and as it related only to asbestos would vest all authority in the Dept. of HEW, including inspection authority which would, in effect, duplicate the existing and proposed responsibilities of the Dept. of Labor. Hence a separate act, such as the proposed HR 2503 relating only to the asbestos industry, is unnecessary and also undesirable.

Mr. Sheckler touched on some miscellaneous medical scientific reports concerning the biological effects on animals of asbestos in conjunction with pulmonary diseases.

In concluding his remarks Mr. Sheckler announced that a new member of his committee was Dr. J.H. Wolfsie, Corporate Medical Director, Uniroyal, Inc.. Other members of the Environmental Study Committee are:-Dr. J.L. Goodman, Raybestos-Manhattan, Inc. at North Charleston, S.C.; J.L. Rainey, Vice President, American Asbestos Textile Corporation; and R.P. Clark, Sales Mgr. for asbestos textiles, Uniroyal, Inc. (Mr. Sheckler, the Chairman, is Manager - Accident Prevention and Health Administration, Johns-Manville Corporation, New York City.)

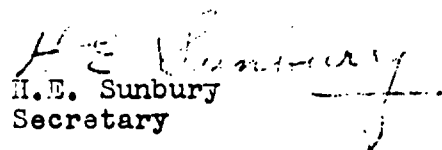
13. President Schuman announced these dates for future meetings:

October 8-10, 1969 - The Carolina, Pinehurst, North Carolina
February 4-6, 1970 - The Regency Hyatt House, Atlanta, Ga.
June 10-12, 1970 - The Motel La Provence, Thetford Mines, Que.
October 7-9, 1970 - The Statler Hilton Inn, Williamsburg, Va.

In respect to the meeting scheduled for June 10-12, 1970 at Thetford Mines, President Schuman expressed the sincere appreciation of all members for the invitation extended to the Institute by the mining companies, namely:- Asbestos Corporation Limited; Bell Asbestos Mines Limited; Canadian Johns-Manville Co., Ltd.; Cassiar Corporation Ltd.; and Lake Asbestos of Quebec, Ltd.

14. There being no other business to come before the meeting it recessed for a group luncheon after which it was duly adjourned.

Respectfully submitted,


H.E. Sunbury
Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

May 8, 1969

Balance On Hand at last report (January 10, 1969)

General Fund	\$ 1025.57	
Savings Fund	17408.91	
Petty Cash Fund	<u>76.98</u>	
		\$18511.46

Receipts

To Savings Fund (Interest - 4 mos.)	\$ 275.00	(Est)
To Savings Fund (1969 Dues)	3000.00	
To General Fund (1969 dues)	6000.00	
To General Fund (Book Sales)	<u>79.74</u>	
		9354.74

Total On Hand and Received	\$ 27866.20
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Disbursements

Legal Retainer (7 mos. ending 3/31/69)	1250.00
Legal Expenses (7 " " " " " ")	434.94
Secretary's salary (4 mos.)	476.00
F.I.C... Tax (First Qtr.1969)	36.00
Secretary's Travel Expense	254.86
Office rent (4 mos.)	300.00
A.T.I. meeting expense (Feb.5-7,1969)	703.78
Printing & Office supplies	56.48
Telephone (4 mos.)	80.61
Petty Cash (Vouchers 396-411 inclusive)	59.77

Total Disbursements 3652.44

Balance On Hand as of May 8, 1969	\$24213.76
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Funds

General Fund (Bank Statement of 5/8/69)	\$ 4512.64	(*)
Savings Fund	19683.91	(**)
Petty Cash Fund	17.21	
Total Funds	<u>24213.76</u>	

Assets as of May 8, 1969

General Fund	\$ 4512.64	
Savings Fund	19683.91	
Petty Cash Fund	17.21	
Accts Receivable (Book Sales)	1.32	
Postage on Hand	10.36	
Furniture & Equipment (Nominal Value)	1.00	
Total Assets		\$24226.44

Liabilities (None)

Net Worth

(*) \$1000.00 transferred from Savings to General Fund on 1/16/69
 (**) Includes \$275.00 estimated interest for period 1/1-4/30/69

Respectfully submitted,

H. E. Sunbury, Asst. Treasurer

FIBRE PRODUCER'S REPORT

Asbestos Textile Institute - June 20, 1969

By: H. P. Carson, Vice Pres. - Sales, ASBESTOS CORPORATION LTD.

Shipments from Quebec were down 6.7 percent at the end of May 1969 as compared with the five-month period in 1968. This was partly due to the unsettled labour situation in the St. Lawrence River earlier in the spring. Shipping companies in many cases refused to place vessels in Montreal, Quebec and Three Rivers pending a settlement of disputes. The settlement was forthcoming in the ports and shipping at present has returned to normal.

Most companies in Quebec have recently settled labour negotiations with unions. In our company's case, an agreement to the end of 1971 has been negotiated. Thus, one can expect a period of stability.

There are acute shortages of quality Group 3 fibre. While there has been no apparent change in shipments to the U. S. market as compared with last year, there appears to be a decrease in availability of Group 3. This decrease in availability has been referred to in past reports as far as British Columbia is concerned, and a similar situation has developed in Quebec.

Overseas markets have been strong generally in Group 3. It is notable that the Q.A.M.A. inventory for Group 3 has been reduced by 70% since May 31st, 1968.

In asbestos cement grades, strong demand continues for Groups 4, 5 and 6. Market reports from various areas highlight shortages in quality 4 Group fibres. Group 5 and 6 are in quite short supply for a/c applications, although some quantities of brake lining 5's and 6's are still available.

Shorts seem to be moving as well as in 1968, with some shortfalls reported. The closing of the Nicolet Mine earlier this year has reduced the availability of shorts.

To attempt to satisfy part of the apparent demand of the next few years, our company is increasing production in the Thetford area. We are hopeful of adding 10% to last year's total production. Plans to bring Asbestos Hill into production at the rate of 100,000 tons per year are progressing favourably. Mid-1972 is the target date. The ore will be concentrated at Ungava, transported to Europe, where a finishing plant will complete the job. The Penhale orebody is under development. This latter will not mean additional tonnage, as it will replace Normandie, which will be depleted by 1974.

There are other prospects still under study in Canada and Australia, but these are not considered to be at the stage where future production can be anticipated.

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Fibre Producer's Report

As far as one can confirm, Rhodesian fibre is still finding markets, and it is assumed there is no build-up of inventory there. Russia has made no new moves to increase its share of world markets and still retains about 250,000 tons, including shipments to Socialist Europe. Some Socialist countries in Europe are increasing their purchases of Canadian fibre, perhaps indicating some difficulties in obtaining more Russian supplies.

Minutes of the A.F.I. Fiber Testing Committee

Meeting held June 18 and 19, 1969 at the
Seaview Country Club, Absecon, N.J.

PRESIDENT:

Members: G.F.A. Brink, Chairman - Asbestos Corporation Ltd.
D.E. Childers - H.K. Porter Company, Inc.
W.C. Streib - Johns-Manville Corp.
C.E. Stiefken - Lake Asbestos of Que., Ltd.

Visitors: E.W. Fisher - Garlock Inc.
D.J. Frost - Nicolet Industries, Inc.
C.H. Schoch - Bell Asbestos Mines Ltd.
W.H. Smith " " " "

BUSINESS:

1. Magnetic Rating Test

- 1.1 The outcome of the recent Magnetic Rating Round Robin on three (3) asbestos fibers and ten (10) textile products, conducted under the guidance of Mr. Walter Smith at different laboratory locations, and the conclusions based on the statistical analyses of the results by the Johns-Man-Corp. were reviewed at a joint session with members of Sub A-4, ASTM Committee D-13, and the ATI Technical Committee on the 18th June. Eighteen persons were in attendance at the joint session. The findings of the statistical analyses were as follows:
 - 1.1.1 The two test methods give essentially the same average, but are not necessarily the same for each sample.
 - 1.1.2 There was no difference due to company alone on either test.
 - 1.1.3 Isolated odd results seemed to occur with both the asbestos fibers and the asbestos textile products which could not be fully explained. However, in the case of the latter, these were probably due to variations in the magnetic content of the samples sent to each laboratory.
 - 1.1.4 Although there were some erratic results, the Round Robin Test was an improvement over the previous one.
- 1.2 It was mutually agreed at the joint session that the new ASTM procedure would be based on the T. & N. apparatus on account of its apparent advantages; and a motion to this effect was passed at the 19th June meeting of the Fiber Testing Committee. Work was commenced on the first draft of the new ASTM Method of Test for Magnetic Rating of Asbestos Fiber and Textile Products under the guidance of Mr. Paul Nicodemus, Chairman of Sub A-4, ASTM Comm. D-13.
- 1.3 A number of important items relative to the magnetic rating

(continued)

test were discussed at the 19th June meeting, and it was recommended that a list of these be submitted to the Chairmen of the committees involved for consideration when writing up the new procedure.

2. National Stockpile Purchase Specification Asbestos-Chrysotile P-3-R4, Dated 18th November, 1965

- 2.1 In response to a request from Mr. Carl Gnam of the Miscellaneous Metals & Minerals Division (DSA) of the Department of Commerce in March, it was recommended that page (F) of Specification P-3-R4 be amended to read as follows:

'(F) Magnetic Rating:

The following types of chrysotile asbestos shall qualify in terms of magnetic rating as follows:

<u>Magnetic Rating</u>	<u>Recommended Use</u>
Less than 1.0	--- Electrical.
1.0 but less than 2.0	-- Certain Electrical & General Purpose.
2.0 and above	----- General Purpose.'

- 2.2 The Technical Committee Chairman will advise Mr. Gnam of the joint session's recommendation

3. Recent activities of the QAMA Technical (Colour Test) and ASTM D-30 (Sub III) Committees (Rotap & Moisture Content Tests) of interest to ATI were briefly reviewed.

4. Spicular and Grit Content of Spinning Fibers

- 4.1 The results of experimental work to develop a suitable test method for measuring the spicular & grit content of spinning fibers were discussed and fractions recovered from three hydrocyclones in series were examined. The Committee recommended that work on this score be continued; and that other approaches such as the elutriation of the longer McNett fractions in the Crudy Content apparatus be considered as well as hydrocycloning. A progress report is to be submitted at the next meeting.

Respectfully submitted,

G.F.A. Brink, Chairman
ATI Fiber Testing Committee

Minutes:

TECHNICAL COMMITTEE MEETING

Asbestos Textile Institute

June 18-19, 1969 at the Seaview Country Club, Absecon, New Jersey.

In Attendance: Irving Barnett - Johns-Manville
 William Maaskant - American Asbestos
 D. T. Austin - Uniroyal
 J. D. McCluer - H. K. Porter Co.
 G. E. Houghton - Garlock, Inc.
 J. W. Hawkins - Raybestos-Manhattan, Inc.

During the Wednesday afternoon session (June 18), Messrs. George Harris, Paul Nicodemus, Paul Smith, and Bill Eckerd attended as ASTM A-4 members. Also, members of the Fiber Testing Committee - Messrs. Dewey Childress, Wm. Strieb, Walter Smith, Karl Shock, Donald Frost, and Sudhakas Dixit.

Minutes:

The first draft of ASTM Specification D-1118, Magnetic Rating of Asbestos was started. Information is being obtained from Mr. Lincoln of T & N on the electrical circuit to be included in the specification. Mr. Walter Smith is supplying information on sample preparation.

The National Stockpile Specification P-3-R4 on Spinnable Asbestos Fibers was discussed; recommendations are being made that three categories be included - 1 MR and under, over 1 MR but less than 2, and fibers over 2 MR.

MIL-I-3053, Insulation, Electrical, Asbestos Fiber, Treated and Untreated. This specification needed a lot of changes and the Technical Committee of the ATI has offered to assist the appropriate representatives in the revision.

MIL-P-16404 on Asbestos Packings was reviewed and several changes suggested.

HH-P-41C on Asbestos Rope & Wick was reviewed and a tolerance on weight for this specification was recommended.

MIL-I-24244 was reviewed and this specification is currently undergoing changes in the chemical analysis.

A new technique for determining the asbestos content by the fluoroborate technique was discussed.

The next ASTM specification to be revised will be D-1573 on Heat Ageing.

Respectfully submitted,

John W. Hawkins
Chairman

MINUTES - SALES PROMOTION COMMITTEE

Asbestos Textile Institute - June 19, 1969
Seaview Country Club, Absecon, New Jersey

The Sales Promotion Committee met on June 19th with representatives of five member companies in attendance.

The major topic of discussion was the letter written on May 5th by the Naval Ship Engineering Center of the Department of the Navy to, we presume, all companies involved or interested in high-temperature insulating materials. This letter said in part ... "The serious hazards of asbestos have recently received widespread publicity and have generated a high level of interest concerning its use by the U. S. Navy as an insulating material." It went on to point out that the chief hazard existed wherever there was a possibility of dust evolution during fabrication, installation and rip-out. Further, it said ... "In order to minimize the hazards associated with the use of asbestos and therefore reduce the possibility of deleterious effects to the workers, a comprehensive study has been initiated by the Naval Ship Engineering Center, Hyattsville, Md. to investigate the feasibility of substituting alternate materials for asbestos used as lagging, piping and boiler insulation."

Our committee discussed this problem in depth as it related to an important segment of our business - textiles. Several member companies responded individually to the Navy with letters of protest. There was no direct action taken by the committee itself.

A motion was passed to recommend to the Board of Governors that representatives of the Environmental Study Committee contact the concerned persons at the Navy in Hyattsville for a conference on the problem. We felt that our current concern is involved with learning as much as we could about their progress and the degree of their intent and that information could best be obtained by the environmental Study Committee rather than the Sales Promotion Committee.

In an effort to have information on the Asbestos Textile Industry get wider distribution, we discussed the possibility of arranging free subscriptions to the trade magazine "Asbestos." We are thinking of engineering college libraries among other institutions. It was agreed to propose a program to the Board of Governors. A motion to do so was made and passed at this meeting.

Two Years ago, we investigated the possibility of instituting an advertising program sponsored by the Institute. After some preliminary work was accomplished, each member of the committee checked the subject with his own corporate executives. The reports back at that time were lukewarm at best and the matter subsequently was dropped. However, the Committee itself has not lost its enthusiasm for the project. Because of the increase in unfavorable publicity on asbestos during the ensuing time, members felt that their respective managements might be more receptive and that the program should be reinvestigated. The subject attracted spirited

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Minutes - Sales Promotion committee

discussion but no specific action was taken at this meeting other than to put the subject on the agenda for the October meeting.

The meeting was adjourned early in order that members could attend the important meeting of the Air Hygiene and Manufacturing Committee meeting attended by two representatives of the U. S. Public Health Service.

Respectfully submitted,

M. Q. Scowcroft
Chairman

MINUTES - AIR HYGIENE & MANUFACTURING COMMITTEE
Asbestos Textile Institute

June 19, 1969 - Seaview Country Club, Abescon, N. J.

In Attendance:

H. H. Walter, Chairman	-	American Asbestos Textile Corp.
L. E. Moody	-	H. K. Porter, Inc.
H. Fleming	-	Uniroyal, Inc.
R. C. Hunt	-	Uniroyal, Inc.
R. B. Smith	-	Raybestos-Manhattan, Inc.
A. R. Patterson	-	Raybestos-Manhattan, Inc.
S. G. Dixit	-	Garlock, Inc.

Bausch & Lomb Automatic Dust Counter:

The members of the committee agreed to further pursue the development of a method for correlating dust counts obtained by the Midgit Impinger and the Bosch & Lomb Dust Counter. This attempt appears to be important in regards to the acceptance of data from the Bosch & Lomb Dust Counter by governmental agencies as well as for the evaluation of such data within the plants.

The Bosch & Lomb Dust Counter will be transferred shortly from the Uniroyal plant in Hogansville to H.K. Porter. Mr. Earl Wells - dust count technician of Uniroyal - will discuss his data and experience with the technician of H.K. Porter. It is planned that at a later date the dust count technicians of all member companies get together, exchange their data and experience and develop a method for the proper use of the Bosch & Lomb Dust Counter and a correlation to the Midgit Impinger.

Wet Weaving:

Samples of wet woven asbestos garment cloth before and after application of a finish proved that a wet woven asbestos garment cloth, which without the application of a proper finishing method, would be unacceptable for garment use, can be finished in such a way that it shows the same as or even improved characteristics of dry woven cloth. Problems arising from rust formation as well as from clogging of heddle eyes and reeds in the wet weaving process can be overcome by the use of stainless steel oval reeds and stainless steel heddle eyes.

Noise Exposure:

The problems of reducing the noise level, particularly in weave rooms, were discussed in regards to the "Revised Safety & Health Standards Under the Walsh-Healey Public Contracts Act". Copies of that act and an analysis of the revised standards will be distributed to the committee members.

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Minutes - Air Hygiene & Manufacturing Committee

Dr. L. J. Cralley and Dr. William W. Lainhart of the U. S. Public Health Service, the Environmental Study Committee and members of the Board of Governors joined the committee meeting at 10:45 A.M. Dr. Cralley, Dr. Lainhart and Mr. C. L. Sheckler discussed procedures for the continuation of the study of the asbestos textile industry by the U. S. Public Health Service.

Respectfully submitted,

H. H. Walter
Chairman

October 9, 1969

ASBESTOS TEXTILE INSTITUTE

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Minutes - BOARD OF GOVERNOR'S MEETING - October 9, 1969

The CAROLINA, Pinehurst, North Carolina

PLAINTIFFS
EXHIBIT
1375

In attendance:

E.A. Schuman - Johns-Manville Corporation
J.L. Rainey - American Asbestos Textile Corp.
M.Q. Scowcroft - Raybestos-Manhattan, Inc.
S.R. Zimmerman, Jr. " " (Guest)
L.E. Moody - H.K. Porter Company, Inc.
A. Kuzmuk - Garlock Inc. (Alternate for G.P. Wiess)
J.K. Whittaker - Nicolet Industries, Inc.
E.A. Morris - Uniroyal, Inc.
C.L. Sheckler - Johns-Manville Corp. (Guest)
H.C. Roosevelt (Legal Counsel) - Cadwalader, Wickersham & Taft
H.E. Sunbury - Secretary

**** Minutes ****

1. Mr. E.A. Schuman, Chairman, called the meeting to order at 10:00AM noting that all Regular Members were represented.

2. The minutes of the last meeting were presented for reading. Motion by Mr. Rainey that reading be omitted, seconded by Mr. Moody. So voted.

3. The Chairman stated that he had received a letter from Mr. R.P. Clark, Uniroyal, Inc., dated September 8, 1969, tendering his resignation as a member of the Board of Governors, also as Vice President of the Institute and the committees on which he served, to be effective as of Sept. 1st, 1969. His resignation, he explained, was due to a realignment of his duties at Uniroyal, Inc., because of which he would no longer be associated with their asbestos products.

Mr. Rainey moved that the resignation be accepted with deep regret. His motion was seconded by Mr. Moody. So voted.

Chairman Schuman said that he had been advised by Uniroyal that Mr. E.A. Morris would be their new representative on the Board of Governors, and welcomed Mr. Morris to the meeting.

Also welcomed to the meeting was Mr. J.K. Whittaker, representing our new Regular Member, Nicolet Industries, Inc.

4. The Financial Report was presented by Treasurer Scowcroft, who stated that the Annual Audit had been made by Mr. C.W. Briggs, Jr., of Raybestos-Manhattan, Inc. President Schuman reported that he had been advised by Mr. Briggs that the statement dated Sept. 9, 1969 "presents fairly the position of the Institute as of that date". Mr. Whittaker moved that report be accepted, motion seconded by Mr. Rainey, and so voted unanimously. The Report and a copy of Mr. Briggs's letter are attached to these minutes.

5. Mr. L.E. Moody, Chairman of the Nominating Committee, presented his committee's recommendations for committee chairmen to replace the

four chairmen who are now completing their normal two-year terms:

Air Hygiene & Mfg. Committee - H. Fleming, Uniroyal, Inc.
Technical Committee - S.G. Dixit, Garlock Inc.
Sales Promotion Committee - R.E. Carpenter, Garlock Inc.
Fiber Testing Committee - D.E. Childers, H.K. Porter Company, Inc.

Regarding nominations for officers to serve for the coming year, Mr. Moody pointed out that the President and Treasurer had another year remaining of the usual two-year term of office, and this left only one vacancy, that of the Vice President, to be filled due to the resignation of Mr. Clark. Mr. Scowcroft suggested that Mr. Moody be nominated for this office.

Mr. Rainey moved that (1) the recommendations of the nominating committee for committee chairmen be approved by the Board; (2) that Mr. Schuman (President) and Mr. Scowcroft (Treasurer) be re-elected to serve for another year; and (3) that Mr. L.E. Moody be elected to the office of Vice President. This motion was seconded by Mr. Morris and approval was voted unanimously.

6. Treasurer Scowcroft presented the Budget for the coming year in the amount of \$11,017.00, and moved that it be approved. Mr. Rainey seconded this motion, and approval was unanimous. The Budget figures are attached to these minutes.

7. Speaker for the next meeting, Feb. 6, 1970, is responsibility of H.K. Porter Company (by rotation) and Mr. Moody agreed they would try to supply a suitable speaker.

8. Approval was given to locations for ATI meetings in 1970:-
February 4-6, 1970 - Regency Hyatt House, Atlanta, Ga.
June 10-12, 1970 - Balmoral Hotel, Thetford Mines, Quebec
October 7-9, 1970 - Statler Hilton Inn, Williamsburg, Va.

9. Tentative approval was given to meetings in 1971:-
February 3-5, 1971 - Charlotte, N.C.
June 2-4, 1971 - Cherry Hill, N.J.
October 6-8, 1971 Savannah, Ga.

10. Suggestions for meeting locations in 1972 were:-
February 2-4, 1972 - Florida (West Coast)
June 7-9, 1972 - Seaview Country Club, Absecon, N.J.
October 4-6, 1972 - The Equinox, Manchester, Vt.

Also, it was suggested that a return visit to Pinehurst, N.C. in October of 1973 would be desirable.

11. Mr. Scowcroft suggested that the name of the "Sales Promotion" committee should be changed to more properly denote its broad range of interests in such matters as public relations, new products, legislation affecting our industry, etc. Mr. Moody said that he would recommend that all reference to "Sales" be omitted in selecting a new name for the committee. Mr. Rainey moved that the title "Sales Promotion" be eliminated, and that it be left to the members of the old committee to select a new name that would be properly descriptive of their field of activity.

Mr. Moody seconded this motion, and it was voted approval unanimously. The Secretary will advise the incoming chairman of this action, and ask him to take the initiative in recommending a new name for the committee.

12. Mr. S.R. Zimmerman, Jr., showed a series of three advertisements prepared by the Asbestos Information Committee, 10 Wardour St., London, England. These ads, to be published under the caption "WHO NEEDS ASBESTOS" will appear in certain trade papers beginning in November 1969. Mr. Zimmerman commented favorably on the makeup of the ads and felt it was a constructive effort to acquaint the public with the importance of asbestos products in today's world.

13. Mr. C.L. Sheckler, Chairman of the Environmental Study Committee, reviewed for the benefit of the Board several developments that have taken place since the last meeting. He again stressed that his committee acts only in an advisory capacity. The highlights of his remarks, (unedited by Mr. Sheckler) follow:-

Confidential Information is that the U.S.P.H. Service is preparing a Position Paper on health aspects of asbestos, and Mr. Sheckler has reviewed a draft of same. USPHS gives opinion that asbestos hazard can be controlled except for mesothelioma. Question of what Threshold Value should be set is reviewed. British Standards of number of fibers per cc have been suggested)- compromise may be reached means one million particles per cubic foot. Does paper will be published but thinks in about 1 year. In his opinion the asbestos industry should be regulated by association rather than by an individual company. Mr. Sheckler met recently with representatives of respiratory safety equipment representatives of the U.S. Bureau of Mines. An improved protective respiratory device has been developed but it will not be marketed until, or unless, it is approved by the U.S. Bureau of Mines. This might be next July - however the Bureau of Mines will not give specific approval for asbestos dust- but rather for silicates(?) which in Mr. Sheckler's view would be acceptable. He pointed out that the plant should have a respirator maintenance program, meaning a clean filter every day, etc. This is more of a problem on construction jobs than for in-plant workers. Several companies have prototypes of respirators, including J/M, awaiting U.S. Bureau of Mines approval.

In respect to the Navy's search for a substitute for asbestos cloth as well as other asbestos products, Mr. Sheckler is under the opinion that the Navy does not necessarily want non-asbestos products, but elimination of dust is their primary objective.

Commenting on legislation - present and pending - Mr. Sheckler mentioned that compensation cases were not decreasing - quite the contrary in fact!

Examination of the employees in J/M's Marshville, N.C. plant is presently underway by the U.S.P.H. Service, and acceptance by the employees there has been excellent.

Mr. Sheckler raised the question of whether it would be desirable to have Dr. Selikoff as the Guest Speaker at an A.T.I. meeting. Mr. Rainey felt that we should defer it as timing was not right. It was the consensus of the Board that any invitation to Dr. Selikoff should be deferred. Also that if, and when, invited to speak that Dr. Selikoff agree there would be no publicity release in connection with his talk at the Institute meeting,

The question of preparing a Position Paper on asbestos was discussed. Mr. Rainey thought that the restructured former Sales Promotion Committee might undertake it. Mr. Sheckler offered to help but not to accept responsibility for the undertaking. The Position Paper, or booklet, would be for the benefit of customers, and by means of it all companies would be in a position to advise their clients, customers, and the general public, of the many uses of and recommended procedures for the safe handling of asbestos textile products.

All agreed that such a booklet would be most desirable. Mr. Sheckler showed a booklet put out by NIMA (National Insulation Mfgs. Assoc.) saying that the format was excellent, and that a booklet on asbestos textiles might be modeled along the same lines. It was agreed that the idea of a booklet, or Position Paper, on asbestos textiles should be pursued at a subsequent meeting.

14. There being no further business to come before the meeting it was voted to adjourn.

Respectfully submitted,

H. E. Sunbury
H.E. Sunbury
Secretary

ASTOS TEXTILE INSTITUTE

Report of Funds

September 9, 1969

Balance on Hand at last report (May 8, 1969)

General Fund	\$ 4512.64	
Savings Fund	19683.91	
Petty Cash Fund	17.21	
		\$24213.76

Receipts

To Savings Fund (Interest - 4 mos.)	300.00 (Est.)	
To General Fund (Initiation Fee & Dues)	750.00	
To General Fund (Book Sales)	54.90	
		1104.90

Total on Hand and Received

\$25318.66

Disbursements

Legal Retainer (3 mos. ending 6/30/69)	750.00	
Legal Expenses (3 mos. " " 6/30/69)	127.44	
Secretary's salary (4 mos.)	476.00	
F.I.C.A. Tax (2nd Qtr.-1969)	36.00	
Secretary's travel expense	110.72	
Office rent (4 mos.)	300.00	
A.T.I. Meeting expense (June 18-20, 1969)	707.58	
Printing & Office Supplies	115.36	
Telephone (4 mos.)	127.31	
Stenographic	32.00	
Dues (Industrial Hygiene Foundation)	100.00	
Fire Insurance (Office contents-3 yrs.)	31.40	
Revision of ASTM Specs.	38.01	
Advertisement - Asbestos Mag. 50th Anniver'y	40.00	
Flowers	24.30	
Petty Cash (Vouchers 412-424 inclusive)	56.65	
		3072.77

Total Disbursements

3072.77

Balance on Hand as of September 9, 1969

\$22245.89

Funds

General Fund (Bank statement of 9/9/69)	\$ 2218.63	
Savings Fund	19983.91 (*)	
Petty Cash Fund	43.35	
		\$ 22245.89

Total Funds

\$ 22245.89

Assets as of Sept. 9, 1969

General Fund	\$ 2218.63	
Savings Fund	19983.91	
Petty Cash Fund	43.35	
Accts Receivable (Book Sales)	16.21	
Postage On Hand	5.60	
Furniture & Equipment (Nominal Value)	1.00	
		\$ 22268.70

Total Assets

\$ 22268.70

Liabilities - Accts Payable as of 9/9/69

13.14

Net Worth

\$ 22255.56

(*) Includes \$575.00 estimated interest for period beginning January 1st, 1969 and ending August 31st, 1969

Respectfully submitted,

H.E. Sunbury, Asst. Treas.

RAYBESTOS-MANHATTAN, INC.

UNITED STATES ASBESTOS DIVISION

Manheim, Pa. 17545



October 2, 1969

Mr. E. A. Schuman
Johns-Manville Corporation
22 East 40th Street
New York, New York 10016

Subject: Audit of A.T.I. Books

Dear Mr. Schuman:

I have examined the report of funds, assets, liabilities and net worth for the Asbestos Textile Institute for the 12 month period ending September 9, 1969.

Bank balances as shown on the report were reconciled with bank records.

In my opinion, the attached statement dated September 9, 1969, presents fairly the position of the Asbestos Textile Institute as of that date.

The results of the operations for the 12 month period ended September 9th have been examined by review of the check register and other reports as presented which conform with generally accepted accounting practices.

All records have been returned to Mr. H. E. Sunbury under separate cover.

Sincerely,

C. W. Briggs, Jr.
C. W. Briggs, Jr.

cc: Mr. M. Q. Scowcroft
Raybestos-Manhattan, Inc.
P. O. Box 9140
Bridgeport, Conn. 06603

Mr. H. E. Sunbury
Asbestos Textile Institute
P.O. Box 239, 75 Center St.
Pompton Lakes, N. J. 07442

ASBESTOS TEXTILE INSTITUTE
BUDGET FOR 1970

Item	1969 Budget	Disbursements 12 Months ending 9/9/69	Proposed Budget for 1970
Secretary's salary (net)	\$1426.50	\$ 1430.00	\$ 1428.00
F.I.C.A. Tax	147.00	138.00	144.00
Secretary's travel expense	500.00	536.20	500.00
Office Rent	900.00	900.00	900.00
Legal Retainer	3000.00	2500.00	3000.00
Legal expense (Travel, etc.)	500.00	780.03	600.00
Accountant (Caruso)	300.00	300.00	300.00
Meeting expense (3 mtgs.)	2700.00	2366.39	2700.00
ASTM and IHF Dues	135.00	235.00	35.00
Office expense	1300.00	835.00	1000.00
Revision of ASTM Specs.	200.00	38.01	100.00
Insurance on B. & L. equipment	110.00	113.00	110.00
Incidentals (Gifts, Flowers, etc.)	200.00	222.80	200.00
Fire insurance (Office contents) ---		31.40	----
A.T.I. 25th Anniversary exp.	500.00	----	----
Totals	\$ 11918.50	\$ 10425.83	\$ 11017.00

Source of Funds to meet 1970 Budget

Dues, Class "A" members ---- 5 @ \$1000.00 -----	\$ 5000.00
Dues, Class "B" members ---- 2 @ 500.00 -----	1000.00
Dues, Class "C" members ---- 4 @ 500.00 -----	2000.00
Dues, Class "D" members ---- 4 @ 250.00 -----	1000.00
Book sales to non-members (\$156.00 in last 12 months)---	150.00
Interest on Savings Fund (Estimated) -----	700.00
By transfer from Savings fund -----	1167.00
Total	\$ 11017.00

Breakdown of Office Expense
(12 months ending 9/9/69)

Printing & Office Supplies ---	\$ 259.01
Stenographic Help -----	32.00
Telephone (12 months) -----	314.22
Petty Cash (Stamps, etc.) -----	229.77
Total	\$ 835.00

Prepared by: H. L. Sunbury
Asst. Treasurer

ASBESTOS TEXTILE INSTITUTE

Record of Committee Chairmanships (Ten year period 1960 - 1969 inclusive)

Year	Air Hygiene & Mfg. Committee	Sales Promotion Committee	Technical Committee	Fiber Testing Committee
1960	R.B.Smith(R/M)	E.A.Schuman(J/M)	D.F.Quealy(A/A)	I.Barnett(J/M)
1961	R.B.Smith(R/M)	E.A.Schuman(J/M)	D.F.Quealy(A/A)	I.Barnett(J/M)
1962	J.L.Mitchell(HKP)	S.J.Peele(Uni.)	J.L.Tucker(J/M)	I.Barnett(J/M)
1963	J.L.Mitchell(HKP)	J.T.Griffis(HKP)	J.L.Tucker(J/M)	I.Barnett(J/M)
1964	L.C.Williams(R/M)	J.W.Christenbury (A/A)	Wm.Maaskant(A/A)	I.Barnett(J/M)
1965	L.C.Williams(R/M)	J.W.Christenbury (A/A)	Wm.Maaskant(A/A)	I.Barnett(J/M)
1966	W.C.Atkinson(J/M)	W.S.Hough (J/M)	J.D.McCluer(HKP)	J.Wronski(R/M)
1967	W.C.Atkinson(J/M)	W.S.Hough (J/M)	J.D.McCluer(HKP)	J.Wronski(R/M)
1968	H.H.Walter(A/A)	M.Q.Scowcroft (R/M)	J.W.Hawkins(R/M)	G.F.A.Brink (Asb.Corp.)
1969	H.H.Walter(A/A)	H.Q.Scowcroft (R/M)	J.W.Hawkins(R/M)	G.F.A.Brink (Asb.Corp.)

Company Participation (For ten year period 1960 - 1969 inclusive)

Johns-Manville has supplied -----	14	chairmanship years	(35.0%)
Raybestos-Manhattan has supplied -----	10	"	" (25.0%)
American Asbestos Textile has supplied -	8	"	" (20.0%)
H.K. Porter Company has supplied -----	5	"	" (12.5%)
Asbestos Corporation has supplied -----	2	"	" (5.0%)
Uniroyal has supplied -----	1	"	" (2.5%)
Garlock, Inc. has supplied -----	0	"	" (00.0%)
Total	40	"	" 100.0%

E.E.S. 9/30/69

ASBESTOS TEXTILE INSTITUTE

BOARD OF GOVERNOR'S MEETING

October 9, 1969, - The CAROLINA, Pinehurst, North Carolina

Agenda:

Call to Order - 10:00 A.M. - E.A. Schuman, Chairman

Minutes of the last meeting

Financial Report - M.Q. Scowcroft, Treasurer

Annual Audit Report - E.A. Schuman

Report - Environmental Study Committee - C.L. Sheckler, Chm.

Resignation of Vice President R.P. Clark

Approval of Uniroyal's new representative on Board of Governors

Report of Nominating Committee - L.E. Moody, Chm.

Election of officers for the coming year

Appointment of Chairmen for working committees

(a) Air Hygiene & Mfg.

(b) Sales Promotion

(c) Technical

(d) Fiber Testing

Approval of A.T.I. Budget for 1970

Speaker for the February 1970 meeting (*)

Approval of locations for meetings in 1970

February 4-6, 1970 - Regency Hyatt House, Atlanta, Ga. (Firm)

June 10-12, 1970 - Balmoral Hotel, Thetford Mines, Quebec (Firm)

October 7-9, 1970 - Statler Hilton Inn, Williamsburg, Va. (Firm)

Suggestions for location of meetings in 1971

February - Charlotte, N.C. or Atlanta, Ga.

June 1971 - Cherry Hill, N.J. or the new Holiday Inn, Phila. Pa.

October - Somewhere in mountains of Penna., Va., West Va., or Vt.

For February, 1972 - The new Disneyland, Orlando, Fla.

Other business

Adjournment

(*) By rotation it is H.K. Porter Company's turn to sponsor a speaker.

ROSTER

ASBESTOS TEXTILE INSTITUTE

P. O. Box 239, Pompton Lakes, N. J. 07442

* * * * *

AMERICAN ASBESTOS TEXTILE CORP.

Norristown, Pa.

GARLOCK INC.

Palmyra, New York

JOHNS-MANVILLE CORPORATION

New York, N. Y.

NICOLET INDUSTRIES, INC.

Ambler, Pa.

H. K. PORTER CO. INC.

Pittsburgh, Pa.

RAYBESTOS-MANHATTAN, INC.

Bridgeport, Conn.

UNIROYAL, INC.

New York, N. Y.

ASBESTOS CORPORATION, LTD.

Thetford Mines, Quebec, Canada

BELL ASBESTOS MINES, LTD.

Thetford Mines, Quebec, Canada

BRITISH BELTING AND ASBESTOS, LTD.

Cleckheaton, Yorkshire, England

CASSIAR ASBESTOS CORP., LTD.

Toronto, Canada

HILADOS Y TEJIDOS DE ASBESTO, S. A.

Toluca, Mexico

LAKE ASBESTOS OF QUEBEC, LTD.

Black Lake, Quebec, Canada

SOCIETE ANONYME FRANCAISE DU FERODO

Paris, France

TURNER BROTHERS ASBESTOS CO., LTD.

Rochdale, England



ASBESTOS TEXTILE INSTITUTE

—FOUNDED 1944—

Publication of the Asbestos Textile Institute

October 19, 1957

GENERAL MEETING

ASBESTOS TEXTILE INSTITUTE

TWENTY-FIFTH ANNIVERSARY MEETING

October 8-10th, 1969

The CAROLINA, Pinehurst, North Carolina

Meeting schedule:

Wednesday, October 8, 1969

Registration

Social Hour - 6:00 P.M.

Dancing - "Pine Room" - 9:30 P.M. (*)

Thursday, October 9, 1969

All committees meet, starting 8:30 A.M.

Air Hygiene & Mfg.
Sales Promotion
Technical
Fiber Testing
Environmental Study

Board of Governor's meeting - 10:00 A.M.

Social Hour - 6:00 P.M.

Dancing - "Pine Room" - 9:30 P.M. (*)

Friday, October 10, 1969

GENERAL MEETING - 9:30 A.M.

Reception - 12 Noon; Luncheon - 12:30 P.M.

*** Meeting adjourned ***

Note: Ladies invited to Social Hours, also
the Reception and Luncheon
(*) Hotel orchestra

ASBESTOS TEXTILE INSTITUTE

President ----- E.A. Schuman
Vice President ----- R.P. Clark
Treasurer ----- M.Q. Scowcroft
Exec. Sec'y ----- H.E. Sunbury
Legal Counsel ----- H.C. Roosevelt

BOARD OF GOVERNORS

E.A. Schuman, Chairman
R.P. Clark, L.E. Moody, J.L. Rainey
M.Q. Scowcroft, J.K. Whittaker, G.P. Weiss

AIR HYGIENE & MFG. COMMITTEE

H.H. Walter, Chairman
H. Fleming, R.C. Hunt, L.E. Moody, R. Morton
K.W. Nelson, C.L. Sheckler, R.B. Smith
A.R. Patterson

TECHNICAL COMMITTEE

J.W. Hawkins, Chairman
D.T. Austin, Jr., G.E. Houghton, J.D. McCluer
Wm. Maaskant, S.G. Dixit, D.F. Quealy

SALES PROMOTION COMMITTEE

H.Q. Scowcroft, Chairman
J.W. Christenbury, R.P. Clark, A. Kuzmuk
E.A. Schuman, Geo. Griswold, Jr.

FIBER TESTING COMMITTEE

G.F.A. Brink, Chairman
I. Barnett, D.E. Childers, R. Dodds-Hebron
B. Lincoln, C.E. Stiefken, W.C. Streib
T.T. Tigert, J.P. Wronski

FIBRE COMMITTEE

M.P. Carson, J.D. Christian, N.W. Hendry
H.J. Messel, W.W. Oughtred, P.P. Smith
Wm. J.M. Smith

About the Speakers:

George S. Fabel - formerly President of the Southern Asbestos Company before it was acquired by the H.K. Porter Company, Inc., is presently associated with the American Asbestos Textile Corp. Mr. Fabel served on the first A.T.I. Board of Governors in 1944, was Vice-Pres. in 1947 and 1948, and President of A.T.I. in 1949 and 1950. He has always been a loyal and enthusiastic supporter of the A.T.I., and it is a privilege indeed to have both he and his charming wife in attendance at our 25th Anniversary Meeting.

Mr. & Mrs. Fabel live at 6612 Sardis Road, in Charlotte, N.C.

Mr. James S. Massenburg - Executive Sec'y of the North Carolina Governor's Committee on Employment of the Handicapped, is recognized as an authority on the employability of the handicapped; and what business and industry can do to take advantage of their skills.

An Act of Congress has designated the first full week in October (this week) as "National Employ the Physically Handicapped Week" and so we are most pleased to have this opportunity to hear Mr. Massenburg, and to learn what our industry can contribute to a most worthy cause!

Mr. Massenburg's office is located at 541 Caswell Bldg., Raleigh, N.C. 27602

ASBESTOS TEXTILE INSTITUTE

GENERAL MEETING

October 10, 1969 - The CAROLINA, Pinehurst, N.C.

Agenda:

Call to Order - 9:30 A.M. - E.A. Schuman, President

Introductions

Minutes of the last meeting

Financial Report - H.Q. Seeweroff, Treasurer

Legal Counsel Report - H.C. Roosevelt, Atty.

Fibre Producer's Report - Wm.J.W. Smith (*)

Committee Reports: Air Hygiene & Mfg.
Sales Promotion
Technical
Fiber Testing
Environmental Study

The First Twenty-five Years - George S. Fabel

Other business

Date and location of the next meeting

Guest Speaker:- Mr. James S. Massenburg
Subject:- "Employment of the Handicapped"

Reception - 12:00 Noon; Luncheon - 12:30 pm

Adjournment

(*) Director, Vice President & Gen. Sales Mgr,
BELL ASBESTOS MINES LIMITED

Minutes
GENERAL MEETING
Asbestos Textile Institute
OCT 10 1969

ASBESTOS TEXTILE INSTITUTE

Minutes - GENERAL MEETING - October 10, 1969

The CAROLINA, Pinehurst, North Carolina

In attendance:

AMERICAN ASBESTOS TEXTILE CORP.

J.L. Rainey
J.W. Christenbury
H.H. Walter
G.S. Fabel

GARLOCK INC.

G.E. Houghton
S.G. Dixit
A. Kuzmuk

JOHNS-MANVILLE CORP.

E.A. Schuman
R.M. Billings
C.L. Sheckler
I. Barnett
K.A. Roberts

H.K. PORTER COMPANY, INC.

L.E. Moody
D.E. Childers
J.W. Echerd

RAYBESTOS-MANHATTAN, INC.

M.Q. Scowcroft
S.R. Zimmerman, Jr.
G.F. Ducker
M.W. Oliver
R.B. Smith
J.W. Hawkins
J.A. Brown, Jr.

ASBESTOS CORPORATION LIMITED

P.E. Leclerc
G.F.A. Brink

BELL ASBESTOS MINES LIMITED

Wm. J.W. Smith
W.H. Smith

LAKE ASBESTOS OF QUEBEC, LTD.

E.A. Farrell

TURNER & NEWALL LTD.

Bernard Lincoln

TURNER BROS. ASBESTOS CO., LTD.

W.M. Deckman

NICOLET INDUSTRIES, INC.

J.K. Whittaker
Geo. Griswold, Jr.
D.J. Frost

UNIROYAL, INC.

B.T. Austin, Jr.
R.P. Clark
F.C. Phillips
E.A. Morris
R.C. Hunt

CADWALADER, WICKERSHAM & TAFT

H.C. Roosevelt (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury (Secretary)

Guests:

J.T. Griffis, Charlotte, N.C.
J.D. McCluer, H.K. Porter Company, Inc. (Retired)
W.C. Atkinson, Johns-Manville Corp. (Retired)
W.H. Johnston, Atlas Asbestos Company, North Wales, Pa.
J.S. Massenburg, Raleigh, N.C. (Guest speaker)

Note: Those attending committee meetings the previous day, but not the General Meeting, are listed on committee reports.

1. President Schuman called the meeting to order at 9:30 A.M. and expressed his appreciation for the fine attendance of members (and wives) at this 25th Anniversary Celebration of the founding of ATI.
2. The minutes of the last meeting were presented for reading. Motion by E.A. Farrell to omit reading, seconded by R.M. Billings, so voted.
3. The Financial Report was presented by Treasurer Scowcroft. Moved by J.L. Rainey that report be accepted. Seconded by K.A. Roberts, and so voted. President Schuman stated that the Annual Audit of the Institute's books had been made by Mr. Charles W. Briggs, Jr., of Raybestos-Manhattan, Inc., and read Mr. Briggs's letter of October 2nd certifying that the financial report of September 9, 1969 presents fairly the position of the Institute as of that date. Report attached.
4. Mr. Haven C. Roosevelt, Legal Counsel, addressed the meeting, and a brief summary of his remarks follows:

" In the past twenty-five years various representatives from my firm have outlined to you some of the activities which you may do and which you may not do jointly. With the rules for these activities we are all fairly familiar. However, what you may say to each other as opposed to what you may do together is an increasingly difficult problem. In the recent Greensboro case a number of competitors exchanged information concerning prices charged or quoted to specific customers for corrugated containers. The trial court found that each defendant had exercised his own judgement with respect to taking orders and quoting prices.

On appeal the Attorney General argued that the exchange of information might have deprived customers of some of the benefits of competition -- that absent the exchange of information a lower price might have been quoted. The Supreme Court accepted this argument. The court drew what it called an "irresistible inference" that the exchange of information had an anticompetitive effect. Thus it would appear that any statistical reporting plan having to do with recently charged or quoted prices is in jeopardy. If this type of exchange is suspect then what other types in the future may incur suspicion? Although prices are the most obvious manifestation of product competition other factors are important -- packages; a finish, color or feature; credit; terms of sale; freight; even new products. All exchanges of information should be carefully examined to determine if an "irresistible inference" could be drawn that customers and competition in general might be adversely affected."

5. At this point in the meeting President Schuman asked each person to stand and identify himself and his company.
6. President Schuman announced that the Board of Governors, at their meeting held on October 9, 1969 had elected officers to serve for the coming year, namely:- President - E.A. Schuman; Vice President - L.E. Moody; Treasurer - M.Q. Scowcroft. New members of the Board of Governors are:- J.K. Whittaker of Nicolet Industries, Inc., and E.A. Morris of Uniroyal, Inc. Mr. Morris replaces R.P. Clark who resigned as Vice President of ATI on the first of September 1969. Mr. Clark's responsibilities at Uniroyal

having been realigned he is no longer responsible for that company's asbestos textile products. We regret that "Dick" Clark, always an active and popular participant in Institute affairs, is unable to continue attendance at our meetings.

7. The Fibre Producer's Report was given by Mr. Wm.J.W. Smith, Vice President & General Sales Manager of BELL ASBESTOS MINES LIMITED. Mr. Smith reviewed the present situation in respect to the supply of various grades of asbestos fibres, and stated that so far as the spinning grades are concerned the normal inventories maintained by producers have been depleted to such an extent that a serious shortage could develop in the coming year.

At the conclusion of his remarks Mr. Smith extended to the members, on behalf of the Canadian members of the Institute, a most gracious and cordial invitation to attend the ATI meeting to be held at Thetford Mines, Quebec, June 10-12, 1970. Hosts at that meeting will be:- Asbestos Corporation Limited; Bell Asbestos Mines Limited; Cassiar Asbestos Corporation Ltd.; Johns-Manville Co. of Canada, Ltd.; and Lake Asbestos of Quebec, Ltd.

8. The committee reports were given by the respective chairmen:

Air Hygiene & Mfg. Committee - H.H. Walter, Chm.
Technical Committee - J.W. Hawkins, Chm.
Sales Promotion Committee - M.Q. Scowcroft, Chm.
Fiber Testing Committee - G.F.A. Brink, Chm.
Environmental Study Committee - C.L. Sheckler, Chm.

Their reports are attached to these minutes.

9. President Schuman presented Certificates of Appreciation to the retiring chairmen; Messrs Walter, Hawkins, Scowcroft and Brink, each of whom had served the normal term of two years, and thanked them on behalf of the Board of Governors and the members for their leadership and assistance in furthering the objectives of the Institute.

10. President Schuman announced that the new committee chairmen would be:

For Air Hygiene & Mfg. Committee - Mr.H. Fleming, Uniroyal, Inc.
" Technical Committee - Mr. S.G. Dixit, Garlock Inc.
" Sales Promotion Committee - Mr. R.E. Carpenter, Garlock Inc.
" Fiber Testing Committee - Mr. D.E. Childers, H.K. Porter Co., Inc.

Note: Currently under consideration is a proposal to change the name of the "Sales Promotion" Committee to more accurately denote its broad range of interests in such matters as public relations, new products, and legislation affecting our industry.

11. Mr. John D. McCluer, a former chairman of our Technical Committee, was presented with a beautiful plaque by President Schuman as a tribute to his many years of service in the asbestos textile industry, and his valuable contribution to the work of the Institute. Retired from the H.K. Porter Co., Inc., at the end of last August, Mr. & Mrs. McCluer reside at 1422 Richland Dr., Charlotte, N.C. 28205.

12. President Schuman introduced Mr. George S. Fabel, who served on the first A.T.I. Board of Governors in 1944, was Vice President in 1947-1948, and President of ATI in 1949 and 1950.

Mr. Fabel gave an interesting review of the progress made by the Institute since its founding in 1944, expressed his personal gratification that the organization he had helped to found had become of such value to the asbestos textile industry, and extended his best wishes for the years ahead! Mr. & Mrs. Fabel live at 6612 Sardis Rd., in Charlotte, N.C. 28211.

13. Dates and locations of future meetings, as announced by President Schuman:

February 4-6, 1970 - Regency Hyatt House, Atlanta, Ga.

June 10-12, 1970 - Balmoral Hotel, Thetford Mines, Que., Canada

October 7-9, 1970 - Statler Hilton Inn, Williamsburg, Virginia

14. The Guest Speaker, Mr. James S. Massenburg, spoke on the subject "Employment of the Handicapped". Mr. Massenburg is Exec. Secretary of the North Carolina Governor's Committee on Employment of the Handicapped, and is recognized as an authority on the employability of the physically handicapped and what business and industry can do to utilize their skills.

An Act of Congress has designated the first full week in October (the present week) as "National Employ the Physically Handicapped Week" and so we were most pleased to have this opportunity to hear Mr. Massenburg, and to learn what industry can contribute to a most worthy cause. His address is 541 Caswell Bldg., Raleigh, N.C.

15. There being no further business to come before the meeting it recessed for a reception and group luncheon, following which it was duly adjourned.

Respectfully submitted,

H.E. Sunbury
Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

September 9, 1969

Balance on Hand at last report (May 8, 1969)

General Fund	\$ 4512.64	
Savings Fund	19683.91	
Petty Cash Fund	17.21	
		\$24213.76

Receipts

To Savings Fund (Interest - 4 mos.)	300.00 (Est.)	
To General Fund (Initiation Fee & Dues)	750.00	
To General Fund (Book Sales)	54.90	

1104.90

Total on Hand and Received

\$25318.66

Disbursements

Legal Retainer (3 mos. ending 6/30/69)	750.00	
Legal Expenses (3 mos. " " 6/30/69)	127.44	
Secretary's salary (4 mos.)	476.00	
F.I.C.A. Tax (2nd Qtr.-1969)	36.00	
Secretary's travel expense	110.72	
Office rent (4 mos.)	300.00	
A.T.I. Meeting expense (June 18-20,1969)	707.58	
Printing & Office Supplies	115.36	
Telephone (4 mos.)	127.31	
Stenographic	32.00	
Dues (Industrial Hygiene Foundation)	100.00	
Fire Insurance (Office contents-3 yrs.)	31.40	
Revision of A3TH Specs.	38.01	
Advertisement - Asbestos Mag.50th Anniver'y	40.00	
Flowers	24.30	
Petty Cash (Vouchers 412-424 inclusive)	56.65	

Total Disbursements

3072.77

Balance on Hand as of September 9, 1969

\$2245.89

Funds

General Fund (Bank statement of 9/9/69)	\$ 2218.63	
Savings Fund	19983.91 (*)	
Petty Cash Fund	43.35	

Total Funds

\$ 22245.89

Assets as of Sept.9, 1969

General Fund	\$ 2218.63	
Savings Fund	19983.91	
Petty Cash Fund	43.35	
Accts Receivable (Book Sales)	16.21	
Postage On Hand	5.60	
Furniture & Equipment (Nominal Value)	1.00	

Total Assets

\$ 22268.70

Liabilities - Accts Payable as of 9/9/69

13.14

Net Worth

\$ 22255.56

(*) Includes \$575.00 estimated interest for period beginning January 1st,1969 and ending August 31st,1969

Respectfully submitted,

H.E. Sunbury, Asst. Treas.

Minutes

AIR HYGIENE & MANUFACTURING COMMITTEE
Asbestos Textile Institute
October 9, 1969 - The CAROLINA, Pinehurst, N.C.

In attendance:

H.H. Walter, Chairman	-- American Asbestos Textile Corporation
L.E. Moody	-- H.R. Porter Company, Inc.
R.C. Hunt	-- Uniroyal, Inc.
R.B. Smith	-- Raybestos-Manhattan, Inc.
A.R. Patterson	-- " "
C.L. Sheckler	-- Johns-Manville Corporation

Guests: S.R. Zimmerman, Jr. - Raybestos-Manhattan, Inc.
W.M. Deckman - Turner Bros. Asbestos Co., Ltd.
G. Griswold, Jr. - Nicolet Industries, Inc.

Minutes

Bausch & Lomb Automatic Dust Counter:- Summarizing the experience of the member companies with the B&L Dust Counter, the committee came to the conclusion that the B&L instrument is not to be considered a replacement for the Impinger, or for the Membrane-Filter.

However, it appears to be a most suitable device for monitoring air contamination over extended periods of time. It is suggested to have various areas periodically monitored over a period of at least a shift, preferably over a period of twenty-four hours. During the recording time all changes in the environment due to changes in humidity, temperature, air-flow, operation, etc., are to be reported as to their nature, time, and duration. Subsequently the strip chart from the B&L Recorder is to be evaluated in conjunction with the environmental report. It will then be possible to pin-point time, duration and extent of air contamination, and reasons for its occurrence over a full cycle of operation.

Whenever periods of high dust concentration have been observed it appears to be necessary to follow up as soon as possible with a dust count by means of the Impinger or the Membrane Filter, at the same location and under the same or at least similar conditions.

Most of our current programs are based on an industrial hygiene survey weekly or monthly. This interval of sampling appears to be too long to determine the effect of high concentration exposure of short duration as might be experienced under certain circumstances. The use of the B&L Dust Counter as a monitoring device, and the Membrane Filter as a fiber counter, supplementing each other, appears to be a most suitable way to pinpoint areas of high dust concentration and the reason thereof. Neither one by itself provides sufficient information.

We are recommending that member companies utilize the B&L Dust Counter in this manner to supplement their current industrial hygiene program. It would be most helpful to our industry if unusual

observations were brought to the attention of this committee.

Using the B&L Dust Counter in the described manner and inasmuch as the Impinger seems to have become obsolete (when the Membrane Filter is used in conjunction with the B&L Dust Counter) it is not necessary to develop a method for correlating dust counts obtained by the two instruments.

Membrane Filter Method:

Mr. C.L. Sheckler reported that the Impinger will most likely no longer be used and that the Membrane Filter Method is going to be the accepted method for evaluating asbestos dust. At the present time 12 fibers per cc, 5 microns plus, are considered to be the equivalent to 2 MPPCF as reported by Mr.J.Lynch, U.S.P.H.Service.

Cleaning Procedures:

Various methods for cleaning production equipment and rooms were discussed. A member of the committee reported on the use of the Abington System for periodic cleaning operations. Other member companies are using compressed air about twice a year for the removal of dust from pipes, rafters, ceilings, walls, etc. It appears to be most important that in this area major efforts are made to improve our methods and preferably prevent any excessive accumulation of dust.

Dust Prevention in Blending and Carding:

The committee members exchanged ideas in regards to dust abatement in the blending and carding operation. Enclosed blending lines, use of plastic bags for mixes, enclosed automatic card feed, lap system and other devices were discussed.

Respectfully submitted,

H.H. Walter
Chairman

Minutes

TECHNICAL COMMITTEE MEETING - October 9, 1969
of the The CAROLINA Hotel,
Asbestos Textile Institute Pinehurst, N.C.

In attendance:

J.W. Hawkins, Chairman -- Raybestos-Manhattan, Inc.
I. Barnett ----- Johns-Manville Corp.
D.T. Austin, Jr. ----- Uniroyal, Inc.
J.D. McCluer ----- H.K. Porter Company, Inc. (Retired)
J.W. Echerd ----- H.K. Porter Company, Inc.
G.E. Houghton ----- Garlock Inc.
S.G. Dixit ----- Garlock Inc.

The Technical Committee met briefly with the Fiber Testing Committee to discuss the ASTM Specification on Magnetic Rating. Sufficient data and guidelines are now available for the revision of this specification around the T & N Analyzer. Mr. Lincoln has provided schematic drawings and Mr. Walter Smith has written sample preparation data that will be incorporated.

Most of the Technical Committee's time was used in work on the ASTM Specification D-1118 for Magnetic Rating.

Other specifications outstanding are a continuation of earlier work, and answers and revisions from government agencies are expected. These include:

1. National Stockpile Spec. P-3-R4 on Spinnable Asbestos Fibers. A change in M.R. was requested.
2. MIL-I-3053, Electrical Insulation - it was recommended that this entire specification be rewritten.
3. MIL-P-16404, Asbestos Packing - change suggested in the burnout procedure.
4. HHP-41-C, Asbestos Rope and Wick - change in weights and tolerance were recommended.

The remaining ASTM Specification to be revised is D-1573, Heat Aging.

Respectfully submitted,

John W. Hawkins
Chairman

MINUTES - SALES PROMOTION COMMITTEE

Asbestos Textile Institute - October 9, 1969

CAROLINA Hotel, Pinehurst, North Carolina

The Sales Promotion Committee met on October 9, 1969 with representatives of six member companies in attendance.

A portion of the meeting was devoted to the subject of the Navy's effort to seek substitutes for asbestos textiles. It was determined that the Naval Ship Engineering Center has not finalized its report on high temperature insulation, but steps were taken in the Committee to insure that the Institute is kept informed on the subject.

At the last meeting, you may recall that we planned to investigate the possibility of arranging free subscriptions of "ASBESTOS" magazine to college libraries and other institutions. As we began to investigate this subject in detail, we were led into a more comprehensive discussion of the purpose of the committee. In view of the tremendous interest in the health hazard involved with the use of asbestos, it was felt that the Committee's aims should be broadened. We began to probe in the area of public relations and new products. We feel that the scope of the Committee should be widened. It was agreed that the general work accomplished in the years past now seems to have been basically completed. We feel that a re-examination is in order and work will be done in this area before our next meeting.

You may also recall that we were to investigate the possibility of embarking on an Institute-sponsored advertising program. This, also, leads us into the scope of the Committee and convinces us that public relations is more descriptive of the areas that we should be concerned with. I believe that you will find at the next General Meeting that we will be able to more clearly define the work of this Committee.

Respectfully submitted,

M.Q. Scowcroft
Chairman

ASBESTOS TEXTILE INSTITUTE

MINUTES - FIBER TESTING COMMITTEE MEETING

9th October, 1969 - The CAROLINA Hotel, Pinehurst, N.C.

Present:

Members: G.F.A. Brink, Chairman - Asbestos Corporation Ltd.
D.E. Childers - H.K. Porter Company, Inc.
E.A. Farrell - Lake Asbestos of Quebec Limited
Bernard Lincoln - Turner & Newall Ltd.

Visitors: D.J. Frost * - Nicolet Industries, Inc.
W.H. Smith - Bell Asbestos Mines Limited.

* Note:- Application made for membership on this committee.

BUSINESS:

1. Magnetic Rating Test

- 1.1 The status quo of the Magnetic Rating Test was reviewed at a joint meeting of the Technical and Fiber Testing Committees. Fourteen (14) persons were in attendance at the joint session. The main items discussed were as follows:
 - 1.1.1 Sampling, specimen holders and method of loading cells, especially for textile products.
 - 1.1.2 Warning note on limitations of test method.
 - 1.1.3 A schematic diagram for the T. & N. Magnetic Analyser was distributed.
 - 1.1.4 Part of the first draft of the proposed ASTM Test Method for Magnetic Rating was handed over to the Chairman for distribution to the Fiber Testing Committee members.
 - 1.1.5 The Chairman promised to supply Mr. Bernard Lincoln with 50 grams of magnetite equivalent to NBS magnetite sample No. 29 for the preparation of secondary calibrating standards.

2. Spicular and Grit Content of Spinning Fibers:

- 2.1 The results of work done since the last meeting to explore the possibilities of developing a suitable test method for determining the spicular and grit content of spinning fibers were reviewed and fractions recovered from the elutriation of +4M & -4M McNett fractions and hydrocyclone residues were circulated for examination.

- 2.2 Although the present approach did not give the desired results, it was decided to keep this subject on the agenda for future consideration.
3. Recent activities of the QAMA Technical Committee (Static Particle Sizing i.e., fiber length and diameter by the Zeiss Particle Size Analyzer & Split Image Shearing Device and Colour) and ASTM D-30 (Sub-III) Committee (Ro-tap, Colour & Moisture Content) of interest to ATI were briefly reviewed.
4. Fiber Length Measurements:- This important subject was briefly discussed again; and the need for a more precise method of measuring fiber length was expressed. The Chairman promised to prepare a resume of recent known developments in this field for circulation to Committee members.
5. The Chairman thanked the members for their assistance and cooperation during the term of his office (two years) and urged them to continue their search for improved and refined methods of testing asbestos fiber.

Respectfully submitted,

G.F.A. Brink, Chairman
ATI Fiber Testing Committee
21st October, 1969

ENVIRONMENTAL STUDY COMMITTEE

Outline of remarks (unedited) by C.L. Sheckler, Chm.
at ATI General Meeting, October 10, 1969

1. Discussed a Position Paper (Special Report) to the Surgeon General from the Bureau of Occupational Safety and Health. Has reviewed a draft of the Paper but does not know when it will be published - perhaps within the next six months.
2. Discussed potential revision of Threshold Limit Value for Asbestos Dust. Current ACGIH TLV is 5.0 MPPCF. Walsh-Healy Act revision is 12 fibers per cc, or 2.0 MPPCF. Proposed TLV at this time is 6 fibers per cc, or 1.0 MPPCF, meaning fibers over 5 microns in length. A fibre is defined as being three times in length of its diameter.
3. Referred to meetings with Captain Rosenwinkle, Commanding Officer of Shipyard Repair and Environmental Health, concerning the Navy's search for substitutes for asbestos-containing materials, and use of new asbestos products that generate less dust. Concludes that the industry needs to develop and present new products that are less dusty and also needs to project educational material, or information, concerning use of asbestos products.
4. "Nader's Raiders" have been considerably involved in the Coal Industry "Black Lung" occupational disease problems, legislation and litigation. This group and movement has now moved into the area of the Cotton Textile Industry in respect to "Brown Lung" (Byssinosis) an occupational disease caused by inhalation of cotton dust. There is reason to believe that the investigation into cotton textiles may lead Nader, or someone else, to the Asbestos Textile Industry. It is therefore essential that ATI be alert and prepared. One of the greatest assets that we have in our favor is the cooperative health program that the ATI has undertaken with the U.S.P.H. Service. This program is in its third stage, the clinical examination stage, and has and will contribute a great deal of knowledge relative to the health problems relating to asbestos. Stressed that members who have been cooperating in the USPHS health program have no reason to be apprehensive, as we have been forthright in recognizing our difficulties, and we have been doing something about it. We must continue our efforts, and are currently making plans to do considerable work in the area of health information and education to the users of our products.
5. Reviewed current status of medical research work in conjunction with asbestos and mineral fibers. Mentioned participation by other manufacturing groups, i.e.: IAMA, NIMA, ACPA, and recently the MPA.
6. Pointed out that the Air Hygiene & Mfg. Committee of ATI was concerned primarily with "In-Plant" conditions and problems, whereas the Environmental Study Committee's primary objective was to act in an advisory capacity on matters affecting our industry, outside the plant, such as legislation, litigation, medical research findings, customer education efforts, liaison with other industry groups, etc. Stressed the need for constant coordination between the two committees.

H.E. Sunbury
Secretary

Minutes
GENERAL MEETING
Asbestos Textile Institute
OCT 10 1969



ASBESTOS TEXTILE INSTITUTE

P. O. BOX 239
75 CENTER ST., POMPTON LAKES, N. J. 07442
U. S. A.

December 15, 1969

Phone: 839-2216
Area code 201

Mr. R.E. Carpenter
GARLOCK INC.
Palmyra, New York 14522

TO: A. KUZMUK
FROM: RAY CARPENTER

Dear Mr. Carpenter: Committee Chairmanship

We were very pleased to learn from Alex Kuzmuk that you are agreeable to serve as a Committee Chairman for what has been called for many years our "Sales Promotion Committee".

A proposal to change the name of the Sales Promotion Committee was approved by the Board of Governors at their meeting held on October 9, 1969. The new name, to be selected by members of that committee, is to be indicative of their wide range of interest in such matters as public relations, legislation, new products, customer information, etc., that are considered of importance to the asbestos textile industry.

The next General Meeting of A.T.I. will be held February 4-6, 1970 at the Regency Hyatt House, Atlanta, Ga. Your committee will meet on Thursday morning, February 5th.

It is suggested that the matter of selecting a new name for the committee should be discussed at that time, and a decision made.

Several suggested names have been considered, such as:

Public Relations Committee
New Products Committee
Product Education & Promotion Committee
Asbestos Information Committee
Industry Promotion Committee

? You may have noticed that the report of our 25th Anniversary Meeting that appears on Page 6, November issue of ASBESTOS Magazine, states that you are the newly appointed chairman of the "Industry Promotion" Committee. For purposes of this publicity release it was thought best to drop the word "Sales" from the committee title, and, with a printing deadline to meet, the word "Industry" was substituted for "Sales". There has been no discussion of the name "Industry Promotion Committee", and no authorization for its continued usage.

I look forward to seeing you in Atlanta next February!

Wishing you the Season's Best, I am,

CC: M.Q. Scowcroft
E.A. Schuman

Yours sincerely,

H.E. Sunbury
H.E. Sunbury
Exec. Secretary

ASBESTOS TEXTILE INSTITUTE

Minutes - GENERAL MEETING - October 10, 1969

The CAROLINA, Pinehurst, North Carolina

In attendance:

AMERICAN ASBESTOS TEXTILE CORP.

J.L. Rainey
J.W. Christenbury
H.H. Walter
G.S. Fabel

GARLOCK INC.

G.E. Houghton
S.G. Dixit
A. Kuzmuk

JOHNS-MANVILLE CORP.

E.A. Schuman
R.M. Billings
C.L. Sheckler
I. Barnett
K.A. Roberts

H.K. PORTER COMPANY, INC.

L.E. Moody
D.E. Childers
J.W. Echerd

RAYBESTOS-MANHATTAN, INC.

M.Q. Scowcroft
S.R. Zimmerman, Jr.
G.F. Ducker
M.W. Oliver
R.B. Smith
J.W. Hawkins
J.A. Brown, Jr.

ASBESTOS CORPORATION LIMITED

P.E. Leclerc
G.F.A. Brink

BELL ASBESTOS MINES LIMITED

Wm. J.W. Smith
W.H. Smith

LAKE ASBESTOS OF QUEBEC, LTD.

E.A. Farrell

TURNER & NEWALL LTD.

Bernard Lincoln

TURNER BROS. ASBESTOS CO., LTD.

W.M. Deckman

NICOLET INDUSTRIES, INC.

J.K. Whittaker
Geo. Griswold, Jr.
D.J. Frost

UNIROYAL, INC.

B.T. Austin, Jr.
R.P. Clark
F.C. Phillips
E.A. Morris
R.C. Hunt

CADWALADER, WICKERSHAM & TAFT
H.C. Roosevelt (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury (Secretary)

Guests:

J.T. Griffis, Charlotte, N.C.
J.D. McCluer, H.K. Porter Company, Inc. (Retired)
W.C. Atkinson, Johns-Manville Corp. (Retired)
W.H. Johnston, Atlas Asbestos Company, North Wales, Pa.
J.S. Massenburg, Raleigh, N.C. (Guest speaker)

Note: Those attending committee meetings the previous day, but not the General Meeting, are listed on committee reports.

1. President Schuman called the meeting to order at 9:30 A.M. and expressed his appreciation for the fine attendance of members (and wives) at this 25th Anniversary Celebration of the founding of ATI.
2. The minutes of the last meeting were presented for reading. Motion by E.A. Farrell to omit reading, seconded by R.M. Billings, so voted.
3. The Financial Report was presented by Treasurer Scowcroft. Moved by J.L. Rainey that report be accepted. Seconded by K.A. Roberts, and so voted. President Schuman stated that the Annual Audit of the Institute's books had been made by Mr. Charles W. Briggs, Jr., of Raybestos-Manhattan, Inc., and read Mr. Briggs's letter of October 2nd certifying that the financial report of September 9, 1969 presents fairly the position of the Institute as of that date. Report attached.
4. Mr. Haven C. Roosevelt, Legal Counsel, addressed the meeting, and a brief summary of his remarks follows:

" In the past twenty-five years various representatives from my firm have outlined to you some of the activities which you may do and which you may not do jointly. With the rules for these activities we are all fairly familiar. However, what you may say to each other as opposed to what you may do together is an increasingly difficult problem. In the recent Greensboro case a number of competitors exchanged information concerning prices charged or quoted to specific customers for corrugated containers. The trial court found that each defendant had exercised his own judgement with respect to taking orders and quoting prices.

On appeal the Attorney General argued that the exchange of information might have deprived customers of some of the benefits of competition -- that absent the exchange of information a lower price might have been quoted. The Supreme Court accepted this argument. The court drew what it called an "irresistible inference" that the exchange of information had an anticompetitive effect. Thus it would appear that any statistical reporting plan having to do with recently charged or quoted prices is in jeopardy. If this type of exchange is suspect then what other types in the future may incur suspicion? Although prices are the most obvious manifestation of product competition other factors are important -- packages; a finish, color or feature; credit; terms of sale; freight; even new products. All exchanges of information should be carefully examined to determine if an "irresistible inference" could be drawn that customers and competition in general might be adversely affected."

5. At this point in the meeting President Schuman asked each person to stand and identify himself and his company.
6. President Schuman announced that the Board of Governors, at their meeting held on October 9, 1969 had elected officers to serve for the coming year, namely:- President - E.A. Schuman; Vice President - L.E. Moody; Treasurer - M.Q. Scowcroft. New members of the Board of Governors are:- J.K. Whittaker of Nicolet Industries, Inc., and E.A. Morris of Uniroyal, Inc. Mr. Morris replaces R.P. Clark who resigned as Vice President of ATI on the first of September 1969. Mr. Clark's responsibilities at Uniroyal

having been realigned he is no longer responsible for that company's asbestos textile products. We regret that "Dick" Clark, always an active and popular participant in Institute affairs, is unable to continue attendance at our meetings.

7. The Fibre Producer's Report was given by Mr. Wm.J.W. Smith, Vice President & General Sales Manager of BELL ASBESTOS MINES LIMITED. Mr. Smith reviewed the present situation in respect to the supply of various grades of asbestos fibres, and stated that so far as the spinning grades are concerned the normal inventories maintained by producers have been depleted to such an extent that a serious shortage could develop in the coming year.

At the conclusion of his remarks Mr. Smith extended to the members, on behalf of the Canadian members of the Institute, a most gracious and cordial invitation to attend the ATI meeting to be held at Thetford Mines, Quebec, June 10-12, 1970. Hosts at that meeting will be:- Asbestos Corporation Limited; Bell Asbestos Mines Limited; Cassiar Asbestos Corporation Ltd.; Johns-Manville Co. of Canada, Ltd.; and Lake Asbestos of Quebec, Ltd.

8. The committee reports were given by the respective chairmen:

Air Hygiene & Mfg. Committee - H.E. Walter, Chm.
Technical Committee - J.W. Hawkins, Chm.
Sales Promotion Committee - M.C. Scowcroft, Chm.
Fiber Testing Committee - G.F.A. Brink, Chm.
Environmental Study Committee - C.L. Sheckler, Chm.

Their reports are attached to these minutes.

9. President Schuman presented Certificates of Appreciation to the retiring chairmen; Messers Walter, Hawkins, Scowcroft and Brink, each of whom had served the normal term of two years, and thanked them on behalf of the Board of Governors and the members for their leadership and assistance in furthering the objectives of the Institute.

10. President Schuman announced that the new committee chairmen would be:

For Air Hygiene & Mfg. Committee - Mr. H. Fleming, Uniroyal, Inc.
" Technical Committee - Mr. S.G. Dixit, Garlock Inc.
" Sales Promotion Committee - Mr. R.E. Carpenter, Garlock Inc.
" Fiber Testing Committee - Mr. D.E. Childers, H.K. Porter Co., Inc.

Note: Currently under consideration is a proposal to change the name of the "Sales Promotion" Committee to more accurately denote its broad range of interests in such matters as public relations, new products, and legislation affecting our industry.

11. Mr. John D. McCluer, a former chairman of our Technical Committee, was presented with a beautiful plaque by President Schuman as a tribute to his many years of service in the asbestos textile industry, and his valuable contribution to the work of the Institute. Retired from the H.K. Porter Co., Inc., at the end of last August, Mr. & Mrs. McCluer reside at 1422 Richland Dr., Charlotte, N.C. 28205.

12. President Schuman introduced Mr. George S. Fabel, who served on the first A.T.I. Board of Governors in 1944, was Vice President in 1947-1948, and President of ATI in 1949 and 1950.

Mr. Fabel gave an interesting review of the progress made by the Institute since its founding in 1944, expressed his personal gratification that the organization he had helped to found had become of such value to the asbestos textile industry, and extended his best wishes for the years ahead! Mr. & Mrs. Fabel live at 6612 Sardis Rd., in Charlotte, N.C. 28211.

13. Dates and locations of future meetings, as announced by President Schuman:

February 4-6, 1970 - Regency Hyatt House, Atlanta, Ga.

June 10-12, 1970 - Balmoral Hotel, Thetford Mines, Que., Canada

October 7-9, 1970 - Statler Hilton Inn, Williamsburg, Virginia

14. The Guest Speaker, Mr. James S. Massenburg, spoke on the subject "Employment of the Handicapped". Mr. Massenburg is Exec. Secretary of the North Carolina Governor's Committee on Employment of the Handicapped, and is recognized as an authority on the employability of the physically handicapped and what business and industry can do to utilize their skills.

An Act of Congress has designated the first full week in October (the present week) as "National Employ the Physically Handicapped Week" and so we were most pleased to have this opportunity to hear Mr. Massenburg, and to learn what industry can contribute to a most worthy cause. His address is 541 Caswell Bldg., Raleigh, N.C.

15. There being no further business to come before the meeting it recessed for a reception and group luncheon, following which it was duly adjourned.

Respectfully submitted,

H.E. Sunbury
Secretary

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Respectfully submitted,

H.E. Sunbury, Asst. Treas.

Minutes

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Asbestos Textile Institute
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Minutes

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However, it appears to be a most suitable device for monitoring air contamination over extended periods of time. It is suggested to have various areas periodically monitored over a period of at least a shift, preferably over a period of twenty-four hours. During the recording time all changes in the environment due to changes in humidity, temperature, air-flow, operation, etc, are to be reported as to their nature, time, and duration. Subsequently the strip chart from the B&L Recorder is to be evaluated in conjunction with the environmental report. It will then be possible to pinpoint time, duration and extent of air contamination, and reasons for its occurrence over a full cycle of operation.

Whenever periods of high dust concentration have been observed it appears to be necessary to follow up as soon as possible with a dust count by means of the Impinger or the Membrane Filter, at the same location and under the same or at least similar conditions.

Most of our current programs are based on an industrial hygiene survey weekly or monthly. This interval of sampling appears to be too long to determine the effect of high concentration exposure of short duration as might be experienced under certain circumstances. The use of the B&L Dust Counter as a monitoring device, and the Membrane Filter as a fiber counter, supplementing each other, appears to be a most suitable way to pinpoint areas of high dust concentration and the reason thereof. Neither one by itself provides sufficient information.

We are recommending that member companies utilize the B&L Dust Counter in this manner to supplement their current industrial hygiene program. It would be most helpful to our industry if unusual

observations were brought to the attention of this committee.

Using the B&L Dust Counter in the described manner and inasmuch as the Impinger seems to have become obsolete (when the Membrane Filter is used in conjunction with the B&L Dust Counter) it is not necessary to develop a method for correlating dust counts obtained by the two instruments.

Membrane Filter Method:

Mr. C.L. Sheckler reported that the Impinger will most likely no longer be used and that the Membrane Filter Method is going to be the accepted method for evaluating asbestos dust. At the present time 12 fibers per cc, 5 microns plus, are considered to be the equivalent to 2 MPPCF as reported by Mr.J.Lynch, U.S.P.H.Service.

Cleaning Procedures:

Various methods for cleaning production equipment and rooms were discussed. A member of the committee reported on the use of the Abington System for periodic cleaning operations. Other member companies are using compressed air about twice a year for the removal of dust from pipes, rafters, ceilings, walls, etc. It appears to be most important that in this area major efforts are made to improve our methods and preferably prevent any excessive accumulation of dust.

Dust Prevention in Blending and Carding:

The committee members exchanged ideas in regards to dust abatement in the blending and carding operation. Enclosed blending lines, use of plastic bags for mixes, enclosed automatic card feed, lap system and other devices were discussed.

Respectfully submitted,

H.H. Walter
Chairman

Minutes

TECHNICAL COMMITTEE MEETING - October 9, 1969
of the The CAROLINA Hotel,
Asbestos Textile Institute Pinehurst, N.C.

In attendance:

J.W. Hawkins, Chairman	-- Raybestos-Manhattan, Inc.
I. Barnett	----- Johns-Manville Corp.
D.T. Austin, Jr.	----- Uniroyal, Inc.
J.D. McCluer	----- H.K. Porter Company, Inc. (Retired)
J.W. Echerd	----- H.K. Porter Company, Inc.
G.E. Houghton	----- Garlock Inc.
S.G. Dixit	----- Garlock Inc.

The Technical Committee met briefly with the Fiber Testing Committee to discuss the ASTM Specification on Magnetic Rating. Sufficient data and guidelines are now available for the revision of this specification around the T & N Analyzer. Mr. Lincoln has provided schematic drawings and Mr. Walter Smith has written sample preparation data that will be incorporated.

Most of the Technical Committee's time was used in work on the ASTM Specification D-1118 for Magnetic Rating.

Other specifications outstanding are a continuation of earlier work, and answers and revisions from government agencies are expected. These include:

1. National Stockpile Spec. P-3-R4 on Spinnable Asbestos Fibers. A change in M.R. was requested.
2. MIL-I-3053, Electrical Insulation - it was recommended that this entire specification be rewritten.
3. MIL-P-16404, Asbestos Packing - change suggested in the burnout procedure.
4. HHP-41-C, Asbestos Rope and Wick - change in weights and tolerance were recommended.

The remaining ASTM Specification to be revised is D-1573, Heat Aging.

Respectfully submitted,

John W. Hawkins
Chairman

MINUTES - SALES PROMOTION COMMITTEE

Asbestos Textile Institute - October 9, 1969

CAROLINA Hotel, Pinehurst, North Carolina

The Sales Promotion Committee met on October 9, 1969 with representatives of six member companies in attendance.

A portion of the meeting was devoted to the subject of the Navy's effort to seek substitutes for asbestos textiles. It was determined that the Naval Ship Engineering Center has not finalized its report on high temperature insulation, but steps were taken in the Committee to insure that the Institute is kept informed on the subject.

At the last meeting, you may recall that we planned to investigate the possibility of arranging free subscriptions of "ASBESTOS" magazine to college libraries and other institutions. As we began to investigate this subject in detail, we were led into a more comprehensive discussion of the purpose of the committee. In view of the tremendous interest in the health hazard involved with the use of asbestos, it was felt that the Committee's aims should be broadened. We began to probe in the area of public relations and new products. We feel that the scope of the Committee should be widened. It was agreed that the general work accomplished in the years past now seems to have been basically completed. We feel that a re-examination is in order and work will be done in this area before our next meeting.

You may also recall that we were to investigate the possibility of embarking on an Institute-sponsored advertising program. This, also, leads us into the scope of the Committee and convinces us that public relations is more descriptive of the areas that we should be concerned with. I believe that you will find at the next General Meeting that we will be able to more clearly define the work of this Committee.

Respectfully submitted,

M.Q. Scowcroft
Chairman

ASBESTOS TEXTILE INSTITUTE

MINUTES - FIBER TESTING COMMITTEE MEETING

9th October, 1969 - The CAROLINA Hotel, Pinehurst, N.C.

Present:

Members: G.F.A. Brink, Chairman - Asbestos Corporation Ltd.
D.E. Childers - H.K. Porter Company, Inc.
E.A. Farrell - Lake Asbestos of Quebec Limited
Bernard Lincoln - Turner & Newall Ltd.

Visitors: D.J. Frost * - Nicolet Industries, Inc.
W.H. Smith - Bell Asbestos Lines Limited.

* Note:- Application made for membership on this committee.

BUSINESS:

1. Magnetic Rating Test

- 1.1 The status quo of the Magnetic Rating Test was reviewed at a joint meeting of the Technical and Fiber Testing Committees. Fourteen (14) persons were in attendance at the joint session. The main items discussed were as follows:
 - 1.1.1 Sampling, specimen holders and method of loading cells, especially for textile products.
 - 1.1.2 Warning note on limitations of test method.
 - 1.1.3 A schematic diagram for the T. & N. Magnetic Analyser was distributed.
 - 1.1.4 Part of the first draft of the proposed ASTM Test Method for Magnetic Rating was handed over to the Chairman for distribution to the Fiber Testing Committee members.
 - 1.1.5 The Chairman promised to supply Mr. Bernard Lincoln with 50 grams of magnetite equivalent to NBS magnetite sample No. 29 for the preparation of secondary calibrating standards.

2. Spicular and Grit Content of Spinning Fibers:

- 2.1 The results of work done since the last meeting to explore the possibilities of developing a suitable test method for determining the spicular and grit content of spinning fibers were reviewed and fractions recovered from the elutriation of +4M & -4M McNett fractions and hydrocyclone residues were circulated for examination.

- 2.2 Although the present approach did not give the desired results, it was decided to keep this subject on the agenda for future consideration.
3. Recent activities of the QAMA Technical Committee (Static Particle Sizing i.e., fiber length and diameter by the Zeiss Particle Size Analyzer & Split Image Shearing Device and Colour) and ASTM D-30 (Sub-III) Committee (Ro-tap, Colour & Moisture Content) of interest to ATI were briefly reviewed.
4. Fiber Length Measurements:- This important subject was briefly discussed again; and the need for a more precise method of measuring fiber length was expressed. The Chairman promised to prepare a resume of recent known developments in this field for circulation to Committee members.
5. The Chairman thanked the members for their assistance and cooperation during the term of his office (two years) and urged them to continue their search for improved and refined methods of testing asbestos fiber.

Respectfully submitted,

G.F.A. Brink, Chairman
ATI Fiber Testing Committee
21st October, 1969

ENVIRONMENTAL STUDY COMMITTEE

Outline of remarks (unedited) by C.L. Sheckler, Chm.
at ATI General Meeting, October 10, 1969

1. Discussed a Position Paper (Special Report) to the Surgeon General from the Bureau of Occupational Safety and Health. Has reviewed a draft of the Paper but does not know when it will be published - perhaps within the next six months.
2. Discussed potential revision of Threshold Limit Value for Asbestos Dust. Current ACGIH TLV is 5.0 MPPCF. Walsh-Healy Act revision is 12 fibers per cc, or 2.0 MPPCF. Proposed TLV at this time is 6 fibers per cc, or 1.0 MPPCF, meaning fibers over 5 microns in length. A fibre is defined as being three times in length of its diameter.
3. Referred to meetings with Captain Rosenwinkle, Commanding Officer of Shipyard Repair and Environmental Health, concerning the Navy's search for substitutes for asbestos-containing materials, and use of new asbestos products that generate less dust. Concludes that the industry needs to develop and present new products that are less dusty and also needs to project educational material, or information, concerning use of asbestos products.
4. "Nader's Raiders" have been considerably involved in the Coal Industry "Black Lung" occupational disease problems, legislation and litigation. This group and movement has now moved into the area of the Cotton Textile Industry in respect to "Brown Lung" (Byssinosis) an occupational disease caused by inhalation of cotton dust. There is reason to believe that the investigation into cotton textiles may lead Nader, or someone else, to the Asbestos Textile Industry. It is therefore essential that ATI be alert and prepared. One of the greatest assets that we have in our favor is the cooperative health program that the ATI has undertaken with the U.S.P.H. Service. This program is in its third stage, the clinical examination stage, and has and will contribute a great deal of knowledge relative to the health problems relating to asbestos. Stressed that members who have been cooperating in the USPHS health program have no reason to be apprehensive, as we have been forthright in recognizing our difficulties, and we have been doing something about it. We must continue our efforts, and are currently making plans to do considerable work in the area of health information and education to the users of our products.
5. Reviewed current status of medical research work in conjunction with asbestos and mineral fibers. Mentioned participation by other manufacturing groups, i.e.: IAMA, NIMA, ACPA, and recently the MPA.
6. Pointed out that the Air Hygiene & Mfg. Committee of ATI was concerned primarily with "In-Plant" conditions and problems, whereas the Environmental Study Committee's primary objective was to act in an advisory capacity on matters affecting our industry, outside the plant, such as legislation, litigation, medical research findings, customer education efforts, liaison with other industry groups, etc. Stressed the need for constant coordination between the two committees.

H.E. Sunbury
Secretary

MINISTRY OF
GENERAL INVESTIGATION
Asbestos Toxicity Research

FEB 19 1980

ASBESTOS TEXTILE INSTITUTE

Minutes - GENERAL MEETING - February 6, 1970

The Regency Hyatt House, Atlanta, Ga.

In attendance:

AMERICAN ASBESTOS TEXTILE CORP.
J.W. Christenbury

GARLOCK, INC.
G.E. Houghton
S.G. Dixit
A. Kuzmuk

JOHNS-MANVILLE CORPORATION
E.A. Schuman
C.L. Sheckler
K.A. Roberts

H.K. PORTER COMPANY, INC.
L.E. Moody
D.E. Childers
J.W. Echerd

RAYBESTOS-MANHATTAN, INC.
M.Q. Scowcroft
R.B. Smith
J.W. Hawkins
G.F. Ducker
I.H. Weaver

ASBESTOS CORPORATION LIMITED
P.E. Leclerc
G.F.A. Brink

HEEL ASBESTOS MINES LIMITED
Wm. J. W. Smith
W.H. Smith

LAKE ASBESTOS OF QUEBEC, LTD.
E.A. Farrell
C.E. Stiefken

NICOLET INDUSTRIES, INC.
J.K. Whittaker
Geo. Griswold, Jr.

UNIROYAL, INC.
E.A. Morris
Dr. J.H. Wolfstie

CADWALADER, WICKERSHAM & TAFT
H.C. Roosevelt (Legal counsel)

ASBESTOS TEXTILE INSTITUTE
H.E. Sunbury (Secretary)

- Guests -

Mr. Albert Simon, A. & R. Simon Co., New York City
Mr. J.W. Guthridge, Ga. Institute of Technology (Guest Speaker)

Note: Those attending committee meetings the previous day, but not the General Meeting, are listed on committee reports.

**** Minutes ****

1. President Schuman called the meeting to order at 9:30 A.M.
2. The minutes of the last meeting were presented for reading. On motion by C.E. Stiefken, seconded by S.G. Dixit, it was voted to omit the reading.
3. The Financial Report was presented by Treasurer Scowcroft. Mr. L.E. Moody moved that the report be accepted, the motion was seconded by Mr. Roberts, and so voted. The report is attached to these minutes.
4. Mr. Haven C. Roosevelt, Legal Counsel, addressed the meeting, and a brief summary of his remarks follows:

"Counsel outlined what he referred to as the "bathtub conspiracy" or intra-corporate conspiracy doctrine. Section I of the Sherman Act proscribes "every contract, combination or conspiracy in restraint of trade". Thus Section I presupposes the existence of two contracting parties. In attempting to determine who are separate parties capable of conspiring some courts have been greatly confused. It is clear that common ownership or control will not insulate corporations from the impact of Section I. Thus, while a corporation cannot conspire with itself, it can conspire with its corporate affiliates or subsidiaries. Recently some courts have been called upon to decide whether a corporation can conspire with its own unincorporated divisions or affiliates for Section I purposes. In the Hawaiian Oke case at the District Court level, the trial judge told the jury that although Calvert Distillers Company, Four Roses Distillers Company and Frankfort Distillers Company are but three of the unincorporated divisions of the House of Seagrams, Inc., "nevertheless they are entities or units which, under the anti-trust laws are legally capable of conspiring among themselves ..." When this case reached the District Court of Appeals, that Court stated that if the theory that divisions or other purely administrative units of a single corporation can conspire together is accepted then there would be no rational basis upon which it could be decided that in one case there had been a conspiracy and that in another there had not.

Counsel reported that it was exalting form over substance to say that unincorporated divisions cannot conspire while those same divisions if incorporated would be capable of conspiring. Counsel concluded that this area of the law was quite unsettled and would probably remain so for a considerable period of time in view of the fact that any new or definitive law would probably have to come from private suits which may well involve a long time."

5. The Fibre Producers' Report was given by Mr. Paul E. Leclerc, who is Regional Sales Manager for Asbestos Corporation Limited, Thetford Mines, Quebec. His interesting and informative report is attached.

6. At this point in the meeting President Schuman asked each person present to stand and identify himself and his company affiliation.

7. Mr. Schuman mentioned receipt of a letter from Dr. M.C. Shaw's widow in which she stated that she had remarried during the summer of 1969, and that she and her family were fine.

Also he read a letter from Mr. J.D. Christian, President of Cassiar Corporation stating they were going ahead with plans to increase the capacity of the Cassiar' mill from a nominal 75000 tons per year to 100,000 tons per year, and hope to get this completed in 1970. This expansion will hopefully mean a little more spinning fibre in 1971. Mr. Christian expressed regret that no one from Cassiar would be able to attend this meeting as Messrs. Berry, Beguin, and Tigert were away at the mines, and he would be out of town on another trip.

Friends of Paul J. Smith of ASTM, who has attended many of our meetings to work with our Technical Committee in revising ASTM specifications for asbestos textiles, will be interested to learn of his marriage last December 10th, to Mrs. Robert E. (Rusty) Gordon, in San Angelo, Texas. His home address is now 1102 Algerita Drive, San Angelo, Texas 76901, and we are sure he and "Rusty" would enjoy hearing from any of their friends in ATI.

8. President Schuman introduced the Guest Speaker, Mr. J.W. Guthridge, Placement Director, Georgia Institute of Technology. His subject - "What the Student is Looking For in the Textile Industry Today", proved to be very informative and most interesting.

9. President Schuman announced that a new committee, to be known as the "Asbestos Advisory Committee" had been approved by the Board of Governors to supersede the old Sales Promotion Committee, and that Mr. M.Q. Scowcroft would serve as Chairman of the new committee. This committee has a broad range of interests in respect to public relations, new products, legislation affecting our industry, etc.

10. The committee reports were given by the respective chairmen:

Air Hygiene & Mfg. Committee - L.E. Moody (for H.Fleming, Chm.)
Technical Committee - S.G. Dixit, Chm.
Asbestos Advisory Committee - M.Q. Scowcroft, Chm.
Fiber Testing Committee - D.E. Childers, Chm.

Their reports are attached to these minutes.

11. Mr. C.L. Sheckler, Chairman of the Environmental Study Committee, which functions in an advisory capacity to the Institute, reported on the situation pertaining to legislation, existing and anticipated, industrial relations problems, etc. Highlights of his remarks follow:

Mr. Sheckler commented on the 1969 Coal Mine Health and Safety Act which is the sternest industrial safety law in American History, also on current Union activities in respect to "Brown Lung" i.e. (Byssinosis) which it is feared may result in similar adverse Federal Legislation for the Cotton Manufacturing Industry, and this could well include the asbestos textile industry.

The 1969 Coal Mine Health and Safety Act "presumes" that a coal miner has a compensable claim if he has worked for a specified period of years in coal mines. The present Act, unless renewed by Congress, will expire in seven years.

Textile Unions are making a strong effort to get legislation similar to the Coal Mine Health & Safety Act. Dr. Selikoff, well known for his activities in respect to research on asbestos in relation to health, apparently has agreed to work with Textile Unions on "Brown Lung" (Byssinosis) research.

In Testimony before a Congressional hearing, Union representatives stressed Byssinosis, Asbestosis, and Noise as major problems in the textile industry today.

Mr. Sheckler referred to Ralph Nader's remarks about air pollution, at a Congressional hearing, in which he mentioned asbestos as an air pollutant.

Under the heading of Student Activities, Mr. Sheckler said there will be a nation-wide demonstration in April 1970, against pollution of any and all kinds. He feels very strongly that this activity should not be underestimated in its significance for the future!

Mr. Sheckler reported that Dr. L.J. Cralley, of the U.S.P.H. Service, who has attended many of our ATI meetings over the past six or seven years,

had presented a paper entitled "Identification and Control of Asbestos Exposures" at the International Congress on Occupational Health, held last September in Tokyo, Japan. In his paper Dr. Cralley makes the summary statement "Asbestos can be used safely in modern industrial technology if adequate precautions are taken to prevent excessive and unsuspected exposures". His paper is a clear, concise, and up-to-date discussion of industrial asbestos dust control by a recognized expert, and covers all essential aspects of the problem, from monitoring techniques to waste disposal. It merits careful reading by every manufacturer and consumer of asbestos products.

Mr. Sheckler recommended that the pamphlet entitled "Method for Determining Asbestos Dust Concentration" published by our Air Hygiene & Mfg. Committee in 1964 be updated to include the use of the Membrane Filter apparatus (or method) for obtaining a greater degree of accuracy. J/M Corp. and Dr. Cralley will be glad to help on this.

Also that the Institute, through its new Asbestos Advisory Committee, prepare an Information Booklet on the Safe Handling of Asbestos Products, for use of Consumers.

He stressed the need for preparation of a history of what our industry has done during the past 25 or 30 years to safeguard the health of its employees. The facts must be accurate and well documented. After we get it done we either use it to publicize the progress made, or hold it in reserve for defense against industry attack.

12. President Schuman announced that two applications for Associate Membership in the institute had been approved by the Board of Governors; namely:

NIPPON ASBESTOS CO. LTD., Tokyo, Japan.

ASBESTOS TEXTIL, S.A., Tulancingo, Mexico.

He welcomed both of these fine companies to the Institute, stating that he visualized a long and pleasant relationship to our mutual benefit! A special guest at this meeting was Mr. Albert Simon, of A. & R. Simon Co., New York City, who represent Nippon Asbestos Co. in the U.S.A.

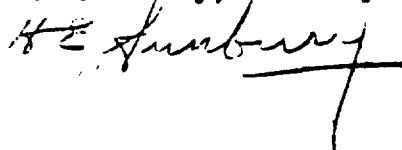
13. President Schuman announced that the next meeting of the Institute would be held June 10-12, 1970 at Thetford Mines, Quebec. Our Canadian member companies will be hosts at this meeting. Mr. Wm.J.W. Smith of Bell Asbestos Mines and Mr. Paul E. Leclerc of Asbestos Corporation Ltd. are in charge of the arrangements for the June meeting and will furnish the Secretary full details for mailing to members well in advance of the meeting. Members are urged to bring their wives to this meeting!

The fall meeting will be held October 7-9, 1970, at Williamsburg, Va., and, this being the Annual Meeting, it is hoped that we will have our usual well-attended meeting by both members and wives!

14. There being no further business to come before the meeting it recessed for a reception and group luncheon, following which it was duly adjourned.

Respectfully submitted,

H. E. Sunbury, Secretary



Report of FundsJanuary 9, 1970Balance on Hand at last report (September 9th, 1969)

General Fund	\$ 2218.63	
Savings Fund	19983.91	
Petty Cash Fund	<u>43.35</u>	
		\$22245.89

Receipts

To Savings (Interest to 12/31/69)	325.10	
To General Fund (Dues)	250.00	
To General Fund (Book Sales)	<u>63.23</u>	
		638.33

Total On Hand and Received\$22884.22Disbursements

Legal Retainer (3 mos. ending 9/30/69)	750.00
Secretary's salary (4 mos.)	476.00
F.I.C.A. Tax (6 mos.)	72.00
Secretary's travel expense	310.08
Office rent (4 mos.)	300.00
A.T.I. meeting expense (Oct.8-10,1969)	715.14
Printing & Office Supplies	96.61
Telephone (4 mos.)	167.25
Repairs to B.& L. Dust Counter	180.23
Insurance - B.& L. Dust Counter	124.00
Insurance - 3 year Bond	63.00
Insurance - Workman's Comp.	21.00
Accountant (D.A. Caruso, one year)	300.00
ASTM & D-13 Dues	50.00
File cabinet (4-drawer, steel, used)	15.00
Petty Cash (Vouchers 425-455 inclusive)	<u>110.24</u>

Total Disbursements3750.55Balance on Hand as of January 9, 1970\$19133.67Funds

General Fund (Bank statement of 1/9/70)	\$ 1778.25
Savings Fund (as of Dec.31,1969)	17309.01 (*)
Petty Cash Fund	<u>46.41</u>

Total Funds\$19133.67Assets as of January 9, 1970

General Fund	\$ 1778.25
Savings Fund	17309.01
Petty Cash Fund	<u>46.41</u>
Accts Receivable (Book Sales)	2.66
Postage on Hand	9.60
Furniture & Equipment (Nominal Value)	<u>1.00</u>

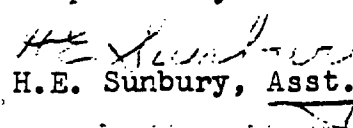
Total Assets\$19146.93Liabilities (Accts Payable)963.40

(*) \$3000.00 transferred
to General Fund on 10/7/69

Net Worth\$18183.53 (

(**) Does not include dues payable
by members in year 1970.

Respectfully submitted,


H.E. Sunbury, Asst. Treasurer

FIBRE PRODUCERS' REPORT

February 6, 1970

The industry enjoyed a good year in 1969 and there was a good general demand for all grades. Shipments from Quebec during 1969 were down 1.7 % as compared to 1968. This was due to the closing down of one producing company early in 1969. The Quebec Asbestos Mining Association's closing inventories at the end of December were at their lowest in years.

Most companies have labor contracts signed for 1970 and 1971 at higher wage rates.

As mentioned in earlier fibre reports and as you all know, there is a shortage of quality spinning fibres. The former very large inventory of Group 3 fibre was reduced to a relatively small quantity by the end of 1969. It is expected that this will disappear in 1970 and closing inventories at the end of this year will be minimal. There are just about no inventory stocks of Cassiar grades and no increase in production is expected this year. A mill expansion is planned for 1971 and this will provide some additional tonnage. There is also the possibility of Clinton Creek producing some spinning fibre in the 3R range in 1971.

There appears to be a shortage of yarn for friction products in Western Europe and the socialist countries of Europe as well as in some other areas.

There exists a strong demand for asbestos-cement grades in groups 4, 5 and 6. Asbestos shorts or Group 7 grades are selling well although more readily available than the longer grades.

To take care of part of the projected increased demands for the next few years, our company during 1969 increased its total production by nearly 20 % over 1968 and present expansion plans which are to be completed this year are expected to again increase 1970 production by more than 10 %.

Atlanta, Ga.
February 6, 1970

P. E. Leclerc
Regional Sales Manager
Asbestos Corporation, Ltd.

MINUTES
AIR HYGIENE & MANUFACTURING COMMITTEE

February 5, 1970

Regency-Hyatt House
Atlanta, Georgia

Attending:

Members: Horace Fleming, Chairman - UNIROYAL, Inc.
K. A. Roberts - Johns-Manville
L. E. Moody - H. K. Porter Company
I. H. Weaver - Raybestos-Manhattan, Inc.
R. B. Smith - Raybestos-Manhattan, Inc.
C. L. Sheckler - Johns-Manville

Absent: R. C. Hunt - UNIROYAL, Inc.
R. Morton - Nicolet Industries, Inc.
K. W. Nelson - American Smelting & Refining Company
A. R. Patterson - Raybestos-Manhattan, Inc.
H. H. Walter - American Asbestos Corporation

Visitors: A. C. Link - UNIROYAL, Inc.

Bausch & Lomb Automatic Dust Counter

The Chairman reported that the B&L Counter had been in the following member plants since its purchase in October 1967:

Johns-Manville
Manville, New Jersey

Raybestos-Manhattan
Charleston, S. C.

Raybestos-Manhattan
Manheim, Pennsylvania

UNIROYAL, Inc.
Hogansville, Georgia

H. K. Porter
Charlotte, North Carolina

The members agreed not to further pursue the development of a method for correlating dust count obtained by the Midget Impinger and the Bosch & Lomb Dust Counter.

Member companies are encouraged to make full use of the B & L Counter for continuous monitoring in areas of abnormal dust concentration, for the purpose of determining cause of same. Members agreed that it will at all times be available to any member upon request to the Chairman.

Cleaning & Air Pollution

Methods of waste disposal were discussed. The following dust and waste disposal methods presently in use are:

1. Seal in polyethylene bags before disposing to dump area.
2. Seal in 50 gallon drums and buried.
3. Pack in bale press before disposing.
4. Burn waste solvents in isolated area.

All members agree that methods and procedures for waste disposal must be given serious consideration in view of governmental concern for air pollution.

Noise Abatement:

All member companies share a common concern for employee welfare in manufacturing areas of high noise levels. One company reported that employees were required to wear air muffs or ear plugs fitted by their Safety and Health Department. This is made a condition of employment.

Asbestos Information Booklet:

At request of the Asbestos Advisory Committee, the Air Hygiene and Manufacturing Committee agreed to prepare a booklet for distribution to member customers relating to health hazards involved in use of Asbestos products. The booklet will suggest that normal or reasonable precautions be taken in processing asbestos products. Further, the booklet will recommend that government standards be met which will result in no greater health hazard than are present in the majority of industrial operations.

The Committee agreed to submit a draft of the booklet to the A.T.I. Membership at the June meeting for consideration.

To assist in preparing the booklet, Mr. C. L. Sheckler agreed to mail a copy of the N.I.M.A. booklet to all Air Hygiene Committee members for use as a guide. Each member of the Air Hygiene Committee will submit to the Chairman of the Air Hygiene Committee his proposed version of what should be included in the booklet. Upon receipt of their recommendations, Mr. Horace Fleming and Mr. M. Q. Scowcroft will prepare a final draft.

Respectfully submitted,

Horace Fleming
Chairman

MINUTES
OF
TECHNICAL COMMITTEE MEETING
ASBESTOS TEXTILE INSTITUTE
February 4 & 5, 1970

Regency Hyatt House
Atlanta, Georgia

In Attendance:

S. G. Dixit - Chairman
G. E. Houghton
J. W. Hawkins
W. Maaskant
J. W. Echerd

Garlock, Inc.
Garlock, Inc.
Raybestos-Manhattan, Inc.
American Asbestos Textile Corp.
H. K. Porter Co.

Minutes:

Messrs. D. E. Childers, Geo. Griswold, Jr., and H. E. Sunbury attended the Wednesday afternoon session of February 4, 1970. The following subjects were covered during the meetings:

1. Proposed MIL Spec. 82249B

- a. The committee feels that the word cotton should be deleted and the word organic be substituted.
- b. Reference should be made to ASTM Standard D1918 for per cent asbestos determination.

2. Final form of ASTM D628 was presented to the committee for their approval. One negative vote cast by Tennessee Eastman Company has been withdrawn.

3. National Stockpile Specification:

The General Services Administration has been requested to change the magnetic rating of asbestos fiber from 0.75 to 1.0 for Class II type asbestos textiles.

4. The magnetic rating specification write-up was continued. A rough draft of the proposed specification will be submitted to members of the Technical Committee by its chairman.

5. ASTM Specification D1573 on Heat Aging:

The committee members recommended going to an outside laboratory for independent testing for economic reasons. It is planned to send samples of AA grade asbestos fabric to independent laboratories for heat aging and strength testing. This is being further explored and the cost and the program will be presented to the Board of Governors for their approval.

6. New ASTM procedure requires to include data on precision and accuracy. Our existing ASTM Standards will have to be modified. The work on these Standards will be taken up gradually,

S. G. Dixit
Chairman

MINUTES

ASBESTOS ADVISORY COMMITTEE (*)

Asbestos Textile Institute - February 5, 1970
Regency-Hyatt Hotel, Atlanta, Georgia

You may remember that we reported from the last meeting of the Board of Governors held in Pinehurst on October 9, 1969, that the Board voted unanimously to change the name of the former "Sales Promotion Committee." It had been agreed that the work accomplished by that Committee in years past had largely been completed and that the scope of this group should be widened. Yesterday, February 5, with representatives of six member companies in attendance, the Committee selected the name -- Asbestos Advisory Committee. The name was selected after a long and spirited discussion. It is a name which we think represents best the aims and purposes of the group. This may best be described as the voice, if you will, the communications link between the various committees of this Institute out into all industry; to aid in presenting to member companies a climate for expanding uses of asbestos textiles in larger and more diverse applications. We are not all in agreement that we have selected a perfect name, but it was selected and presented to the Board for approval.

We then asked the members of the Air-Hygiene and Manufacturing Committee to join us in a joint session. Prior to this and in other committee meetings, it was agreed that the sales forces of member companies needed education in the field of health protection involving the use of asbestos textiles. We felt that a brochure or pamphlet should be prepared by the Institute and made available to all so that sales representatives could have an intelligently written sales aid to present to their customers when they are questioned concerning the potential hazards involved in the handling of asbestos textile products. The Air-Hygiene and Manufacturing Committee graciously agreed to aid us in the preparation of such a booklet by gathering whatever technical data is necessary in the compilation of the booklet. Work will be done by the Chairman of these two Committees prior to the meeting in June of this year. We hope to have a rough outline ready for presentation at that time and, very hopefully, get final decisions made in June so that printing and publishing can proceed as soon as possible thereafter. It is an important part of the education of the public (meaning customers) and our own sales forces and implements the excellent program outlined by the Environmental Study Committee.

* Formerly - "Sales Promotion Committee"

Respectfully submitted,

M. Q. Scowcroft

MINUTES OF THE ASBESTOS TEXTILE INSTITUTE

FIBER TESTING COMMITTEE MEETING - 4th, 5th & 6th, February, 1970

LOCATION: Regency Hyatt House, Atlanta, Georgia.

IN ATTENDANCE: Dewey E. Childers, Chairman -- H. K. Porter Company, Inc.
W. H. Smith ----- Bell Asbestos Mines, Ltd.
W. C. Streib----- Johns Manville Corporation
E. A. Farrell----- Lake Asbestos of Quebec, Ltd.
C.E. Stiefken----- Lake Asbestos of Quebec, Ltd.
G. F. A. Brink----- Asbestos Corporation, Ltd.

1. Magnetic Rating Test - Some time was spent reviewing the status of magnetic rating.

Some present calibration standards were dispersed in a dry neutral powder and packed in the container. It was reported that segregation of the magnetite and the dispersing medium has occurred on some calibration standards. This segregation has produced lower readings than when the standards were first made. It was felt that this discovery will not affect the ASTM method which is currently being written.

The committee wished it to be stated again that the ASTM method for magnetic rating will be based on the T & N.

The Fiber Testing Committee and the Technical Committee jointly made recommendations to Mr. Carl Gnam of the Miscellaneous Metals and Minerals Division (DSA) for changes in national stockpile purchase specification P-3-R4. It was recommended that the .75 rating for electrical purposes be changed to 1.0. A letter was received stating this change will be made when the specification is revised.

Grit and Spicule Content in Spinning Fibers - Everyone agrees there is an objectionable portion in spinning fiber which may be called grit or spicules. A great deal of work has been done by some of our members, but so far we have not produced a suitable method for separating this objectionable material from good fiber. The committee will return to this problem in future meetings hoping someone will come up with a more precise method.

Fiber Length Measurements - Accurate determination of fiber length is important especially for the longer spinning grades. Mr. Gay Brink plans to prepare a summary touching on all that has been done in measuring fiber length.

The Test Manual - The committee felt that we should now begin looking at some of the tests in the manual so that when the time for revision arrives we have a head start.

The committee expressed the desire that on future meetings 'o have more members from the manufacturers on the Fiber Testing Committee.

Respectfully submitted,

Dewey E. Childers, Chairman
ATI Fiber Testing Committee

Minutes
GENERAL MEETING
Asbestos Textile Institute

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ASBESTOS TEXTILE INSTITUTE

Minutes - GENERAL MEETING - October 9, 1970

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The HILTON INN, Williamsburg, Va.

In attendance:

<u>AMERICAN ASBESTOS TEXTILE CORPORATION</u> J.W. Christenbury	<u>ASBESTOS CORPORATION LIMITED</u> P.E. Leclerc
<u>GARLOCK INC.</u> A. Kuzmuk S.G. Dixit G.E. Houghton	<u>BELL ASBESTOS MINES LIMITED</u> W.H. Smith
<u>JOHNS-MANVILLE CORPORATION</u> E.A. Schuman M.J. Cowan K.A. Roberts I. Barnett	<u>LAKE ASBESTOS OF QUEBEC, Ltd.</u> E.A. Farrell
<u>H.K. PORTER COMPANY, INC.</u> L.E. MOODY D.E. Childers	<u>NIPPON ASBESTOS CO., Ltd.</u> K. Uchida
<u>RAYBESTOS-MANHATTAN, INC.</u> M.Q. Scowcroft J.W. Hawkins	<u>TURNER BROS. ASBESTOS CO., Ltd.</u> W.M. Deckman
<u>NICOLET INDUSTRIES, INC.</u> Geo. Griswold, Jr. E.W. Russell	<u>ASTM - Committee D-13</u> P.J. Smith
<u>UMIROYAL, INC.</u> E.A. Norris H.M. Willingham	<u>CADWALADER, WICKERSHAM & TAFT</u> H.C. Roosevelt (Legal Counsel)
	<u>ASBESTOS Magazine</u> (Mrs.) Doris M. Fagan, Editor
	<u>ASBESTOS TEXTILE INSTITUTE</u> H.E. Sunbury (Secretary)

Note: Those who attended committee meetings the previous day, but not the General Meeting were:- Dr. J.H. Wolfsie, J.L. Rainey, H.H. Walter, J.P. Wronski, R.D. Hindman, G.S. Fabel.

***** Minutes *****

1. President Schuman called the meeting to order at 8:40 A.M.
2. The minutes of the last meeting were presented for reading. On motion by Mr. L.E. Moody, seconded by Mr. Geo. Griswold, Jr., it was voted to omit the reading of same. Mr. Schuman, commenting on the large attendance as listed in the minutes of the last meeting, expressed the appreciation of ATI members for the fine hospitality shown us on that occasion by the Canadian members!
3. Those present were asked to stand and identify themselves and their company affiliation. President Schuman said that it was very gratifying to have Mr. K. Uchida, of Nippon Asbestos Co., Ltd., Tokyo, Japan, at this meeting. Mr. Uchida expressed his pleasure at being able to attend.

4. Treasurer Scowcroft presented the Financial Report. Mr. Kuzmauk moved that it be accepted, seconded by Mr. Christenbury, and so voted unanimously. The report is attached to these minutes.

Mr. Schuman stated that the annual audit of the Institute's books had been made by Mr. G.W. Barker, Division Comptroller of Raybestos-Manhattan, Inc., North Charleston, S.C., who reported that - "The statement dated September 9, 1970 presents fairly the position of the Asbestos Textile Institute as of that date."

5. The Legal Counsel Report was given by Attorney H.C. Roosevelt, of Cadwalader, Wickersham & Taft, New York City. A resume' of his remarks follows:- " Counsel discussed two recent cases which were related to Section 4 of the Clayton Act. He noted that these cases might illustrate what will happen to some of the traditional interpretations of the antitrust laws. One is Billy Baxter vs Coca-Cola Company and the other is the Multi-District Anti-trust Litigation Involving Motor Vehicle Air Pollution Control Equipment about which he spoke two years ago.

Coca-Cola and Canada Dry the two defendants in Billy Baxter filed a joint summary judgement motion "suggesting" that Billy Baxter lacked standing to sue as a franchisor for its own lost profits on its franchisees' sales.

Section 4 of the Clayton Act, provides: "That any person who shall be injured on its business or property by reason of anything forbidden in the anti-trust laws may sue therefore . . . and shall recover threefold the damages by him sustained, and the cost of suit, including a reasonable attorneys fee." "By reason of"; the court in Billy Baxter said "expressly restricts the right to sue under this section. There must be a causal connection between an anti-trust violation and an injury sufficient for the trier of fact to establish that the violation was a 'material cause' of or a 'substantial factor' in the occurrence of damage." Although any anti-trust violation "disrupts the competitive economy to some extent and creates entirely foreseeable injury which may be shown to reach individual employees, stockholders, or consumers, it has long been held that not all of these have the requisite standing to sue for treble damages and thereby take a leading role in the enforcement of the prohibition question." Consequently, a treble-damage plaintiff must allege a causative link to his injury which is "direct" rather than "incidental" or which indicates that his business or property was in the "target area" of the illegal conduct.

In the Motor Vehicle Air Pollution Control Equipment cases the facts are as follows:

The present actions followed federal suits against the Automobile Manufacturers Association, General Motors Corp., Ford Motor Co., Chrysler Corp., and American Motors Corp.

The individual actions were consolidated in the California court by the Judicial Panel on Multidistrict Litigation. Each of the plaintiffs was sued in an individual, class, or parens patriae capacity after meeting with failure in their attempts to intervene in a civil antitrust suit against the automobile manufacturers filed by the Justice Department in January 1969. In that suit, the Justice Department obtained a consent decree enjoining the auto manufacturers from further conspiring "to prevent, restrain or limit

the development, manufacture, installation, distribution or sale of air pollution control equipment for motor vehicles." However such consent agreement does not constitute an admission of violation of law for the purposes of the private antitrust suits now pending.

Private treble damage antitrust suits, Judge Manuel Read noted, require the determination of three issues: conspiracy, impact, and damage. The question of conspiracy is here common not only to the class within each separate action but also to all the actions filed. This is an issue which should, in the interest of justice, be litigated only once.

As to the auto manufacturers' attack upon the maintenance of these suits in the absence of a "commercial relationship" between plaintiffs and defendants, the court emphasizes the fact that Section 4 of the Clayton Act gives the right to recover treble damages to anyone "injured in his business or property by reason of anything forbidden in the antitrust laws." Judge Real then notes that he is not here concerned with the "traditional legalistic approach defined by the cases cited by the defendants in their motion to dismiss", and asserts that a lack of such "commercial relationship" is not fatal where the source of injury can be shown to be a violation of "anything forbidden in the antitrust laws."

In Billy Baxter the court narrowly construed the "by reason of language" in the Clayton Act and in the Automobile cases the court used an extremely broad test. It may well be that the anti-trust laws will now be interpreted in a much broader sense than in the past where issues like pollution are involved. This broad interpretation may then be applied to all types of anti-trust cases.

6. The Fibre Producers Report was given by Mr. Paul E. Leclerc, the Regional Sales Manager for ASBESTOS CORPORATION LIMITED.

Mr. Leclerc said that "the over-all market for asbestos fibre was good. Group 3 spinning fibre is generally available but not in all types and qualities. The textile industry in England and Continental Europe appears to suffer from a shortage of labor.

The United States market is soft, and the rallying signs of last August have been obscured by the present General Motors strike. The brake lining and building materials markets are down from last year.

The asbestos-cement industry is good in most parts of the world and business is booming in South America, Japan, Korea, Australia and Europe.

The consensus of opinion is that business in 1971 will be better than in 1970, which has not quite lived up to expectations."

7. Committee reports were given by the respective chairmen:-

Air Hygiene & Mfg. Committee - H.M. Willingham, Chm.

Technical Committee - S.G. Dixit, Chm.

Asbestos Advisory Committee - M.Q. Scowcroft, Chm.

Fiber Testing Committee - D.E. Childers, Chm.

Their reports are attached to these minutes. Mr. Scowcroft, retiring chairman of the Asbestos Advisory Committee, thanked the members for their support during his service as head of that committee, and its predecessor (the Sales Promotion Committee) for a combined total of three years.

Mr. Schuman thanked Mr. Scowcroft on behalf of the Board of Governors

for his service as Chairman, then announced that the new Chairman of the Asbestos Advisory Committee was Mr. E.A. Morris of Uniroyal, Inc.

8. President Schuman commented on recent developments in the Press regarding hazards associated with asbestos. Mentioned his company's "positive approach" in their new ads stressing the fact that asbestos brings safety and economy into the daily life of nearly everyone. Three current ads entitled "Fire at Sea", "Airport", and "Driving at Dusk" are appearing in NEWSWEEK, BUSINESS WEEK, U.S. NEWS & WORLD REPORT, and WALL STREET JOURNAL. Copies of the ads were displayed.

9. Mr. Schuman introduced Doris M. Fagan, Editor of ASBESTOS Magazine, Guest-of-Honor at this meeting. Mrs. Fagan said that she appreciated the invitation to attend, and that it was a real pleasure to do so. Mentioned the series of articles now appearing in ASBESTOS - "History of Asbestos Textiles in the U.S.A." by J.A. Bettles, Jr., which started with the August 1970 issue. Back issues are available for those who may have missed the first two or three installments of this History.

She thanked the members for their support, both in advertising as well as subscriptions, and asked that ASBESTOS be put on each company's mailing list for publicity releases as the magazine is anxious to have all items of general interest to the asbestos industry. Pointed out that ASBESTOS Magazine was a good source of information, not only through its editorial and advertising pages but also by reason of the storehouse of data contained in its library and files.

10. President Schuman explained that the attendance at this meeting was less than usual because of an unfortunate conflict of meeting dates with the Q.A.M.A., which many of our Canadian members had to attend. Steps have been taken to try and avoid this in the future.

Mr. Schuman announced that in recognition of the "austerity programs" now in effect by most member companies the Board of Governors had voted to grant a special discount of 20% on Members 1971 dues.

Further, that the Board had voted to shorten the meeting schedule for the February and June 1971 meetings, so as to have arrival on Wednesday P.M. and departure on Thursday P.M. The Annual Meeting in October 1971 (to which company officials and wives are specially invited) will have the usual schedule with arrival Wednesday P.M. and departure on Friday afternoon.

11. President Schuman presented Mr. G. Ellwood Houghton, of Garlock Inc., with a plaque "For Outstanding Achievement in His Field"

"Ellie" Houghton, as he is known to his many friends in ATI and in the Industry, is planning to retire as of November 1, 1970 after over 43 years continuous employment in the asbestos textile and mechanical packing industries. He has contributed to the progress of ATI by serving on its Technical Committee and by his regular attendance at meetings. Mr. Houghton expressed his sincere appreciation for the plaque, said he had greatly enjoyed his association with the ATI, and felt that the Institute was doing a most valuable work for the Industry, and was worthy of continuing support.

12. Locations for meetings in 1971 were announced:-

February 3-4, 1971 - Red Carpet Inn, Charlotte, N.C.
June 9-10, 1971 - Cherry Hill Inn, Cherry Hill, N.J.
October 6-8, 1971 - Savannah Inn & Country Club, Savannah, Ga.

13. President Schuman announced that the Board of Governors had elected new officers for the coming year, namely:-

President - L.E. Moody, H.K. Porter Company, Inc.
Vice President - M.Q. Scowcroft, Raybestos-Manhattan, Inc.
Treasurer - Alexander Kuzmuk, Garlock Inc.
Exec. Secretary & Asst. Treasurer - H.E. Sunbury

Also, that Mr. Alexander Kuzmuk had been elected to the Board of Governors as Garlock's representative, replacing Mr. G. Parry Wiess. (Mr. Kuzmuk is President of Garlock's Mechanical Rubber Division located in Palmyra, N.Y., which also includes their asbestos textile operations.)

14. After announcing the new officers Mr. Schuman asked the new President, L.E. Moody, to take charge of the meeting.

President Moody paid eloquent tribute to the fine leadership given to the Institute by Mr. Schuman during the past two years. There was a spontaneous burst of applause following his remarks, and a standing ovation for "Ed" Schuman who has contributed so much to the Institute over many years of service as committee Chairman, Editor of 2nd Edition of the Handbook of Asbestos Textiles, Treasurer, Vice President, and, since October 1968, President! His is truly an outstanding record in support of the Institute!

15. The meeting recessed for luncheon, following which it adjourned.

Respectfully submitted,

H.E. Sunbury
H.E. Sunbury
Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

September 9, 1970

Balance On Hand at last report (May 8, 1970)

General Fund	\$ 2992.41	
Savings Fund	20589.01	
Petty Cash Fund	32.11	
Total On Hand		\$23613.53

Receipts

To Savings Fund (Interest)	\$177.19	
To General Fund (Book Sales)	155.39	
		332.58

Total On Hand and Received	\$23946.11
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Disbursements

Legal Retainer (3 mos ending 6/30/70)	\$1137.00	
Legal Expenses (3 mos " 6/30/70)	121.60	
Secretary's salary (4 mos.)	952.00	
F.I.C.A. Tax (2nd Qtr.1970)	72.00	
Secretary's travel expense	85.30	
Office rent (4 mos.)	300.00	
A.T.I. Meeting Exp.(June 10-12,1970)	774.03	
Printing & Office supplies	84.18	
Telephone (4 mos.)	152.80	
Insurance (Workman's Comp.)	18.00	
Dues (Industrial Health Foundation)	100.00	
Miscellaneous (Gifts,Flowers,etc.)	129.95	
Petty Cash (Vouchers 470-487 incl.)	83.06	
Total disbursements		4009.92
Balance On Hand as of September 9, 1970		\$19936.19

Funds

General Fund (Bank statement of Sept,9,1970)\$	653.05	
Savings Fund (Interest to 6/30/70)	19266.20 (*)	
Petty Cash Fund	16.94	
Total Funds		\$19936.19

Assets as of Sept.9, 1970

Total Funds as listed above	\$19936.19	
Accts Receivable (Book Sales)	5.80	
Postage on Hand	9.10	
Furniture & Equipment (Nominal value)	1.00	
Total Assets		\$19952.09
<u>Liabilities</u> - (Accts payable as of 9/9/70)		none
Net Worth		\$19952.09

(*) \$1500.00 transferred to General Fund on July 23, 1970

Respectfully submitted,

H.E. Sunbury,
Assistant Treasurer

Minutes - AIR HYGIENE & MANUFACTURING COMMITTEE

ASBESTOS TEXTILE INSTITUTE

October 8, 1970 - The HILTON INN, Williamsburg, Va.

In attendance: H.M. Willingham, Chairman ----- Uniroyal, Inc..
J.P. Wronski ----- Raybestos-Manhattan, Inc.
G.E. Houghton ----- Garlock Inc.
R.D. Hindmarch ----- Johns-Manville Corp.
M.J. Cowan ----- " " "
K.A. Roberts ----- " " "
D.E. Childers ----- H.K. Porter Co., Inc.
H.H. Walter ----- American Asb. Textile Cp.
George Griswold, Jr., ----- Nicotex, Inc.
K. Uchida ----- Nippon Asbestos Co., Ltd.
W.M. Deckman ----- Turner Bros, Asbestos Co. LTD

1. Membrane-Filter Method for Determining Asbestos Dust Concentration

The members of the committee appointed D.E. Childers, R.D. Hindmarch, and J.P. Wronski to prepare an instruction booklet for determining dust concentration by the membrane-filter method. It was agreed that the booklet should be prepared as follows:

- a. The format would be basically the same as the instruction booklet issued by the Asbestos Textile Institute under date of October 4, 1963 entitled "Method for Determining Asbestos Dust Concentration".
- b. A draft would be prepared using the best procedures of those member companies already using this method.
- c. The final draft would be submitted to management of the member companies for approval.
- d. After their approval, the USPHS will be requested to make recommendations or suggestions before submission to the Board of Governors. The final draft will be submitted to the Board of Governors for approval at the February 1971 meeting.

2. Round Robin on Membrane-Filter Method: A report on the Round-Robin, comparing technique and reliability of the membrane-filter method was made by participating companies. It was reported that there was little if any correlation of results between companies. There was also a significant difference in results between observers. It was reported that the specimens were in poor condition after having passed from one company to one or more others.

3. Manufacturing Procedure for Dust Control: All member companies contributed information as to their system and ideas as to the various means for dust control in the plant. It was agreed that each company would present a more detailed outline of their dust control system at the February 1971 meeting.

Respectfully submitted,

H.M. Willingham
Chairman

Minutes of the TECHNICAL COMMITTEE

Asbestos Textile Institute

October 8, 1970 - The HILTON INN - Williamsburg, Va.

In attendance:

I. Barnett --- Johns-Manville Corporation
J.W. Hawkins - Raybestos-Manhattan, Inc.
P.J. Smith - - A.S.T.M. (Sec'y, Comm. D-13)
S.G. Dixit - - Garlock Inc.

Minutes:

A joint meeting of the Technical and Fiber Testing Committees was held on October 8, 1970. Messers E.A. Farrell, and W.H. Smith from the Fiber Testing Committee and P.J. Smith from ASTM were present. The following topics were discussed:

1. Magnetic Rating (MR) Specification ASTM D-1118-57

- a. Answers to the following questions will be sought before the next meeting:
 - (i) Whether the average MR or maximum MR is acceptable. If the average MR is acceptable then what is the tolerable range?
 - (ii) Is double normal sampling acceptable.?
 - (iii) Should each reading be reported and whether it is necessary to do so.
- b. In view of the two types of instruments - namely, Mapes and Turner & Newall - and since the old ASTM D-1118 -57 is written around Mapes, it was decided to ask for a new ASTM number to be assigned to the new standard which is based on Turner and Newall instrument. A footnote will be attached for the old one for those who may still want to refer to it. Data showing correlation between the two will be kept in ASTM files.

2. Special meeting of Technical and Fiber Testing Committees.

A special meeting has been scheduled for December 9, 1970 with the objective of completing the MR specification work. This meeting will be held at the International Hotel, located at J.F.K. International Airport, Jamaica, N.Y., starting at 9:30 A.M.

3. ASTM D-1573-61 on Heat Aging of Asbestos Textiles

U.S. Army Laboratories in Natick, Mass., have conveyed their inability to carry out testing. The Wright-Patterson Air Force Base has not replied to our inquiry. So far only one Laboratory has agreed to do the testing as specified in ASTM D-1573-61.

Respectfully submitted,

Sudhakar G. Dixit
Chairman

Minutes

Asbestos Advisory Committee

Asbestos Textile Institute

October 8, 1970 - The HILTON INN - Williamsburg, Va.

The Asbestos Advisory Committee met on October 8, 1970 with representatives of six member companies in attendance.

The members of the committee spent most of the time in attempting to speed the process of finalizing the copy for brochure concerning health hazards involving usage of asbestos textiles. It was re-emphasized that the brochure would be non-technical in nature and should explain to end users that asbestos textiles can be handled safely as long as proper precautions are established. It was agreed that the initial draft would be edited and a conference arranged with the Chairman of the Environmental Study Committee by November 15. We needed his expertise in the preparation of this type pamphlet and his professional advice that we did not publish any inaccurate information.

Also on the agenda was a suggestion that Mr. Morris of Uniroyal and Mr. Scowcroft of R/M would make a call at the Navy Department in Washington, D.C., to determine the current status of the use of asbestos cloth on Naval vessels

Mr. Haven Roosevelt contributed to a discussion on ways that we could publicize the contribution of asbestos to the general welfare of society rather than continually adopting a defensive attitude.

The Chairman of the Committee announced that Mr. E.A. Morris had been appointed the new Chairman, effective immediately, and he thanked the members of the Committee for their advice and cooperation during the three years he headed the group.

Respectfully submitted,

M.Q. Scowcroft
Chairman

Minutes

FIBER TESTING COMMITTEE

Asbestos Textile Institute

October 8, 1970 - The HILTON INN, Williamsburg, Va.

In attendance: (Joint meeting Fiber Testing and Technical Committees)

S.G. Dixit ----- Garlock Inc.
P.J. Smith ----- Secretary ASTM Committee D-13
J.W. Hawkins ----- Raybestos-Manhattan, Inc.
Walter H. Smith -- Bell Asbestos Mines Limited
J.P. Wronski ----- Raybestos-Manhattan, Inc.
E.A. Farrell ----- Lake Asbestos of Quebec Ltd.
D.E. Childers ---- H.K. Porter Company, Inc.

Minutes

Some members of the Fiber Testing Committee sat with the Technical Committee to help with writing the procedure for Magnetic Rating. A number of difficulties were encountered, method of sampling, etc. It was concluded that an additional (special) meeting would be held December 9, 1970 to resolve these problems before the February meeting.

The Air Hygiene & Manufacturing Committee asked the aid of D.E. Childers to serve on a special group to discuss methods of counting air-borne dust and fibers. All members were using a version of the Membrane-Filter Method. We found little disagreement. Ralph Hindmarch agreed to write a tentative method for presentation at the next meeting.

Respectfully submitted,

D.E. Childers
Chairman, Fiber Testing Committee

**Minutes
GENERAL MEETING
Asbestos Textile Institute**

JUN 10 1971

ASBESTOS TEXTILE INSTITUTE

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Minutes - GENERAL MEETING - June 10, 1971

The CHERRY HILL INN, Cherry Hill, N.J.

In attendance:

AMERICAN ASBESTOS TEXTILE CORP.

G.M. Armstrong
J.W. Christenbury
C.O. Hodges
Wm. Maaskant
H.H. Walter

GARLOCK INC.

W.F. Brainerd
S.G. Dixit

JOHNS-MANVILLE CORP.

I. Barnett
N.D. Brown
W.S. Hough (Retired)
K.A. Roberts

NICOLET INDUSTRIES, INC.

Geo. Griswold, Jr.
Wm. Keene
J.K. Whittaker

H.K. PORTER COMPANY, INC.

E.C. Bratt
D.E. Childers
J.W. Echerd
L.E. Moody

RAYBESTOS-MANHATTAN, INC.

M.Q. Scowcroft
E.P. Stefl
I.H. Weaver

ASBESTOS CORPORATION LIMITED

G.F.A. Brink
P.E. Leclerc

BELL ASBESTOS MINES LIMITED

C.H. Schoch
Walter H. Smith

CASSIAR ASBESTOS CORP., LTD.

R.A. Kuntze

LAKE ASBESTOS OF QUEBEC, LTD.

E.A. Farrell
C.E. Stiefken

NIPPON ASBESTOS CO., LTD.

Y. Sato

UNIROYAL, INC.

D.T. Austin, Jr.
E.A. Morris
W.C. Hitchcock

ASTM

P.O. Nicodemus
A.G. Scroggie
P.J. Smith

CADWALADER, WICKERSHAM & TAFT

H.C. Roosevelt (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury (Secretary)

GUESTS

Mrs. D.M. Fagan, Editor, ASBESTOS Magazine
Mr. C.J. Stover, Publisher, ASBESTOS Magazine

Guest Speaker on Wednesday evening was Mr. Wm.P. Raines, Director of Public Relations for Johns-Manville Corp. Mr. Raines is Secretary of the new Asbestos Information Association/North America.

A guest at the ATI Dinner on Wednesday evening was Mr. Robert Cowdrick, Supt. of Safety at the Bethlehem Steel Plant in Bethlehem, Pa.

Present on Wednesday evening also were:- J.L. Rainey, President of American Asbestos Textile Corp., and C.L. Sheckler, Manager, Accident Prevention & Health Administration, Johns-Manville Corp.

(continued)

1. President Moody called the meeting to order at 2:05 P.M.
2. The minutes of the last meeting were presented for reading. On motion by Mr.K.A. Roberts, seconded by Mr. P.E. Leclerc, it was voted to omit reading same.
3. The Financial Report was presented by Mr.W.F. Brainerd on behalf of Treasurer Kuzmuk, who was unable to be present for business reasons. Mr.Roberts moved the report be accepted, motion seconded by Mr.S.G. Dixit, and so voted unanimously. The Report is attached.
4. In the report of Legal Counsel, Mr. Roosevelt interpreted the remarks of Assistant Attorney General McLaren in an address made on April 1, 1971.

In summary, Mr. Roosevelt said that Mr.McLaren stated that, in efforts to improve our environment, industries should not employ joint efforts but should act individually unless there was a strong showing by the proponents that a collective approach and the exchange of research and feasibility information would yield substantial net gains. To quote Mr. McLaren: "This nation's economic policy favors the competitive rather than the joint industry approach". The Environmental Protection Agency was advised to evaluate the need for joint industry meetings before * in such in order to avoid a possible slowing down of efforts to obtain a cleaner environment which slowing down might result from such joint efforts.(* The word "participating"to be inserted here.)

Mr. Roosevelt pointed out that the anti-trust rule is, and has been, that the actual or likely effect of a particular program determines whether participants will be sued or not sued by the Government. Judgement is based on whether such actions result in some significant adverse effect. Any industry solutions to air pollution problems developed through the Asbestos Textile Inst. must be shared with all industry members, whether members of the Institute or not. Finally, Mr.Roosevelt advised that, in any discussion, the subject of costs be avoided.

5. The Fibre Producer's Report was given by Mr. E.A. Farrell, Sales Manager for Lake Asbestos of Quebec,Ltd., who said:-

"The demand for spinning fibre is strong, but the current supply is in balance. It is expected the supply will remain adequate.

Fibre Groups 4,5, and 6 are in strong demand and supplies are tight. Group 7 is in good supply in spite of the fact that Flintkote Mines have announced they will shut down on December 13, 1971.

Economic conditions around the world are in a state of flux as usual. Italy is in particularly bad shape with building sector off 50%. Fiat has laid off 20% of their employees and there are sporadic industrial and service strikes. The UK and German economies have slowed down, while France is doing well. Japan has slowed down considerably - from a growth rate of 15-18% to 5-8%. High labor costs have now caught up with Japan and they are now having some of their manufacturing done in lower cost areas, such as Korea and Taiwan.

(continued)

The market for asbestos fibre continues to grow at about 5% per year, and production is now keeping up. In Canada alone there are five new properties under exploration, namely:-

ABITIBI Property near AMOS, Quebec
 ASCOPE EX. LTD... VALDOR, Quebec (Adjacent to Abitibi)
 CASSIAR ASBESTOS CORP.LTD.and KUTCHO Creek Co. - joint property
 McADAMS Co. - Property at Chibougamau, Quebec
 GOLDEN GATE EX'S REX Property at Haines Junction, Yukon Territory.

There are also twelve other countries where asbestos is under exploration:- Greece, Brazil, Australia, New South Wales, Columbia, Medellin, Argentina, Bolivia, Mexico, Oaxaca, Ciudad, Victoria, Cypress, Swaziland, Turkey, Union of South Africa, and Sardinia.

As a matter of interest, Mr. Farrell gave the figures for consumption of Canadian Spinning Fibres in the year 1967:-

<u>Country</u>	<u>%</u>	<u>Short tons (1967)</u>
U.S.A.	45 %	16, 800
United Kingdom	18	6, 600
W. Germany	7	2, 700
France	6.5	2, 400
Japan	6	2, 200
Italy	5	1, 900
India	3	1, 200
Others	9.5	3, 500
	<u>100.0%</u>	<u>37, 300</u>

6. At this point in the meeting President Moody expressed his pleasure, and that of the Institute, in having the following persons at this meeting:-

Dr. E.P. Stefl, Exec. Vice President, Raybestos-Manhattan, Inc.
 Mr. E.C. Bratt, Gen.Mgr., Thermoid Div., H.K. Porter Company, Inc.
 Mr. Y. Sato, representing Nippon Asbestos Co., Tokyo, Japan
 Mrs. D.M. Fagan, Editor, ASBESTOS MAGAZINE
 Mr. C.J. Stover, Publisher, ASBESTOS MAGAZINE
 Dr. A.G. Scroggie, ASTM Editorial Committee C-6
 Mr. P.J. Smith, Secretary, ASTM Committee D-13
 Mr. P.O. Nicodemus, Chairman, ASTM Sc.A-4 of D-13
 Mr. W.S. Hough (Retired) Mr.Hough was President of A.T.I. in 1-61-1962, and Chairman of A.T.I. Sales Promotion Committee in the years 1966 and 1967.

7. President Moody congratulated Mrs.D.M. (Doris) Fagan on her election as President of The Philadelphia Club of Advertising Women for the year 1971-1972. Mrs. Fagan was installed as President at the 56th Annual Installation Dinner of the Club held on June 8, 1971.

Mrs. Fagan expressed her appreciation at being invited to our A.T.I. meeting, and said she was active in the Philadelphia Club of Advertising Women because she believes in advertising. Asked members to

(Continued.)

send in news or other items of interest to help make the ASBESTOS Magazine even better. Has had a good response to the current series of articles by J.A. Bettis, Jr., on the "History of the Asbestos Textile Industry in the U.S.A." and would like all those desiring reprints of same to get their orders in promptly.

8. Mr. W.S. Hough, president of A.T.I. in 1961-1962, and Secretary-Treasurer of the Fluid Sealing Association 1968-1970, said that in retrospect he now could realize more fully how very important a trade association is to an industry in view of the many problems that were of common interest.

9. The Committee Reports were given by the respective chairmen:-

Air Hygiene & Mfg. Committee - H.H. Walter Acting Chairman)
Technical Committee - S.G. Dixit, Chairman
Asbestos Advisory Committee - E.A. Morris, Chairman
Fiber Testing Committee - D.E. Childers, Chairman

Their reports are attached to these minutes.

10. Mr. C.L. Sheckler, Chairman of our Environmental Health Committee, who was unable to attend this meeting due to another engagement, gave the members a report following the ATI Dinner the previous evening. Mr. Sheckler discussed various aspects of the new Williams-Steiger Occupational Safety and Health Act of 1970, that became effective last April 28th. He recommended that members obtain copies of the following Safety and Health Standards issued by the Dept. of Labor. Presumably these can be ordered from the Government Printing Office in Washington, D.C.

Federal Register - Volume 34, Number 1

Federal Register - Volume 36, Numbers 1-62, 84, 75, 91, 105

At the conclusion of his report Mr. Sheckler introduced Mr. Wm.P. Raines, who is Secretary of the newly organized Asbestos Information Association/North America, 201 East 42nd St., New York, N.Y. (Zip) 10017, c/o Hill & Knowlton, Inc. Mr. Raines discussed the objectives of the AIA/NA, and it is hoped that this positive step by the Asbestos Industry to meet the increasing need for a competent, reliable source of accurate information on the effects of asbestos dust on human health (or lack of effects) will provide an authoritative channel of communication, publicly rebut irresponsible and inaccurate criticism, and publicize the many indispensable uses of asbestos in our highly technological society.

11. President Moody announced that MANUFACTURAS MULTIPLES S.A. of CARACAS, VENEZUELA had become an Associate Member of the Institute since our last meeting, and expressed his pleasure and that of the Institute in welcoming this fine company to membership.

(continued)

12. President Moody commented on the two new pieces of literature now available from the Institute:- (a) Recommended Health Safety Practices for Handling and Fabricating Asbestos Textile Products and (b) Measurement of Airborne Asbestos Fiber by the Membrane Filter Method. He thanked all those who had participated in bringing these two projects to a successful conclusion.

13. Locations for future meetings were announced:-

October 6-8, 1971 - Savannah Inn & Country Club, Savannah, Ga.

February 2-3, 1972 - The Mills Hyatt House, Charleston, S.C.

June 7-8, 1972 - Key Bridge Marriott Hotel, Washington, D.C. (Tentative)

The October meeting is our Annual Meeting to which company officials and their wives, also members' wives, are specially invited. The meeting schedule in October will suggest arrival on Wednesday afternoon if possible, the committee meetings will be on Thursday morning, and the General Meeting on Friday morning followed by a Reception and ATI Luncheon. We want this to be our Biggest and Best Annual Meeting, and urge all members and their wives to be there!

14. There being no further business the meeting adjourned at 3:05 P.M.

Respectfully submitted,

H.E. Sunbury
H.E. Sunbury
Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

May 10, 1971

Balance On Hand at last report (Jan,11,1971)

General Fund	\$ 1321.21	
Reserve Fund	14992.49	
Petty Cash Fund	22.32	
	Total On Hand	\$16336.02

Receipts

To Reserve Fund (Interest to 4/1/71)	187.24	
To General Fund (Book Sales)	38.52	
To General Fund (1971 dues)	7333.33	
	Total On Hand and Received	7559.09

\$ 23895.11

Disbursements

Legal Retainer(6 mos ending 3/31/71)	\$2964.00	
Legal Expenses(6 mos " 3/31/71)	290.38	
Secretary's salary (4 mos)	948.00	
F.I.C.A. Tax (1st Qtr 1971)	78.00	
Secretary's travel expense	157.00	
Office rent (4 mos)	300.00	
A.T.I. meeting expense (Feb.3-4,1971)	500.62	
Printing and Office Supplies	40.16	
Telephone (4 mos)	145.39	
Dues & Subscriptions(D-13 & Asb.Mag.)	19.00	
Flowers	52.79	
Seminar fee (To be returned)	50.00	
Petty Cash Vouchers 503-528 inclusive	72.75	
	Total Disbursements	5618.09

Balance On Hand as of May 10, 1971

\$18277.02

Funds

General Fund (Bank statement of 5/10/71)	\$ 3070.04	
Reserve Fund (with interest to 4/1/71)	15179.73	
Petty Cash Fund	27.25	
	Total Funds	\$18277.02

\$18277.02

Assets as of May 10,1971

Total Funds as listed above	\$18277.02	
Accts Receivable (1971 Dues)	400.00	
Accts " (Book sales)	10.60	
Postage On Hand	9.11	
Furniture & Equipment (Nominal Value)	1.00	
	Total Assets	\$18697.73

\$18697.73

Liabilities

Accounts Payable as of May 10,1971	none
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Net Worth

\$18697.73

Respectfully submitted,

H.E. Sunbury
H.E. Sunbury
Asst. Treasurer

MINUTES
AIR HYGIENE & MANUFACTURING COMMITTEE
Asbestos Textile Institute
June 10, 1971 - CHERRY HILL INN, Cherry Hill, N.J.

In attendance:

H.H. Walter, Acting Chairman	- American Asbestos Textile Corporation
L.E. Moody	- H.K. Porter Company, Inc.
D.T. Austin, Jr.	- Uniroyal, Inc.
K.A. Roberts	- Johns-Manville Corp.
I.H. Weaver	- Raybestos-Manhattan, Inc.
C.O. Hodges	- American Asbestos Textile Corp.
G.M. Armstrong	- American Asbestos Textile Corp.
W.F. Brainerd	- Garlock Inc.
<u>Guests:</u> Y. Sato	- Nippon Asbestos Co., Ltd.
E.A. Farrell	- Lake Asbestos of Quebec, Ltd.

Bausch & Lomb Automatic Dust Counter:

The committee recommends continued use of the B & L Counter for continuous monitoring to determine the cause of abnormal dust concentrations. The instrument will be transferred from the Raybestos plant at Manheim, Pa. to the Garlock Inc. plant at Palmyra, N.Y.

Occupational Safety & Health Administration Notice of Proposed Rule Making on Inspections, Citations, and proposed Assessments of Penalties, dated April 30, 1971, was brought to the attention of the committee. This notice states in essence:

1. That Compliance Officers of the Dept. of Labor are authorized to enter without delay, and at reasonable times, any factory or plant.
2. That no advance notice shall be given with regard to inspection.
3. That the Compliance Officer may review any records and question any employee.
4. That any employee shall be afforded a reasonable opportunity to consult the Compliance Officer in private.
5. That any employee may request an inspection.
6. That every Employer upon receipt of a Citation shall post such notice on a bulletin board.

OCCUPATIONAL SAFETY & HEALTH ACT of 1970

A thorough interpretation of this ACT was presented by Mr. L.E. Moody. All committee members reported that measures have been enacted, or are being enacted, to comply with the law.

1. Yearly X-Ray examinations of all employees are conducted by all member companies. In some states the the State Health Department provides for examination without cost.
2. Strict work rules and enforcement of same, continuous efforts to improve dust control measures, good communication between

employer and employee, good record keeping as requested by the law, are essential to be in compliance with the law.

Dust Control in the Manufacturing Process:

Numerous ways and means of reducing dust were discussed:

1. Moisturizing of blends.
2. Wet carding being explored by some members at this time.
3. Wet spinning being explored.
4. Wet weaving being done by most members.
5. Discontinuance of the use of compressed air for cleaning purposes being enforced by all member companies.
6. Use of vacuum cleaners or stationary vacuum systems for cleaning purposes is practiced by all member companies.
7. Improvement of house cleaning procedures. Wet sweeping.
8. Installation of impervious wall surfaces.
9. Use of polyethylene laminated burlap for wrapping.
10. Semi-automatic waste bagging.
11. Enclosed feed boxes in the blending operation.
12. Various types of card enclosures.

Respirators:

Various systems of respirator distribution were discussed. The use of disposable respirators is being explored by some member companies. Results are expected to be available at the next meeting.

Noise Abatement:

Efforts are being made by all member companies to reduce the noise level.

Ear muffs or ear plugs fitted by a medical person are provided by most companies upon request of the employee, or wherever required due to an excessive noise level.

Respectfully submitted,

Hans H. Walter
Acting Chairman

MINUTES - ASBESTOS ADVISORY COMMITTEE

June 10, 1971 - CHERRY HILL INN, Cherry Hill, N.J.

Minutes

The Asbestos Advisory Committee met with five member companies in attendance, and one absentee. A most welcome guest was Mr. W.S. Hough, a former president of ATI (now retired).

At our meeting we discussed the possibility of revising the present (3rd) edition of the Handbook of Asbestos Textiles, but after considerable discussion it was decided that a revision at the present time would be premature, and that we should review this decision a year hence.

The committee feels that the promulgation of its new folder entitled "Recommended Health Safety Practices for Handling and Fabricating Asbestos Textile Products" is a positive step forward, and we again want to thank all those who assisted in bringing this project to a successful conclusion. Each member company of the Institute should have its specified number of copies in hand by now, and additional copies may be obtained from the Institute.

The committee members discussed several adverse articles regarding asbestos which appeared recently in Woman's Wear Daily, the New York Times, and the Wall Street Journal. Additional follow up stories have appeared in other periodicals. Unfortunately, these articles never delineate as to fiber type, quantity, length of exposure, etc. The reader is led to the conclusion that - "if it is asbestos .. it's bad." This situation is frustrating and perplexing!

It was most encouraging to hear the talk by Mr. Wm. P. Raines, Secretary of the newly organized "Asbestos Information Association of North America", yesterday evening. Here at last we have an organization capable of carrying the story of the positive need for, and the truth about asbestos to the public!

Accordingly, it is the recommendation of our Committee to immediately establish direct liaison with the A.I.A./N.A. in order that our efforts may be coordinated with their forward plans.

It was the consensus of the Committee that the Secretary of A.T.I. should be responsible for liaison with the AIA/NA, and that should he require any assistance in this respect the Asbestos Advisory Committee stands ready to support him.

Respectfully submitted,

E.A. Morris, Chairman

Minutes
FIBER TESTING COMMITTEE
Asbestos Textile Institute
June 9-10, 1971 - CHERRY HILL INN, Cherry Hill, N.J.

In attendance:

D.E. Childers, Chm. - H.K. Porter Co., Inc.	G.F.A. Brink, Asbestos Corp.
S.G. Dixit, Garlock Inc.	C.E. Stiefken, Lake Asbestos
I. Barnett, Johns-Manville Corp.	Wm. Keene, Nicolet Industries
P.O. Nicodemus, General Electric Co.	R.A. Kuntze, Cassiar Asb. Corp.
Walter H. Smith, Bell Asbestos Mines Ltd.	
J.W. Echerd, H.K. Porter Co., Inc.	P.J. Smith, ASTM
Wm. Maaskant, American Asb. Tex. Corp.	Dr. A.G. Scroggie, ASTM

Members of A.T.I. Technical Committee, A.T.I. Fiber Testing Committee, and Sub-committee A-4 of ASTM D-13, held a joint meeting.

On the afternoon of June 9th, the chairman of the Fiber Testing Committee reported to the Board of Governors a movement to revise the manual entitled "Testing Procedures for Chrysotile Asbestos Fibre". Mr. G.F.A. Brink, being familiar with a number of the necessary changes, was invited to express his views, and agreed that the manual needed revision, further, that his company would favor A.T.I. to be in charge of the project, same as was the case with the 1st and 2nd editions. It was the opinion of those present that it would be desirable for the A.T.I. to assume the leadership in revision of the manual. The A.T.I. is currently seeking approval of the Q.A.H.A. and the A.C.P.A. who contributed to the former editions. Assuming that all preliminaries are resolved, we hope to have copies of those changes which have already taken place in our hands by the next m't'g.

Items discussed in the Joint Meetings:- (a) The 9th Draft of the specification for Magnetic Rating, ASTM D 1118-57, was reviewed in an effort to obtain final approval. Minor changes were made to improve clarity. Mr. I. Barnett was asked to rewrite the section on Precision and Accuracy in accordance with ASTM's procedure. Test data will be analyzed by J/M's Statistical Department.

(b) Mr. Nicodemus will contact the government in reference the specification Heat Aging of Asbestos Textiles, ASTM D 1573-61, in an attempt to have it deleted due to the fact that there has been no reasonable degree of correlation between different laboratories. A letter ballot will be submitted to members for approval. (Voting m'b'rs.)

(c) In the proposed military specification for Thermal Insulation Tape, MIL-I-15349C, a minor error in Table II of the proposed draft was noted, and the Custodian will be notified. It was suggested that the Board of Governors consider what action, if any, should be taken relative to the deletion of Amosite asbestos fibre as a filler.

Respectfully submitted,

D.E. Childers, Chairman
Fiber Testing Committee

Minutes

TECHNICAL COMMITTEE

Asbestos Textile Institute

June 9-10, 1971 - The CHERRY HILL INN, Cherry Hill, N.J.

In attendance: D.T. Austin, Jr. Uniroyal, Inc.
I. Barnett Johns- Manville Corp.
S.G. Dixit (Chairman) Garlock Inc.
J.W. Echerd H.K. Porter Company, Inc.
Wm. Maaskant American Asbestos Textile Corp.

A joint meeting was held with the ATI Fiber Testing Committee, and present from that committee were Messers D.E. Childers (Chm.), G.F.A. Brink, Walter H. Smith, and C.E. Stiefken. Also present at the joint meeting were:- Dr. A.G. Scroggie, ASTM's Editorial Committee C-6, P.J. Smith, Secretary ASTM D-13, P.O. Nicodemus, Chairman, ASTM Sc.A-4, Dr. R.A. Kuntze, Ontario Research Foundation, and Mr. Wm. Keene from Nicolet Industries, Inc. The following subjects were discussed:-

(1) ASTM D 1118 - Magnetic Rating Standard =

The 9th draft of specification D 1118 was reviewed by the joint committee and final changes were made. The section on precision and accuracy is being rewritten to conform to ASTM requirements, and even though the data on precision is not complete, it was decided to submit the standard to ASTM after making the necessary changes.

(2) ASTM D 1573 - Heat Aging of Asbestos Textiles

In view of the difficulty in locating the right type of ovens to complete the round-robin test, and also because none of the member companies present are using this standard, it was unanimously agreed to drop this standard. Mr. P.O. Nicodemus, Chairman of ASTM D-13, Sub-committee A-4, has agreed to contact the Federal Agencies to inform them of our decision to withdraw ASTM D 1573.

(3) MIL - I - 15349C - Insulation Tape, Thermal

Reference to Amosite as felting or sliver in the core has been completely eliminated in the proposed specification. This subject will be discussed with the Board of Governors at the next meeting.

Also, Table II, on Page 3 of MIL-I-15349C needs correction. The nominal weight for 5-1/2" x 7/8" tape is given as 11.60 lbs. per 25 ft. roll. This weight should be 10.60 lbs. as pointed out in our original comments. The Naval Ship Engineering Center will be advised of this error.

Respectfully submitted,

Sudhakar G. Dixit
Chairman

October 8, 1971

ASBESTOS TEXTILE INSTITUTE

Page -1-

Minutes * General Meeting - October 8, 1971

The Savannah Inn & Country Club, Savannah, Ga.

In attendance:

AMERICAN ASBESTOS TEXTILE CORP.

G.M. Armstrong
J.W. Christenbury
G.S. Fabel
Wm. Maaskant
J.L. Rainey
H.H. Walters

GAFLOCK INC.

S.G. Dixit
Alex. Kuzmuk

JOHNS-MANVILLE CORP.

N.D. Brown
M.S. Lindstrom
K.A. Roberts
C.L. Sheckler
N.W. Hendry (Canadian J/M Co.)

NICOLET INDUSTRIES, INC.

Geo. Griswold, Jr.
E.W. Russell

H.K. Porter Company, Inc.

E.C. Bratt
D.E. Childers
J.W. Echerd
J.L. Mitchell

RAYBESTOS-MANHATTAN, INC.

J.A. Bettles, Jr. (Retired)
J.W. Hawkins
M.W. Oliver
M.Q. Scowcroft
E.P. Stefl

UNIROYAL, INC.

D.T. Austin, Jr.
B.E. Carden
L.F. Pieringer
R.C. Hunt
E.A. Morris
S.J. Peckle, Jr.
F.C. Phillips

ASBESTOS CORPORATION LIMITED

P.E. Leclerc

BELL ASBESTOS MINES LIMITED

Marcel Dorais
Walter H. Smith
Wm. J.W. Smith

CASSIAR ASBESTOS CORP., LTD.

R.A. Kuntze

LAKE ASBESTOS OF QUEBEC, LTD.

E.A. Farrell
C.E. Stiefken

MANUFACTURAS MULTIPLES S.A.

Rafael E. Arnal

NIPPON ASBESTOS CO., LTD.

Y. Sato

CADWALADER, WICKERSHAM & TAFT

H.C. Roosevelt (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury (Secretary)

Note: Total attendance at the Oct. 6-8th meeting was 65 persons, which included 23 wives and 42 men!

***** Minutes *****

1. Vice President M.Q. Scowcroft called the meeting to order at 8:30 A.M. and explained that he was substituting for President Moody whose illness prevented his attendance at this meeting.

2. Introductions: - Each person was asked to stand and give his name and company affiliation.
3. The minutes of the last meeting were offered for reading. On motion by Mr. Geo. Griswold, seconded by Mr. H.C. Roosevelt, it was voted to omit the reading of same.
4. The Financial Report was presented by Treasurer Kuzmuk, who stated that the Annual Audit of the Institute's books had been made as of September 9, 1971 under the supervision of Mr. R.E. Jeffery, Controller, Garlock Inc. and found to be in order. Mr. K.A. Roberts moved that the report be accepted, seconded by Mr. S.J. Peele, Jr., and so voted unanimously. The Report is attached.
5. In his Legal Counsel Report, Attorney Roosevelt discussed the economic freeze now in effect by Presidential order, and the Economic Stabilization Act of 1970 which authorized same. The full resume of his remarks is attached to these minutes.
6. The Fibre Producer's Report was given by Mr. N.W. Hendry, General Sales Manager, Canadian Johns-Manville Asbestos Limited. This is a regular feature of a General Meeting and we are indebted to Mr. Hendry for his comprehensive review of the world situation regarding production of asbestos fibre and the overall market. A resume of his remarks is attached.
7. Chairman Scowcroft announced that the Board of Governors had elected officers for the coming year: -
 - President - L.E. Moody of H.K. Porter Company, Inc.
 - Vice President - M.Q. Scowcroft of Raybestos-Manhattan, Inc.
 - Treasurer - Alex. Kuzmuk of Garlock Inc.
 - Exec. Sec'y - H.E. Sunbury
8. New committee chairmen: - Mr. Scowcroft announced that Mr. K.A. Roberts of Johns-Manville Corp. had been appointed chairman of the Air Hygiene & Mfg. Committee; and Mr. J.W. Echerd of H.K. Porter Company, Inc. as chairman of the Technical Committee. Deferred temporarily was the appointment of a new chairman for the Fiber Testing Committee.
9. New Edition - Fibre Test Manual: - Mr. Scowcroft said that the QAMA had approved a Third Edition of the manual entitled: - "Testing Procedures for Chrysotile Asbestos Fibre" to be sponsored by the Asbestos Textile Institute, Asbestos Cement Products Assoc. and the Quebec Asbestos Mining Association. Preparation of the new edition to be under the supervision of the ATI Fiber Testing Committee.
10. Pending Legislative Developments: - Mr. C.L. Sheckler, Manager, Accident Prevention and Health Administration, Johns-Manville Corp., reviewed recent developments under the Occupational Safety and Health Act (OSHA) and activity related to the Environmental Protection Agency (EPA). During his informative talk, Mr. Sheckler

mentioned that it was presently uncertain what agency would establish a standard TLV (Threshold Limit Value) for asbestos. He is very apprehensive that an impossibly low TLV will be adopted and so make it impossible for asbestos manufacturers to stay in business if it is to be enforced. In respect to OSHA, confusion exists how to advise employees of standards, what records to keep, etc. Stressed the need for background data from industry to use in fighting back against adverse publicity directed at asbestos-containing products.

11. The committee reports were given by the respective chairmen: -

Air Hygiene & Mfg. Committee - K.A. Roberts (Acting Chairman)
 Asbestos Advisory Committee - E.A. Morris, Chairman
 Technical Committee - S.G. Dixit, Chairman
 Fiber Testing Committee - D.E. Childers, Chairman

Their reports are attached to these minutes.

Certificates of Appreciation were presented to retiring chairmen S.G. Dixit and D.E. Childers by Vice President Scowcroft who thanked them for their valued contribution to the work of the Institute during the past two years.

12. Chairman Scowcroft said that we were very proud to have four former presidents of ATI in attendance at this meeting, namely: -

Geo. S. Fabel - 1949 - 1950
 John A. Bettles, Jr. - 1957 - 1958
 Staton J. Peele, Jr. - 1963 - 1964
 John L. Rainey - 1967 - 1968

All of these men expressed their pleasure in attending, and their gratification to know that ATI continued to be an important factor in our industry.

"Jack" Bettles, author of "The History of the Asbestos Textile Industry in the United States," now appearing serially in the ASBESTOS Magazine, expressed his appreciation for the historical data supplied to him by many people (approx. 100) without whose help he would have been unable to compile as complete a history. He spoke most highly of the ASBESTOS Magazine, and recommended that it be given company advertising on a continuing basis in appreciation of the fact that it is the only media devoted to the asbestos industry, and its files are a valuable storehouse of information pertaining to our industry. The magazine will have Reprints of "History" if orders warrant, and suggests orders be sent them promptly (he receives no profit from same).

13. Mr. E.A. Morris moved that Mr. John A. Bettles, Jr. be made "OFFICIAL HISTORIAN OF THE ASBESTOS TEXTILE INDUSTRY" by acclamation, and this was done by a round of applause and a standing ovation!

14. Chairman Scowcroft expressed our pleasure in having a representative of our newest member, MANUFACTURAS MULTIPLES S.A., Caracas, Venezuela, in attendance, and welcomed Mr. Rafael E. Arnal on behalf of all those present.

15. Locations for future meetings were announced:-

February 2-3, 1972 - The Mills-Hyatt House, Charleston, S.C.

June 7-8, 1972 - Key Bridge Marriott Hotel, Washington, D.C.

16. There being no further business to come before this meeting it was moved by Mr. K.A. Roberts, seconded by Mr. E.A. Morris, that it be adjourned. So voted.

Respectfully submitted,

H.E. Sunbury
H.E. Sunbury
Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

September 9, 1971

Balance on Hand at last report (May 10, 1971)

General Fund	\$ 3070.04	
Reserve Fund	15179.73	
Petty Cash Fund	27.25	
Total On Hand		\$18277.02

Receipts

To Reserve Fund (Interest to 6/30/71)	\$189.73	
To General Fund (Book sales)	72.20	
To General Fund (1971 dues)	400.00	
To General Fund (Reimbursement)	50.00	
Total received		711.93

Total On Hand and Received

\$18988.95

Disbursements

Legal Retainer (3 mos. ending 6/30/71)	\$ 878.00	
Legal Expenses (3 mos ending 6/30/71)	59.99	
Secretary's salary (4 mos.)	948.00	
F.I.C.A. Tax (2nd Qtr 1971)	78.00	
Secretary's travel expense (June ATI mtg.)	50.00	
Office rent (4 mos.)	300.00	
A.T.I. meeting expense (June 9-10, 1971)	929.73	
Printing & Office Supplies	92.64	
Telephone (4 mos.)	167.24	
Membrane Filter Instruction Booklet (1 M)	467.27	
Health Safety Practices Folder (25 M)	1247.40	
Insurance (Workman's Comp.)	18.00	
Petty Cash (Vouchers 529 - 550 inclusive)	103.18	
Total Disbursements		5339.45

Balance On Hand as of September 9, 1971

\$13649.50

Funds

General Fund (Bank Statement of 9/9/71)	\$ 788.54	
Reserve Fund (With interest to 6/30/71)	12769.46 (*)	
Petty Cash Fund	91.50	
Total Funds		\$13649.50

Assets as of September 9, 1971

Total Funds as listed above	\$13649.50	
Accts Receivable (Book Sales)	22.68	
Postage On Hand	11.67	
Furniture & Equipment (Nominal value)	1.00	
Total Assets		\$13684.85

Liabilities

Accounts Payable as of 9/9/71	none
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Net Worth

\$13684.85

(*) \$2600.00 transferred to General Fund on July 2, 1971

Respectfully submitted,

H.E. Sunbury
Asst. Treasurer

REMARKS OF COUNSEL

Page -1-

Asbestos Textile Institute - General Meeting - October 8, 1971

The legal authority by which the President was able to put the economic freeze into effect is Public Law 91-379, as amended--the Economic Stabilization Act of 1970--whereby "the President is authorized to issue such orders and regulations as he may deem appropriate to stabilize prices, rents, wages, and salaries at levels not less than those prevailing on May 25, 1970." This is a limitation imposed by Congress and means, simply, that regardless of what occurred prior to the freeze during the base period, prices are not required to be set at less than what they were on May 25, 1970. The level of prices prevailing on May 25, 1970, is determined as follows:

- (1) the average (mean) price at which transactions were made on that day (as borne out by appropriate records);
- (2) if no actual transactions took place on that day, then the average (mean) price at which transactions took place on the nearest day prior to May 25, 1970 may be taken as the "prevailing price level for May 25, 1970"; and
- (3) ceiling prices for goods not in existence on May 25, 1970 can only be calculated using the base period described in the Guidelines.

A second limitation imposed under the Congressional grant of authority is that the President's authority to issue and enforce orders and regulations under the Economic Stabilization Act expires April 30, 1972. The President cannot continue the freeze beyond that date without additional legislation enacted by Congress.

If one is dealing in the American market, how then does one determine the price he may charge? Under the President's Executive Order, prices are stabilized "at levels not greater than the highest of those pertaining to a substantial volume of actual transactions" during the base period of July 16 to August 14, 1971. In cases where no transactions occurred in the 30-day base period, the base period will be the nearest preceding 30-day period in which a transaction did occur. A "30-day period" is defined as a 30-day block of time prior to July 16. Hence, moving back from July 16, the nearest 30-day period would be June 16-15, and preceding that, May 17-June 15, and so on. The ceiling price is the price at or above which ten per cent of the actual transactions during the base period were made, except that in cases of increases in posted or effective prices during the base period, the base period itself will be considered to have begun at the time of the increase in posted and effective prices.

A transaction takes place when a seller ships the product to a buyer, not when an order is received. Each commodity is treated separately and, if shipments are made to different classes of purchasers under different terms, separate ceilings are calculated for each commodity for each class of purchaser.

REMARKS OF COUNSEL - CONTINUED

Page -2-

The ceiling price is based on the record of all the units of each commodity shipped to each class of purchaser during the base period, and is calculated as the highest price at or above which ten per cent of the units were shipped to a particular class of purchaser during the base period.

Under the terms of the Executive Order, the price freeze applies to the seller, not the buyer. The buyer is not required to police a seller's compliance with the Executive Order. But records must be kept of the highest prices charged during the base period, and must be available for public inspection.

If a product or service is "new", the ceiling price is determined by the seller applying the percentage mark-up he received during the base period on the most nearly similar product or service to the direct unit or net invoice cost of the new product or service. The ceiling price for a product or service that is new to the seller, but not to the market, is the price realized on the same or comparable product or service by the most nearly comparable competitor during the base period.

We turn now to two specific problem areas: discounts and long term contracts. What is the selling price for a material if there have been dual price situations, i.e., a published price and a discounted price at which actual transactions were made? The answer is that sales may be made at the highest price at which a substantial volume of actual transactions were made during the 30-day period of time ending August 14. If products have been selling at a discounted price and not at the published price during the base period, the maximum price would be the highest discounted price at which substantial transactions were made. Thus, assuming that during the base period bags of insulation were selling at the list price, and also at a discount of six sixes, if a substantial number of transactions were made at the list price, then the list price, and anything below the list price could be charged, including a discount of four sixes, because the price freeze does not fix prices at their highest permissible level -- it prohibits sales at a price higher than the permissible level. However, if all sales during the base period were made at the discounted price of six sixes and there were not in fact substantial actual transactions at a higher price, then the price would have to be frozen at the six sixes discounted price, and it would not be permissible to decrease the discount to four sixes, as that would raise the price over the highest level during the base period.

Where different prices are offered to different territories, or different kinds of customers, price ceilings are to be set on the basis of the normal procedures used in establishing the market prices. Market price ceilings must be established at no greater than the highest price at which substantial volume transactions were carried out in the firm's individual normal pricing areas, regardless of whether these pricing areas are national, regional, or individual.

REMARKS OF COUNSEL - CONTINUED

Page -3-

If quantity discounts are offered, can a customer who purchased large volumes and was previously eligible for the discount be charged the applicable higher price if he reduces the amount of his purchases and thus falls into a lower quantity and higher price bracket? In other words, may prices be changed so long as the rate structure on which they are based is not changed? The answer is yes. During the 90-day freeze, customers may be charged in accordance with rate of price schedules established in the base period prior to August 15, 1971. However, the charges applicable to the various categories of rates or prices set out in the effective schedules may not be increased. Furthermore, if it has been the practice to give discounts under certain circumstances, these discounts cannot be discontinued during the freeze.

The rule with respect to long-term contracts is that if the contract was made before the freeze, and there are no deliveries scheduled until after the freeze, the freeze does not apply. If any deliveries are to be made during the freeze period, the seller may charge no more than his ceiling price determined by the price charged for deliveries made during the base period. If the shipment price on a contract made prior to the freeze and calling for delivery during the freeze is above the ceiling price, the seller may elect not to perform at all, but he is not permitted to perform at a contract price above the ceiling price. Nor may he force the buyer to accept shipment deferred to a date after the freeze. If the seller does make delivery, the buyer is obligated to pay no more than the ceiling price.

Haven C. Roosevelt, Atty.
Cadwalader, Wickersham & Taft

ASBESTOS TEXTILE INSTITUTE PRESENTATION
BY N. W. HENDRY
FRIDAY, OCTOBER 9TH, 1971

Shipments of Canadian asbestos fibre for the first seven months of 1971 were 892,864 tons or 3.3% higher than for the same period in 1970.

The availability of all grades of spinning fibre is good and this situation can be expected to continue for some time in the future.

The application of the U.S. surcharge does not apply to asbestos fibre, but indirectly the surcharge will affect sales of asbestos fibre to such countries as Japan and West Germany. Prior to the application of the surcharge some weakness in demand was evident in many of the International markets.

World production of asbestos fibre in 1970 was 3,822,840 tons versus 3,638,250 tons in 1969 or an increase of approximately 5%.

The problems related to asbestos and health are of continuing concern to the asbestos fibre producers. It is unfortunate indeed that the press representatives continue to take statements out of context and to be more interested in sensationalism rather than facts.

Finally, the following comments are pertinent to the status of some new asbestos producers, viz:

- a) The new producer in Australia is forecast to be in production in early 1972 at a rate of 75,000 tons per year.
- b) The asbestos producer in Brazil, located north of Brazilia, is expected to be increased from 13,000 to 27,000 tons.
- c) The Colombian asbestos fibre prospect could reach the production stage at a rate of approximately 25,000 tons per year.
- d) Work is being continued to develop an asbestos producer in Central Colombia. If financing can be arranged the production rate is expected to be 25,000 tons annually.
- e) Work is being continued by Cerro Corporation toward the evaluation of an asbestos deposit in Central Greece.

N. W. Hendry
General Sales Manager
Canadian Johns-Manville Asbestos Limited

() ()
AIR HYGIENE & MFG. COMMITTEE

Asbestos Textile Institute

Page -1-

October 7, 1971 - Savannah Inn & Country Club, Savannah, Ga.

In attendance:

K.A. Roberts - Johns-Manville Corp. (Acting chairman)
C.L. Sheckler - " " " (Chm. Environmental Health Comm.)
G.M. Armstrong - American Asbestos Textile Corp.
J.L. Rainey - " " " "
H.H. Walter - " " " "
L.F. Dieringer - Uniroyal, Inc.
B.E. Carden - " "
R.C. Hunt - " "
J.L. Mitchell - H.K. Porter Company, Inc.
E.C. Bratt - " "
E.A. Farrell - Lake Asbestos of Quebec, Ltd.
Rafael E. Arnal - Manufacturas Multiples S.A. (Caracas, Venezuela)
Y. Sato - Nippon Asbestos Co., Ltd. (USA representative)

***** Minutes *****

This meeting was, in part, held as a joint committee meeting with the Environmental Health Committee. The meeting was opened with a brief review of some of the environmental protection equipment being used by some of our members.

Mr. J.L. Rainey presented a paper entitled "Moist Spinning Process" written by Mr. J.W. Weber, Chairman of the Board, American Asbestos Textile Corporation. Mr. Rainey discussed the data in the paper which indicates that a stronger, more dust free yarn is obtained when moisture, in the form of water or an emulsion, is applied at the rub apron of the carding machine. While the process was developed primarily for the purpose of reducing the atmospheric dust count on the delivery end of the carding machines (where the greater part of the card-tenders time is spent) it has been found that other advantages result in subsequent operations as explained in Mr. Weber's paper which is included with these minutes. Committee members were most appreciative of Mr. Weber's cooperation in supplying the results of his extensive experimental development work for the benefit of our industry. Members desiring further information on this process may write direct to Mr. J.W. Weber, American Asbestos Textile Corporation, P.O. Box 228, Norristown, Pa. 19404 (USA).

Considerable time was spent in reviewing the Occupational Safety & Health Act (OSHA) and the anticipated Emission Standards for asbestos soon to be established by the Environmental Protection Agency. Mr. Sheckler urged that the ATI member companies undertake to collect industry plant data and employee data that would be helpful to AIA/NA in testifying before sub-committee hearings in Washington, D.C.. At the present time our industry, as such, lacks the facts to refute or challenge statements so adverse to asbestos that have received such wide publicity in the last several years. It was therefore the joint recommendation of the Air Hygiene & Mfg. and the Environmental Health Committees that the Institute establish a program to obtain

meaningful data for use in guiding national standards. It was suggested that a start could be made by contacting Dr. Lewis J. Cralley, formerly in charge of Division of Epidemiology & Special Services, USPHS, Dept. of HEW, under whose supervision in-plant surveys of asbestos plants and employees were made by Federal authorities over a period of many years. Dr. Cralley is presently employed as a consultant to Marcus Key, M.D., Head of the National Institute of Occupational Safety & Health. It is hoped that the data now in the Dept. of HEW files can be released for possible benefit to the asbestos textile industry.

Following the meeting, arrangements were made to ship the ATI's Bausch & Lomb Dust Counter to the American Asbestos Textile Corp. plant at Norristown, Pa. It will be shipped from GARLOCK INC.

Respectfully submitted,

K.A. Roberts, Acting chairman

MOIST SPINNING PROCESS

by:- J.W. Weber

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The application of moisture to the outer surface of the roving also results in the retention of a relatively lofty yarn (which is desirable), rather than the creation of the condensed condition of an extruded yarn.

While the process has been developed primarily for the purpose of reducing the atmospheric dust count on the delivery end of the carding machines (where the greater part of the card-tender's time is spent), and in subsequent operations such as spinning, twisting, and winding, it has been found that this process imparts considerable strength to the roving and thereby results in greatly reduced roving breaks during spinning. This further reduces the dust count at the spinning frames, since broken ends on the bobbins raise a virtual dust storm. We have found further that, since the moist roving is in a somewhat more compact condition when being wound on the card spools, considerably more yardage can be wound on spools of the same diameter than can be achieved with relatively dry roving.

In order to determine the relative merits of moist vs relatively dry roving at the spinning operation, asbestos fiber counts were taken, results of which are indicated in the following table:-

(See Page 3)

ASBESTOS FIBER COUNTS

Moist vs Dry Roving

FIBER COUNT

	Total Fibers	Longer than 5 Microns	Longer than 10 Microns
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9/25/71 Moist Roving, 13 Cut	4.0	2.5	1.8
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<u>Spindle Speed: 4800 RPM</u>			
9/28/71 Moist Roving, 13 Cut	7.5	1.7	1.5
9/28/71 Dry Roving, 13 Cut	23.0	9.1	5.0

The spinning was performed on balloonless spinning frames operating normally between 4500 and 5400 spindle speed, depending on cut and quality of yarn.

AMERICAN ASBESTOS TEXTILE CORPORATION

(Signed) J.W. Weber
Chairman of the Board

ASBESTOS TEXTILE INSTITUTE

Minutes - ASBESTOS ADVISORY COMMITTEE meeting

October 7, 1971 - Savannah, Ga.

***** Minutes *****

The Asbestos Advisory Committee met with all member companies in attendance.

The main topic of our discussions concerned the legislation which either has been promulgated, or which is pending, regarding the use in certain applications of asbestos products.

We are aware of the instructions which the Navy Department has issued to its repair facilities regarding the use of asbestos textile products; and we are told that other, more stringent notices are awaiting issuance.!

The impact and effect of these instructions, adverse to asbestos products, is severe, and they present us with a most frustrating situation. It is frustrating because we are forced to continually maintain a defensive position -- and we have very little evidence at hand to refute the charges which are levelled at the use of asbestos products.

However, such evidence possibly does exist. Some seven years ago, Dr. Lewis J. Cralley of the Dept. of Health, Education & Welfare, undertook a study of the asbestos textile industry in an effort to truly measure the health hazards involved in the manufacture of asbestos products. This study has never been completed, and only fragmentary reports have been issued.

Accordingly, the Asbestos Advisory Committee has requested that Mr. C.L. Sheckler, Chairman of the ATI Environmental Health Committee, meet with Dr. Cralley and try to obtain the following information:-

- (1) What is the exact status of the Cralley Report?
- (2) What can the ATI do to assist in completing it?
- (3) What are the future plans regarding the effective use of Dr. Cralley's report once it is completed?

In addition we have asked Mr. Sheckler to extend an invitation to Dr. Cralley to attend our next meeting which is to be held in Charleston, S.C. on February 2-3, 1972.

We look forward to the report of Mr. Sheckler's visit with Dr. Cralley with great interest.!

Respectfully submitted,

E.A. Morris
Chairman

MINUTES

TECHNICAL COMMITTEE

Asbestos Textile Institute
October 7, 1971 - Savannah, Ga.

In attendance:

D.T. Austin, Jr.
S.G. Dixit (Chairman)
J.W. Echerd
J.W. Hawkins
W. Maaskant

Uniroyal, Inc.
Garlock Inc.
H.K. Porter Company
Raybestos-Manhattan, Inc.
American Asbestos Textile Corp.

In addition, the following members of the Fiber Testing Committee were present at the joint meeting: D.E. Childers (Chairman), R.A. Kuntze, and W.H. Smith. The following subjects were discussed:-

(1) ASTM D 1118 - Magnetic Rating Standard

The tenth draft was reviewed by the joint committee. It was decided to recommend to ASTM that this standard be approved in the present form.

(2) ASTM D 1573 - Heat Aging of Asbestos Textiles

P.O. Nicodemus, Chairman, Sub-Committee A-4, ASTM has received verbal consent from Federal Government regarding dropping this standard in view of the difficulty involved in conducting heat aging tests that yield meaningful results.

(3) MIL-I-15349C - Insulation Tape, Thermal

A decision regarding removal of Amosite in the core material is to be conveyed to Naval Ship Engineering Center. The thermal insulation value, or "K factor", has not been mentioned in the specification. However, all the committee members felt that it was not necessary that it be mentioned.

The Chairman thanked all the members of the Technical and the Fiber Testing Committees for their excellent cooperation during his two-year term as chairman.

Respectfully submitted,

Sudhakar G. Dixit
Chairman

ASBESTOS TEXTILE INSTITUTE

Minutes - FIBER TESTING COMMITTEE

October 7, 1971 - Savannah, Ga.

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Walter H. Smith ----- Bell Asbestos Mines, Limited
C.E. Stiefken ----- Lake Asbestos of Quebec, Ltd.
R.A. Kuntze ----- Cassiar Asbestos Corp., Ltd.

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Chairman

Minutes
GENERAL MEETING
Asbestos Textile Institute

OCT 8 - 1971

AIR HYGIENE & MFG. COMMITTEE

Asbestos Textile Institute

Page -1-

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Respectfully submitted,

Dewey E. Childers
Chairman

ASBESTOS TEXTILE INSTITUTE

Report of Funds

September 9, 1971

Balance on Hand at last report (May 10, 1971)

General Fund	\$ 3070.04	
Reserve Fund	15179.73	
Petty Cash Fund	27.25	
	Total On Hand	\$18277.02

Receipts

To Reserve Fund (Interest to 6/30/71)	\$189.73	
To General Fund (Book sales)	72.20	
To General Fund (1971 dues)	400.00	
To General Fund (Reimbursement)	50.00	
	Total received	711.93

Total On Hand and Received

\$18988.95

Disbursements

Legal Retainer (3 mos. ending 6/30/71)	\$ 878.00	
Legal Expenses (3 mos ending 6/30/71)	59.99	
Secretary's salary (4 mos.)	948.00	
F.I.C.A. Tax (2nd Qtr 1971)	78.00	
Secretary's travel expense (June ATI mtg.)	50.00	
Office rent (4 mos.)	300.00	
A.T.I. meeting expense (June 9-10, 1971)	929.73	
Printing & Office Supplies	92.64	
Telephone (4 mos.)	167.24	
Membrane Filter Instruction Booklet (1 M)	467.27	
Health Safety Practices Folder (25 M)	1247.40	
Insurance (Workman's Comp.)	18.00	
Petty Cash (Vouchers 529 - 550 inclusive)	103.18	

Total Disbursements

5339.45

Balance On Hand as of September 9, 1971

\$13649.50

Funds

General Fund (Bank Statement of 9/9/71)	\$ 788.54	
Reserve Fund (With interest to 6/30/71)	12769.46 (*)	
Petty Cash Fund	91.50	

Total Funds

\$13649.50

Assets as of September 9, 1971

Total Funds as listed above	\$13649.50	
Accts Receivable (Book Sales)	22.68	
Postage On Hand	11.67	
Furniture & Equipment (Nominal value)	1.00	

Total Assets

\$13684.85

Liabilities

Accounts Payable as of 9/9/71

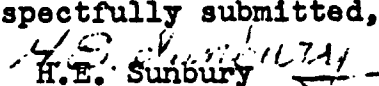
none

Net Worth

\$13684.85

(*) \$2600.00 transferred to General Fund on July 2, 1971

Respectfully submitted,


 H.E. Sunbury
 Asst. Treasurer

Asbestos Textile Institute - General Meeting - October 8, 1971

The legal authority by which the President was able to put the economic freeze into effect is Public Law 91-379, as amended--the Economic Stabilization Act of 1970--whereby "the President is authorized to issue such orders and regulations as he may deem appropriate to stabilize prices, rents, wages, and salaries at levels not less than those prevailing on May 25, 1970." This is a limitation imposed by Congress and means, simply, that regardless of what occurred prior to the freeze during the base period, prices are not required to be set at less than what they were on May 25, 1970. The level of prices prevailing on May 25, 1970, is determined as follows:

- (1) the average (mean) price at which transactions were made on that day (as borne out by appropriate records);
- (2) if no actual transactions took place on that day, then the average (mean) price at which transactions took place on the nearest day prior to May 25, 1970 may be taken as the "prevailing price level for May 25, 1970"; and
- (3) ceiling prices for goods not in existence on May 25, 1970 can only be calculated using the base period described in the Guidelines.

A second limitation imposed under the Congressional grant of authority is that the President's authority to issue and enforce orders and regulations under the Economic Stabilization Act expires April 30, 1972. The President cannot continue the freeze beyond that date without additional legislation enacted by Congress.

If one is dealing in the American market, how then does one determine the price he may charge? Under the President's Executive Order, prices are stabilized "at levels not greater than the highest of those pertaining to a substantial volume of actual transactions" during the base period of July 16 to August 14, 1971. In cases where no transactions occurred in the 30-day base period, the base period will be the nearest preceding 30-day period in which a transaction did occur. A "30-day period" is defined as a 30-day block of time prior to July 16. Hence, moving back from July 16, the nearest 30-day period would be June 16-15, and preceding that, May 17-June 15, and so on. The ceiling price is the price at or above which ten per cent of the actual transactions during the base period were made, except that in cases of increases in posted or effective prices during the base period, the base period itself will be considered to have begun at the time of the increase in posted and effective prices.

A transaction takes place when a seller ships the product to a buyer, not when an order is received. Each commodity is treated separately and, if shipments are made to different classes of purchasers under different terms, separate ceilings are calculated for each commodity for each class of purchaser.

The ceiling price is based on the record of all the units of each commodity shipped to each class of purchaser during the base period, and is calculated as the highest price at or above which ten per cent of the units were shipped to a particular class of purchaser during the base period.

Under the terms of the Executive Order, the price freeze applies to the seller, not the buyer. The buyer is not required to police a seller's compliance with the Executive Order. But records must be kept of the highest prices charged during the base period, and must be available for public inspection.

If a product or service is "new", the ceiling price is determined by the seller applying the percentage mark-up he received during the base period on the most nearly similar product or service to the direct unit or net invoice cost of the new product or service. The ceiling price for a product or service that is new to the seller, but not to the market, is the price realized on the same or comparable product or service by the most nearly comparable competitor during the base period.

We turn now to two specific problem areas: discounts and long term contracts. What is the selling price for a material if there have been dual price situations, i.e., a published price and a discounted price at which actual transactions were made? The answer is that sales may be made at the highest price at which a substantial volume of actual transactions were made during the 30-day period of time ending August 14. If products have been selling at a discounted price and not at the published price during the base period, the maximum price would be the highest discounted price at which substantial transactions were made. Thus, assuming that during the base period bags of insulation were selling at the list price, and also at a discount of six sixes, if a substantial number of transactions were made at the list price, then the list price, and anything below the list price could be charged, including a discount of four sixes, because the price freeze does not fix prices at their highest permissible level -- it prohibits sales at a price higher than the permissible level. However, if all sales during the base period were made at the discounted price of six sixes and there were not in fact substantial actual transactions at a higher price, then the price would have to be frozen at the six sixes discounted price, and it would not be permissible to decrease the discount to four sixes, as that would raise the price over the highest level during the base period.

Where different prices are offered to different territories, or different kinds of customers, price ceilings are to be set on the basis of the normal procedures used in establishing the market prices. Market price ceilings must be established at no greater than the highest price at which substantial volume transactions were carried out in the firm's individual normal pricing areas, regardless of whether these pricing areas are national, regional, or individual.

If quantity discounts are offered, can a customer who purchased large volumes and was previously eligible for the discount be charged the applicable higher price if he reduces the amount of his purchases and thus falls into a lower quantity and higher price bracket? In other words, may prices be changed so long as the rate structure on which they are based is not changed? The answer is yes. During the 90-day freeze, customers may be charged in accordance with rate of price schedules established in the base period prior to August 15, 1971. However, the charges applicable to the various categories of rates or prices set out in the effective schedules may not be increased. Furthermore, if it has been the practice to give discounts under certain circumstances, these discounts cannot be discontinued during the freeze.

The rule with respect to long-term contracts is that if the contract was made before the freeze, and there are no deliveries scheduled until after the freeze, the freeze does not apply. If any deliveries are to be made during the freeze period, the seller may charge no more than his ceiling price determined by the price charged for deliveries made during the base period. If the shipment price on a contract made prior to the freeze and calling for delivery during the freeze is above the ceiling price, the seller may elect not to perform at all, but he is not permitted to perform at a contract price above the ceiling price. Nor may he force the buyer to accept shipment deferred to a date after the freeze. If the seller does make delivery, the buyer is obligated to pay no more than the ceiling price.

Haven C. Roosevelt, Atty.
Cadwalader, Wickersham & Taft

ASBESTOS TEXTILE INSTITUTE PRESENTATION
BY N. W. HENDRY
FRIDAY, OCTOBER 8TH, 1971

Shipments of Canadian asbestos fibre for the first seven months of 1971 were 892,864 tons or 3.3% higher than for the same period in 1970.

The availability of all grades of spinning fibre is good and this situation can be expected to continue for some time in the future.

The application of the U.S. surcharge does not apply to asbestos fibre, but indirectly the surcharge will affect sales of asbestos fibre to such countries as Japan and West Germany. Prior to the application of the surcharge some weakness in demand was evident in many of the International markets.

World production of asbestos fibre in 1970 was 3,822,840 tons versus 3,638,250 tons in 1969 or an increase of approximately 5%.

The problems related to asbestos and health are of continuing concern to the asbestos fibre producers. It is unfortunate indeed that the press representatives continue to take statements out of context and to be more interested in sensationalism rather than facts.

Finally, the following comments are pertinent to the status of some new asbestos producers, viz:

- a) The new producer in Australia is forecast to be in production in early 1972 at a rate of 75,000 tons per year.
- b) The asbestos producer in Brazil, located north of Brasilia, is expected to be increased from 13,000 to 27,000 tons.
- c) The Colombian asbestos fibre prospect could reach the production stage at a rate of approximately 25,000 tons per year.
- d) Work is being continued to develop an asbestos producer in Central Colombia. If financing can be arranged the production rate is expected to be 25,000 tons annually.
- e) Work is being continued by Cerro Corporation toward the evaluation of an asbestos deposit in Central Greece.

N. W. Hendry
General Sales Manager
Canadian Johns-Manville Asbestos Limited

ASBESTOS TEXTILE INSTITUTE

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Minutes - General Meeting - October 8, 1971

The Savannah Inn & Country Club, Savannah, Ga.

In attendance:

AMERICAN ASBESTOS TEXTILE CORP.

G.M. Armstrong
J.W. Christenbury
G.S. Fabel
Wm. Maaskant
J.L. Rainey
H.H. Walters

GARLOCK INC.

S.G. Dixie
Alex. Kuzmuk

JOHNS-MANVILLE CORP.

N.D. Brown
M.S. Lindstrom
K.A. Roberts
C.L. Sheckler
N.W. Hendry (Canadian J/M Co.)

NICOLET INDUSTRIES, INC.

Geo. Griswold, Jr.
E.W. Russell

H.K. Porter Company, Inc.

E.C. Bratt
D.E. Childers
J.W. Echerd
J.L. Mitchell

RAYBESTOS-MANHATTAN, INC.

J.A. Bettles, Jr. (Retired)
J.W. Hawkins
M.W. Oliver
M.Q. Scowcroft
E.P. Stefl

UNIROYAL, INC.

D.T. Austin, Jr.
B.E. Carden
L.F. Dieringer
R.C. Hunt
E.A. Morris
S.J. Peele, Jr.
F.C. Phillips

ASBESTOS CORPORATION LIMITED

P.E. Leclerc

BELL ASBESTOS MINES LIMITED

Marcel Dorais
Walter H. Smith
Wm. J.W. Smith

CASSIAR ASBESTOS CORP., LTD.

R.A. Kuntze

LAKE ASBESTOS OF QUEBEC, LTD.

E.A. Farrell
C.E. Stiefken

MANUFACTURAS MULTIPLES S.A.

Rafael E. Arnal

NIPPON ASBESTOS CO., LTD.

Y. Sato

CADWALADER, WICKERSHAM & TAFT

H.C. Roosevelt (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury (Secretary)

Note: Total attendance at the Oct. 6-8th meeting was 65 persons,
which included 23 wives and 42 men!

***** Minutes *****

1. Vice President M.Q. Scowcroft called the meeting to order at 8:30 A.M. and explained that he was substituting for President Moody whose illness prevented his attendance at this meeting.

2. **Introductions:** - Each person was asked to stand and give his name and company affiliation.
3. The minutes of the last meeting were offered for reading. On motion by Mr. Geo. Griswold, seconded by Mr. H.C. Roosevelt, it was voted to omit the reading of same.
4. The Financial Report was presented by Treasurer Kuzmuk, who stated that the Annual Audit of the Institute's books had been made as of September 9, 1971 under the supervision of Mr. R.E. Jeffery, Controller, Garlock Inc. and found to be in order. Mr. K.A. Roberts moved that the report be accepted, seconded by Mr. S.J. Peele, Jr., and so voted unanimously. The Report is attached.
5. In his Legal Counsel Report, Attorney Roosevelt discussed the economic freeze now in effect by Presidential order, and the Economic Stabilization Act of 1970 which authorized same. The full resume of his remarks is attached to these minutes.
6. The Fibre Producer's Report was given by Mr. N.W. Hendry, General Sales Manager, Canadian Johns-Manville Asbestos Limited. This is a regular feature of a General Meeting and we are indebted to Mr. Hendry for his comprehensive review of the world situation regarding production of asbestos fibre and the overall market. A resume of his remarks is attached.
7. Chairman Scowcroft announced that the Board of Governors had elected officers for the coming year: -
 - President - L.E. Moody of H.K. Porter Company, Inc.
 - Vice President - M.Q. Scowcroft of Raybestos-Manhattan, Inc.
 - Treasurer - Alex. Kuzmuk of Garlock Inc.
 - Exec. Sec'y - H.E. Sunbury
8. **New committee chairmen:** - Mr. Scowcroft announced that Mr. K.A. Roberts of Johns-Manville Corp. had been appointed chairman of the Air Hygiene & Mfg. Committee; and Mr. J.W. Echerd of H.K. Porter Company, Inc. as chairman of the Technical Committee. Deferred temporarily was the appointment of a new chairman for the Fiber Testing Committee.
9. **New Edition - Fibre Test Manual:** - Mr. Scowcroft said that the QAMA had approved a Third Edition of the manual entitled: - "Testing Procedures for Chrysotile Asbestos Fibre" to be sponsored by the Asbestos Textile Institute, Asbestos Cement Products Assoc. and the Quebec Asbestos Mining Association. Preparation of the new edition to be under the supervision of the ATI Fiber Testing Committee.
10. **Pending Legislative Developments:** - Mr. C.L. Sheckler, Manager, Accident Prevention and Health Administration, Johns-Manville Corp., reviewed recent developments under the Occupational Safety and Health Act (OSHA) and activity related to the Environmental Protection Agency (EPA). During his informative talk, Mr. Sheckler

mentioned that it was presently uncertain what agency would establish a standard TLV (Threshold Limit Value) for asbestos. He is very apprehensive that an impossibly low TLV will be adopted and so make it impossible for asbestos manufacturers to stay in business if it is to be enforced. In respect to OSHA, confusion exists how to advise employees of standards, what records to keep, etc. Stressed the need for background data from industry to use in fighting back against adverse publicity directed at asbestos-containing products.

11. The committee reports were given by the respective chairmen: -

Air Hygiene & Mfg. Committee - K.A. Roberts (Acting Chairman)
Asbestos Advisory Committee - E.A. Morris, Chairman
Technical Committee - S.G. Dixit, Chairman
Fiber Testing Committee - D.E. Childers, Chairman

Their reports are attached to these minutes.

Certificates of Appreciation were presented to retiring chairmen S.G. Dixit and D.E. Childers by Vice President Scowcroft who thanked them for their valued contribution to the work of the Institute during the past two years.

12. Chairman Scowcroft said that we were very proud to have four former presidents of ATI in attendance at this meeting, namely: -

Geo. S. Fabel - 1949 - 1950
John A. Bettles, Jr. - 1957 - 1958
Staton J. Peele, Jr. - 1963 - 1964
John L. Rainey - 1967 - 1968

All of these men expressed their pleasure in attending, and their gratification to know that ATI continued to be an important factor in our industry.

"Jack" Bettles, author of "The History of the Asbestos Textile Industry in the United States," now appearing serially in the ASBESTOS Magazine, expressed his appreciation for the historical data supplied to him by many people (approx. 100) without whose help he would have been unable to compile as complete a history. He spoke most highly of the ASBESTOS Magazine, and recommended that it be given company advertising on a continuing basis in appreciation of the fact that it is the only media devoted to the asbestos industry, and its files are a valuable storehouse of information pertaining to our industry. The magazine will have Reprints of "History" if orders warrant, and suggests orders be sent them promptly (he receives no profit from same).

13. Mr. E.A. Norris moved that Mr. John A. Bettles, Jr. be made "OFFICIAL HISTORIAN OF THE ASBESTOS TEXTILE INDUSTRY" by acclamation, and this was done by a round of applause and a standing ovation!

14. Chairman Scowcroft expressed our pleasure in having a representative of our newest member, MANUFACTURAS MULTIPLES S.A., Caracas, Venezuela, in attendance, and welcomed Mr. Rafael E. Arnal on behalf of all those present.

15. Locations for future meetings were announced:-

February 2-3, 1972 - The Mills-Hyatt House, Charleston, S.C.

June 7-8, 1972 - Key Bridge Marriott Hotel, Washington, D.C.

16. There being no further business to come before this meeting it was moved by Mr. K.A. Roberts, seconded by Mr. E.A. Morris, that it be adjourned. So voted.

Respectfully submitted,

H.E. Sunbury
H.E. Sunbury
Secretary

Minutes
GENERAL MEETING
Asbestos Textile Institute

FEB 3 - 1972

ASBESTOS TEXTILE INSTITUTE

MINUTES -- GENERAL MEETING

February 3, 1972 - THE MILLS HYATT HOUSE, Charleston, South Carolina

In attendance:

AMERICAN ASBESTOS TEXTILE CORPORATION

J. W. Christenbury
Wm. Maaskant
H. H. Walter

GARLOCK, INC.

Alex. Kuzmuk
S. G. Dixit

JOHNS-MANVILLE CORPORATION

N. D. Brown
K. A. Roberts

NICOLET INDUSTRIES, INC.

J. K. Whittaker
E. W. Russell

H. K. PORTER COMPANY, INC.

L. E. Moody
E. C. Bratt
D. E. Childers
J. W. Echerd

RAYBESTOS-MANHATTAN, INC.

M. Q. Scowcroft
J. W. Hawkins, Dr. J. L. Goodman
M. W. Oliver
-. -. Puckhaber
R. T. Matthews

UNIROYAL, INC.

E. A. Morris
D. T. Austin, Jr.
B. E. Carden
R. C. Hunt
S. J. Peele, Jr.
-. -. Ellett

ASBESTOS CORPORATION LIMITED

P. E. Leclerc
G. F. A. Brink

BELL ASBESTOS MINES LIMITED

C. H. Schoch
Walter H. Smith

LAKE ASBESTOS OF QUEBEC, LTD.

E. A. Farrell
C. E. Stiefken (ASARCO)

TURNER BROS. ASBESTOS CO., LTD.

H. J. Corson

TURNER & NEWALL LIMITED

B. Lincoln

NIPPON ASBESTOS CO. LTD.

Y. Sato

CADWALADER, WICKERSHAM & TAFT

Wendell B. Alcorn, Atty.

ASBESTOS TEXTILE INSTITUTE

H. E. Sunbury, Exec. Secy.

***** Minutes *****

1. President Moody called the meeting to order at 1:30 p.m. Those in attendance were asked to stand and give their name and company.
2. The minutes of the last meeting were presented for reading. On motion of Mr. Kuzmuk, seconded by K. A. Roberts, it was voted to omit reading of same.

3. Treasurer Kuzmuk presented the Financial Report. Mr. S. J. Peele, Jr., moved that it be accepted. Motion seconded by C. E. Stiefken, so voted unanimously. The report is attached to these minutes.

4. Legal Counsel Wendell B. Alcorn reviewed developments under the Williams-Steiger Occupational Safety and Health Act since it became effective on April 28, 1971. The full text of his remarks is attached.

5. Mr. Paul E. Leclerc, Regional Sales Manager, ASBESTOS CORPORATION LIMITED, in reporting for the FIBRE PRODUCERS stated:- "Due to a very heavy demand for asbestos in 1970 quite a number of orders remained unshipped at the end of that year and resulted in a backlog of orders that were carried into 1971.

Shipments in the first three months of the year 1971 showed an increase of more than 8% over the corresponding period of 1970.

As at June 30, 1971, total shipments by the Q.A.M.A. members in Eastern Canada, were up 11% over 1970. Then came the slow months of July, August, September and October. While November and December showed considerable improvement over the previous four months, total shipments for the year were down 2% as compared to 1970.

The demand for Group 3 fibres was lower during the past year and shipments were down 13.5% for the 12 months.

This brings us into 1972 with fairly good inventories of all grades including Group 3, with the exception of crudes which are in very short supply.

To sum it up, insofar as the members of the ATI are concerned, all grades of Group 3 spinning fibres are available and our friends in British Columbia are in the same position with the possible exception of Grade AAA.

It is hoped that the expected improvement in business conditions in this country (USA) will materialize and the asbestos producers earnestly hope that the textile industry will have a very good year in 1972."

President Moody expressed the appreciation of ATI members to Mr. Leclerc for his comprehensive report.

6. Announcements:- President Moody announced that the new chairman of the Fiber Testing Committee was Mr. C. E. Stiefken (ASARCO)* who has served on that committee for several years as a representative of Lake Asbestos of Quebec, Ltd. The appointment is effective at once.

In anticipation that Chairman Sheckler of the Environmental Health Committee will tender his resignation in the near future, Mr. L. F. Dieringer, Industrial Hygienist, Uniroyal, Inc., was appointed chairman of that committee effective with the next meeting, June 7-8, 1972.

Mr. Norman D. Brown, who has represented Johns-Manville Corporation on the Board of Governors for approximately one and one-half years has resigned due to a change in his job responsibilities. Mr. Malcom S. Lindstrom was elected to the Board of Governors as J/M's new representative.

* ASARCO (American Smelting & Refining Company) parent company of Lake Asbestos of Quebec, Limited.)

7. Committee Reports:- The Chairmen of the Committees listed below presented their reports, and a copy of each is attached to these minutes.

Air Hygiene & Mfg. Committee - K. A. Roberts, Chairman
Asbestos Advisory Committee - E. A. Morris, Chairman
Technical Committee - J. W. Echerd, Chairman
Fiber Testing Committee - C. E. Stiefken, Chairman

8. President Moody informed the members that a plaque had been prepared for presentation to Mr. C. L. Sheckler at this meeting but that Mr. Sheckler could not attend due to other commitments. Mr. Norman D. Brown accepted the award for Mr. Sheckler. The plaque reads:-

Presented to
CLIFFORD L. SHECKLER
of
Johns-Manville Corporation
Chairman -A.T.I.
Environmental Health Committee
1969 - 1971
For his outstanding leadership
in the field of Environmental Health

ASBESTOS TEXTILE INSTITUTE
February 3, 1972

9. President Moody announced that the next A.T.I. General Meeting would be held on June 7-8, 1972 at the Key Bridge Marriott Hotel, Washington, D. C. (This is actually in Arlington, Va., convenient to the National Airport.)

The Fall Meeting will be held September 18-20, 1972 (Monday-Wednesday) at the Seaview Country Club, Absecon, N. J. (near Atlantic City, N. J.).

10. There being no further business to come before the meeting it was duly adjourned.

Respectfully submitted,


H. E. Sunbury, Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

January 10, 1972

Balance On Hand at last report (Sept. 9, 1971)

General Fund	\$ 788.54	
Reserve Fund	12769.46	
Petty Cash Fund	91.50	
Total On Hand at last report		\$13649.50

Receipts

To Reserve Fund (Interest to 12/31/71)	\$ 271.22	
To General Fund (Book Sales)	98.47	
Total received		369.69

Total On Hand and Received	\$ 14019.19
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Disbursements

Legal Retainer (3 mos. ending 9/30/71)	\$ 750.00	
Legal Expehses (3 mos. " 9/30/71)	----	
Secretary's salary (4 mos.)	948.00	
F.I.C.A. Tax (6 mos.)	156.00	
Secretary's travel expense (Oct. ATI mtg)	215.00	
Office rent (4 mos.)	300.00	
A.T.I. Meeting expense (Oct. 6-8, 1971)	1505.20	
Printing & Office Supplies	110.52	
Telephone (4 mos.)	193.32	
Accountant (D.A. Caruso, one year)	300.00	
Dues - IHF and ASTM	50.00	
Insurance - B. & L. Dust Counter (One year)	93.00	
Stenographic	6.00	
Petty Cash (Vouchers 551 - 579 inclusive)	118.05	

Total Disbursements	4745.09
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Balance On Hand as of January 10, 1972	\$ 9274.10
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Funds (as of January 10, 1972)

General Fund	\$ 160.84	
Reserve Fund (With interest to 12/31/71)	9040.68 (*)	
Petty Cash Fund	72.58	
Total Funds		\$ 9274.10

Assets (as of January 10, 1972)

Total Funds as listed above	\$ 9274.10	
Accounts Receivable - 1972 Dues	9750.00	
" " - Book Sales	47.96	
Postage On Hand	11.40	
Furniture & Equipment (Nominal Value)	1.00	
Total Assets		\$ 19084.46

Liabilities

Accounts payable	1902.03
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<u>Net Worth</u>	<u>\$ 17182.43</u>
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(*) \$3000.00 transferred to General Fund on 10/1/71

(*) \$1000.00 " " " " " 11/8/71

Respectfully submitted,

H E Sunbury
H. E. Sunbury, Asst. Treasurer

REMARKS OF COUNSEL

Asbestos Textile Institute -- General Meeting -- February 3, 1972
The Mills-Hyatt House, Charleston, S. C.

BACKGROUND

The Williams-Steiger Occupational Safety and Health Act (29 U.S.C. 655) was signed into law on December 29, 1970, and became effective April 28, 1971. The Occupational Safety and Health Administration (OSHA) was established to administer the Act under the Department of Labor.

The expressed purpose of the legislation is "to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources" To implement this purpose, provision is made for the promulgation of mandatory occupational health and safety standards, as well as related research, information, education and training functions. Machinery is also provided to assist and encourage the states to develop satisfactory programs to promote occupational safety and health.

The Secretary of Labor is authorized to set three types of standards: interim, permanent and emergency. Whenever the compliance division of OSHA concludes that an employer (defined as a person "engaged in a business affecting commerce who has employees") has violated a standard, a citation is issued and the employer is notified of any proposed penalty. If the employer objects to the citation or the proposed penalty, the Occupational Safety and Health Appeals Commission conducts a review and issues an order, which is subject to judicial review by a U. S. Circuit Court of Appeals.

OSHA, in cooperation with the U. S. Department of Health, Education and Welfare, is proceeding to develop and carry out occupational safety and health research. HEW has responsibilities under the Act, and these are being met by the newly formed National Institute for Occupational Safety and Health (NIOSH). NIOSH is responsible for most occupational safety and health research, evaluation of hazards, toxicity determinations and manpower training and development. Also, it is undertaking special industry-wide studies of chronic or low-level exposure to hazardous substances as well as research into psychological, motivational and behavioral factors involved in occupational safety and health programs.

INCREASED EMPHASIS ON HEALTH

OSHA's increased concern with occupational health problems is prompted by the fact that about 60% of the complaints received by it have alleged health hazards. As part of its emphasis on health, OSHA issued an emergency standard limiting the exposure of employees to asbestos dust, effective December 7, 1971. The standard was adopted pursuant to Section 6(c) of the Act following studies by NIOSH and recommendations by the American Conference on Government Industrial Hygienists (ACGIH).

It has been determined by both NIOSH and ACGIH that the former asbestos standard constituted a grave danger to employees exposed to an 8-hour time weighted average concentration and, thus, an emergency standard was required. The old standard for exposure to asbestos dust was promulgated under the Walsh-Healey Public Contracts Act on May 20, 1969. It called for no more than 12 fibers per milliliter greater than five microns in length or two million particles per cubic foot of air. OSHA termed this 12-fiber level of exposure "a grave danger to employees exposed to this 8-hour time weighted average concentration."

NIOSH agreed with ACGIH that the new standard would provide a substantial base for the protection of workers in contact with asbestos dust. It limits the 8-hour time weighted average airborne concentration of asbestos dust to which employees are exposed to no more than five fibers per milliliter greater than five microns in length. Concentrations above five fibers per milliliter, but not to exceed ten fibers, are permissible up to a total of 15 minutes per hour up to five hours in an 8-hour day.

An emergency temporary asbestos standard of two fibers per milliliter had been requested by the AFL-CIO in a letter to the Department of Labor. The union cited as evidence of the need for a revised standard a study conducted by Dr. Irvin J. Selikoff and the staff of the Mount Sinai School of Medicine (in cooperation with the AFL-CIO and the Ad Hoc Committee on the Asbestos Hazard of the AFL-CIO Industrial Union Department).

The five-fiber emergency standard was criticized by Lorin H. Kerr, M. D., chief of the Department of Occupational Health for the United Mine Workers of America. He stated that the standard "is appreciably higher than the non-hazardous level" called for in recent medical publications. Dr. Raymond Murphy of the department of physiology at Harvard, who has studied the effects of asbestos dust exposure on industrial workers, agrees with the union physician. Dr. Murphy concludes that even a level of two fibers per milliliter, or one-thousandth of a liter, may be hazardous to health. Dr. Murphy and his colleagues found that lung disease developed in workers who sanded asbestos floor tiles and were chronically exposed to about 1.3 fibers per milliliter.

Also, in a letter to Assistant Labor Secretary George Guenther, Dr. Kerr advised that the UMW is "equally concerned that this emergency standard is restricted in its applicability to construction workers," to the exclusion of coal miners (who are covered by the Coal Mine Health and Safety Act). Recent studies indicate that some strip miners may be exposed to dangerous levels of asbestos dust.

On January 11, 1972, OSHA announced that, pursuant to Section 6(c) of the Act, a rule-making proceeding was being initiated to consider amending the regulations under the Act (29 CFR Part 1910). Interested persons are invited to submit data, views and arguments concerning the permanent adoption of the emergency standard and additional proposed rules on subsidiary issues. The views must be submitted by February 11. In addition, oral data, views and arguments will be received by a hearing examiner on March 14.

As proposed January 11, the temporary standard shall apply to "every employee . . . in every employment and place of employment... [covered by § 1910.12, 1910.13, 1910.14, 1910.15, or 1910.16 of this Subpart B (of 29 CFR Part 1910)] , in lieu or any different standard on exposure to asbestos dust which would otherwise be applicable (by virtue of any of those sections)."

The promulgation of the temporary emergency standard is in line with the increasing concern of OSHA with occupational health problems. Assistant Secretary Guenther recently suggested that more trade associations establish industry-wide committees on job safety and health. Their functions should be to analyze standards in order to determine which are specifically relevant to the particular industry, to recommend that trade association members participate in standards-making activities, to suggest new standards and to advise members of the trade on technical matters.

On January 4, 1972, OSHA announced a "Target Health Hazards" program whose purpose is to reduce the health hazards posed by exposure to five toxic substances" -- asbestos, cotton dust, silica, lead and carbon monoxide. Mr. Guenther described it as the health counterpart to the safety-oriented Target Industries Program.

In announcing the Target Health Hazards program, Mr. Guenther noted that asbestos can produce asbestosis and asbestos fibers in the lungs may lead to cancer. Urgent action to curtail this health hazard is indicated by the fact that in the fields of insulation, manufacturing of products using asbestos, shipbuilding, construction and other industries, there are more than 200,000 employees who face risks from asbestos exposure.

OSHA conducted an "Executive-briefing Special Session" on the Target Health Hazards program in Washington on January 26, which Mr. Sheckler of Johns-Manville attended. The briefing was aimed at informing employers of the details of the program. Yesterday, February 2, a general orientation meeting was scheduled for management, labor, government and professionals.

On the state level, the Illinois Pollution Control Board, in January 1972, passed controls on asbestos which prohibit the manufacturing or the processing of asbestos-containing products without a permit after June 30, 1972. Such material applied in construction or repair must be coated with a sealant and installed to safeguard against emissions. Emission from plants manufacturing such products will be limited to two fibers per cubic centimeter of air. Emission regulation is also applied to demolition projects, and all transported asbestos material must be enclosed. A ban was placed on the spraying of such materials or fibers as well as on visible emissions of nonasbestos fibers in open areas during construction, alteration and repair of structures as of March 31, 1972. The City of Chicago passed a similar, but less stringent, ban.

CONCLUSION

Since the Federal Act became effective, the emphasis by OSHA has shifted in at least two significant ways. During the early stages, the so-called "general duty clause" was the basis for many compliance actions. This clause is Section 5(a)(1) of the Act. It states"

"Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

As evidenced by OSHA's enforcement actions, the general duty clause was not mere window dressing. However, as standards for safety and health have been promulgated and adopted by OSHA, use of the general duty clause has given way to the enforcement of these specific standards themselves.

The second major shift in emphasis has been from the initial accent on safety, as evidenced by the Target Industries Program, to a concentration on occupational health hazards. This has resulted from statistics compiled by OSHA which show that most complaints concern health rather than safety hazards.

But it would be erroneous to think that either the general duty clause of OSHA's concern with safety conditions can be ignored with impunity by employers. Instead, the conclusion must be that now OSHA is equally concerned with health hazards as with safety problems and is moving forward to develop, adopt and continually improve standards for occupational health and safety, all in coordination with NIOSH.

Wendell B. Alcorn, Atty.
Cadwalader, Wickersham & Taft

MINUTES
TECHNICAL COMMITTEE

Asbestos Textile Institute
February 3, 1972 - The Mills Hyatt House, Charleston, S.C.

In Attendance:

J.W. Hawkins-----Raybestos-Manhattan, Inc.
William Maaskant-----American Asbestos Textile Corp.
D.T. Austin-----Uniroyal, Inc.
J.W. Echerd-----H.K. Porter Company, Inc.

The ASTM Asbestos Textile Standards approved in 1967 are up for revision this year. These include D1571, D315 and D1918.

Most of the Technical Committee's time was used in work on ASTM Specification D1571 and review of proposed Revision "C" of MIL-C-82249. The following recommendations were made:

D1571, Woven Asbestos Cloth

1. That we investigate increasing the relative humidity requirement from 50 to 65 to agree with Specification D1776 for Standard Conditions.
2. That we issue a statement on Precision and Accuracy similar to that we used in Standard D628.

MIL-C-82249; Cloth, Coated, Asbestos, Herringbone Twill, Aluminized.
Proposed Rev. "C".

1. That the committee chairman write Mr. C.J. Zemme requesting the reference to cotton be eliminated in Item 1.1 and that "cotton fibers" be replaced by "nontoxic organic fibers" in Item 3.2.1.

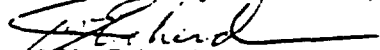
MIL-I-24244, Insulation Materials, Thermal, with Special Corrosion and Chloride Requirements - the committee recommends that producers of material sold against MIL-I-24244 specify the material conforms to specification when shipped. Contamination in route may alter the chemical composition before it reaches its destination.

It was reported that the following items were approved by subcommittee A4 of ASTM committee D-13.

1. Proposed revision of "Magnetic Rating of Asbestos Fibers and Textile Products" dated December 3, 1971 (D1118).
2. Proposed revision Section 14 on Precision and Accuracy "Asbestos Content of Asbestos Textile Materials". (D1918).
3. Deletion of Standard "Heat Aging of Asbestos Textiles". (D1573).

The Spring Meeting of Committee D-13, Subcommittee A-4 will be held at the Belmont Plaza Hotel, New York, N.Y. on March 22, 1972. Our Task Group on Revision of Standards will meet at 9:30 A.M. The General Meeting is scheduled for 1:30 P.M.

Respectfully submitted,


J.W. Echerd
Chairman

MINUTES

Fiber Testing Committee

Asbestos Textile Institute

February 3, 1972 - The Mills Hyatt House - Charleston, S. C.

In Attendance:

C. E. Stiefken, Chairman American Smelting & Refining Co., (Lake Asbestos
of Quebec, Ltd.)
D. E. Childers H. K. Porter Company, Inc.
G.F.A. Brink Asbestos Corporation Limited
Walter H. Smith Bell Asbestos Mines Limited
Bernard Lincoln Turner & Newall, Ltd.
H. E. Sunbury A.T.I.

Mr. Sunbury, Secretary of A.T.I., opened the meeting, and announced that Mr. Stiefken had been appointed as the new chairman of the Fiber Testing Committee at the meeting of the Board of Governors on the previous day. He succeeds Mr. D. E. Childers who has served as chairman during 1970 and 1971. Mr. Stiefken is an employee of the American Smelting & Refining Company (ASARCO) and has represented their subsidiary, Lake Asbestos of Quebec, Ltd., on this committee for several years.

Taking over as Chairman Mr. Stiefken called attention to the fact that only one Regular Member of A.T.I. had a representative serving on the Fiber Testing Committee (Mr. Childers) at the present time and that this created an imbalance which should be corrected promptly. The Secretary agreed to bring this matter to the attention of the Board of Governors.

The meeting was devoted exclusively to discussion of the setting up of a 3rd Edition of the manual "Testing Procedures for Chrysotile Asbestos Fibre". Included in the discussion were revisions of tests adopted recently by the Q.A.M.A.

The new edition of the manual, from present indications, will probably be considerably larger. The present thought is to have it in loose-leaf form. While no cost estimates have yet been obtained there is every reason to believe that the new edition will cost substantially more than the 1966 edition, which was \$1.89 per copy.

The function of the A.T.I. Fiber Testing Committee in this endeavor will be to take the lead in assembling the newer tests, and revisions of older tests, into a comprehensive manual. This committee will have the final approval and will therefore have to review every test procedure.

We anticipate a task force meeting of the committee with representatives of the QAMA Technical Committee will be advisable to expedite the work. This should be held in the near future at a mutually convenient place - possibly Sherbrooke or Montreal.

Respectfully submitted,

C. E. Stiefken, Chairman

MINUTES

Air Hygiene & Mfg. Committee

Asbestos Textile Institute

February 3, 1972 - The Mills Hyatt House, Charleston, S. C.

In attendance:

K. A. Roberts, Chm. Johns-Manville Corp.
L. E. Moody H. K. Porter Company, Inc.
E. C. Bratt H. K. Porter Company, Inc.
R. T. Matthew Raybestos-Manhattan, Inc.
J. E. Day, Jr. Raybestos-Manhattan, Inc.
Dr. J. L. Goodwin Raybestos-Manhattan, Inc.
H. H. Walter American Asbestos Textile Corp.
E. A. Farrell Lake Asbestos of Quebec, Ltd.
S. G. Dixit Garlock, Inc.
R. C. Hunt Uniroyal, Inc.
B. E. Carden Uniroyal, Inc.
J. K. Whittaker Nicolet Industries, Inc.
Y. Sato Nippon Asbestos Co. Ltd.
H. J. Corson Turner Bros. Asbestos Co., Ltd.

* * * * * Minutes * * * * *

1. Waste Disposal Procedures - The most generally practical method of disposing of non-usable asbestos waste is to bag it, using plastic bags, and tie. The use of baling equipment was discussed, but same is felt to be unacceptable due to the fact that the final compressed unit is not wrapped thus leaving the asbestos fibers exposed.

2. Vacuum Cleaning Procedures, and Equipment used to Comply with the Ban on Dry Sweeping. - All member companies reported that they were working on programs to eliminate dry sweeping.

Two companies reported that they have discussed the use of sweeping compounds and items such as "Endust" with the OSHA inspector. In both cases the inspectors indicated that using these sweeping aids would be acceptable.

There was considerable discussion of the types of vacuum equipment in use. Reference was made to the following:

Abington (central system)
Atlas (55 gallon drum type)
Batson Litter Gitter
Billy Goat
Clark(wet & dry)
Huffman
Nilfish
Tennent Walkie-sweeper (10 to 40 gallon shop-vac type)

The company reporting on the shop-vac type of cleaners indicated that a portion of filter bag sewn to fit the external exhaust port on these vacuums gives added insurance against dust leaks should one of the internal filters fail.

3. Dust Collection Equipment - There was no new technology in dust collection reported on; however, two companies did discuss their experience with recent installations of negative pressure and pulse-type collectors. Two methods of automatic bagging of fly or fiber were discussed. Photos of the installations were reviewed.

4. Wet Processing Techniques - All companies are using some form of wet processing. The area of most general use is in weaving. Considerable experimentation in wet twisting is being carried out. At least three companies indicated that they were working on wet carding techniques.

5. OSHA - Recent Inspections - Only one company reported any OSHA inspections since the last meeting. General impression was that the inspectors were well trained and willing to help with interpretations of rules. They specifically stated that in situations of question you should ask them, or call the Regional Office if necessary, rather than take someone else's advice on interpretation.

6. Noise Control & Protective Equipment - In weaving some companies are experimenting with acoustical fiberglass panels to box in the ends of looms. Only moderate success to date. Major problem is that sound is bounced toward operator. Experiments with "Sound-Mat LF" and Plexiglas enclosure are promising for reducing braider noise.

7. Protective Clothing - One company is using disposable spin-bonded Olefin garments. This material sheds asbestos well.

8. Respirators - One new model was exhibited. Unit had replaceable cartridge housing and was approved by the U. S. Bureau of Mines.

Respectfully submitted,

K. A. Roberts, Chairman

Minutes

ASBESTOS ADVISORY COMMITTEE

Asbestos Textile Institute

February 3, 1972 - The Mills Hyatt House, Charleston, S.C.

The Asbestos Advisory Committee met with all member companies in attendance.

From time to time, the Institute receives requests from various outside concerns for pictures, graphs, and charts such as those which appear in our Handbook of Asbestos Textiles. The problem in fulfilling these requests is obvious -- you always run the risk of not getting the photographic plates or "cuts", back! To alleviate this situation the Committee has asked the Secretary to procure and maintain a catalog of glossy prints which can be used to fill these requests from qualified sources.

The Asbestos Advisory Committee spent a great deal of time last year in the preparation of our brochure on the recommended procedures for the safe handling of asbestos textiles. Up until November 1971 the number of requests for this brochure was nominal. However, after a press notice regarding its availability appeared in two trade journals, the requests have multiplied significantly with copies being sent to shipyards, various heavy industries, the U.S. Navy, colleges, insurance companies, and -- the Mount Sinai School of Medicine.

At our meeting last October our Committee requested that Mr. Sheckler, Chairman of our Environmental Health Committee, contact Dr. Lewis Cralley in order to determine the status of his report regarding the HEW study of in-plant potential health hazards to asbestos textile workers when exposed to an environment which contained certain quantities of asbestos dust. In December Mr. Sheckler reported that:- "Dr. Lewis Cralley appears to be out of the picture as far as the asbestos health study or activities are concerned. In fact, he appears to be out of that total area of responsibility. Dr. Wagner and Dr. Johnson have taken over the work. Both are young and appear to share the Selikoff opinions and approach." Commenting on the thought that Dr. Cralley might serve ATI as a "consultant," Mr. Sheckler said:- "In that Lewis Cralley is apparently not a part of the present team, his services as a consultant to ATI might be of little value and possibly ineffective."

On December 7, 1971, the Department of Labor issued an Emergency Standard for Exposure to Asbestos Dust, the details of which were discussed in detail in our Legal Counsel's Report earlier today. This new proposed standard will be further reviewed on the 14th of March in Washington, D.C. The Asbestos Advisory Committee has asked Mr. Scowcroft to contact the AIA and determine just what type of presentation they plan to make, and to offer what assistance we can in the preparation of this presentation. Further, we are requesting that Mr. Sheckler attend the March 14th meeting as the ATI's representative and make a report to the Secretary regarding the outcome for dissemination to ATI members.

Respectfully submitted,

E.A. Morris, Chairman

February 3, 1972

ASBESTOS TEXTILE INSTITUTE

MINUTES -- GENERAL MEETING

February 3, 1972 - THE MILLS HYATT HOUSE, Charleston, South Carolina

In attendance:

AMERICAN ASBESTOS TEXTILE CORPORATION

J. W. Christenbury
Wm. Maaskant
H. H. Walter

GARLOCK, INC.

Alex. Kuzmuk
S. G. Dixit

JOENS-MANVILLE CORPORATION

N. D. Brown
K. A. Roberts

NICOLET INDUSTRIES, INC.

J. K. Whittaker
E. W. Russell

K. PORTER COMPANY, INC.

E. Moody
E. C. Bratt
D. E. Childers
J. W. Echerd

RAYBESTOS-MANHATTAN, INC.

M. Q. Scowcroft
J. W. Hawkins, Dr. J. L. Goodman
M. W. Oliver
- - Puckhaber
R. T. Matthews

UNIROYAL, INC.

E. A. Morris
D. T. Austin, Jr.
B. E. Carden
R. C. Hunt
S. J. Peele, Jr.
- - Ellert

ASBESTOS CORPORATION LIMITED

P. E. Leclerc
G. F. A. Brink

BELL ASBESTOS MINES LIMITED

C. H. Schoch
Walter H. Smith

LAKE ASBESTOS OF QUEBEC, LTD.

E. A. Farrell
C. E. Stiefken (ASARCO)

TURNER BROS. ASBESTOS CO., LTD.

H. J. Corson

TURNER & NEWALL LIMITED

B. Lincoln

NIPPON ASBESTOS CO. LTD.

Y. Sato

CADWALADER, WICKERSHAM & TAFT

Wendell B. Alcorn, Atty.

ASBESTOS TEXTILE INSTITUTE

H. E. Sunbury, Exec. Secy.

***** Minutes *****

1. President Moody called the meeting to order at 1:30 p.m. Those in attendance were asked to stand and give their name and company.

2. The minutes of the last meeting were presented for reading. On motion of Mr. Kuzmuk, seconded by K. A. Roberts, it was voted to omit reading of same.

3. Treasurer Kuzmuk presented the Financial Report. Mr. S. J. Peele, Jr., moved that it accepted. Motion seconded by C. E. Stiefken, so voted unanimously. The report is tached to these minutes.
4. Legal Counsel Wendell B. Alcorn reviewed developments under the Williams-Steiger Occupational Safety and Health Act since it became effective on April 28, 1971. The full text of his remarks is attached.
5. Mr. Paul E. Leclerc, Regional Sales Manager, ASBESTOS CORPORATION LIMITED, in reporting for the FIBRE PRODUCERS stated:- "Due to a very heavy demand for asbestos in 1970 quite a number of orders remained unshipped at the end of that year and resulted in a backlog of orders that were carried into 1971.

Shipments in the first three months of the year 1971 showed an increase of more than 8% over the corresponding period of 1970.

As at June 30, 1971, total shipments by the Q.A.M.A. members in Eastern Canada, were up 11% over 1970. Then came the slow months of July, August, September and October. While November and December showed considerable improvement over the previous four months, total shipments for the year were down 2% as compared to 1970.

The demand for Group 3 fibres was lower during the past year and shipments were down 13.5% for the 12 months.

This brings us into 1972 with fairly good inventories of all grades including Group 3, with the exception of crudes which are in very short supply.

To sum it up, insofar as the members of the ATI are concerned, all grades of Group 3 spinning fibres are available and our friends in British Columbia are in the same position with the possible exception of Grade AAA.

It is hoped that the expected improvement in business conditions in this country (USA) will materialize and the asbestos producers earnestly hope that the textile industry will have a very good year in 1972."

President Moody expressed the appreciation of ATI members to Mr. Leclerc for his comprehensive report.

6. Announcements:- President Moody announced that the new chairman of the Fiber Testing Committee was Mr. C. E. Stiefken (ASARCO)* who has served on that committee for several years as a representative of Lake Asbestos of Quebec, Ltd. The appointment is effective at once.

In anticipation that Chairman Sheckler of the Environmental Health Committee will tender his resignation in the near future, Mr. L. F. Dieringer, Industrial Hygienist, Uniroyal, Inc., was appointed chairman of that committee effective with the next meeting, June 7-8, 1972.

Mr. Norman D. Brown, who has represented Johns-Manville Corporation on the Board of Governors for approximately one and one-half years has resigned due to a change in his job responsibilities. Mr. Malcom S. Lindstrom was elected to the Board of Governors as J/M's new representative.

ASARCO (American Smelting & Refining Company) parent company of Lake Asbestos of Quebec, Limited.)

Reports:- The Chairmen of the Committees listed below presented their reports, each is attached to these minutes.

Hygiene & Mfg. Committee - K. A. Roberts, Chairman
Cos Advisory Committee - E. A. Morris, Chairman
Local Committee - J. W. Echerd, Chairman
Testing Committee - C. E. Stiefken, Chairman

Moody informed the members that a plaque had been prepared for presentation to Sheckler at this meeting but that Mr. Sheckler could not attend due to other commitments. Mr. Norman D. Brown accepted the award for Mr. Sheckler. The plaque reads:-

Presented to
CLIFFORD L. SHECKLER
of
Johns-Manville Corporation
Chairman -A.T.I.
Environmental Health Committee
1969 - 1971
For his outstanding leadership
in the field of Environmental Health

ASBESTOS TEXTILE INSTITUTE
February 3, 1972

Moody announced that the next A.T.I. General Meeting would be held on June 11-12, 1972 at the Key Bridge Marriott Hotel, Washington, D. C. (This is actually in Maryland, convenient to the National Airport.)

1 Meeting will be held September 18-20, 1972 (Monday-Wednesday) at the Country Club, Absecon, N. J. (near Atlantic City, N. J.).

Being no further business to come before the meeting it was duly adjourned.

Respectfully submitted,


H. E. Sunbury, Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

January 10, 1972

Balance On Hand at last report (Sept. 9, 1971)

General Fund	\$ 788.54	
Reserve Fund	12769.46	
Petty Cash Fund	91.50	
Total On Hand at last report		\$13649.50

Receipts

To Reserve Fund (Interest to 12/31/71)	\$ 271.22	
To General Fund (Book Sales)	98.47	
Total received		369.69

Total On Hand and Received	\$ 14019.19
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Disbursements

Legal Retainer (3 mos. ending 9/30/71)	\$ 750.00	
Legal Expehses (3 mos. " 9/30/71)	----	
Secretary's salary (4 mos.)	948.00	
F.I.C.A. Tax (6 mos.)	156.00	
Secretary's travel expense (Oct. ATI mtg)	215.00	
Office rent (4 mos.)	300.00	
A.T.I. Meeting expense (Oct.6-8,1971)	1505.20	
Printing & Office Supplies	110.52	
Telephone (4mos.)	193.32	
Accountant (D.A. Caruso, one year)	300.00	
Dues - IHF and ASTM	50.00	
Insurance - B.& L. Dust Counter (One year)	93.00	
Stenographic	6.00	
Petty Cash (Vouchers 551 - 579 inclusive)	118.05	

Total Disbursements	4745.09
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Balance On Hand as of January 10, 1972	\$ 9274.10
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Funds (as of January 10,1972)

General Fund	\$ 160.84	
Reserve Fund (With interest to 12/31/71)	9040.68 (*)	
Petty Cash Fund	72.58	

Total Funds	\$ 9274.10
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Assets (as of January 10,1972)

Total Funds as listed above	\$ 9274.10	
Accounts Receivable - 1972 Dues	9750.00	
" " - Book Sales	47.96	
Postage On Hand	11.40	
Furniture & Equipment (Nominal Value)	1.00	

Total Assets	\$ 19084.46
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Liabilities

Accounts payable	1902.03
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Net Worth

	\$ 17182.43
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(*) \$3000.00 transferred to General Fund on 10/1/71
 (*) \$1000.00 " " " " " 11/3/71

Respectfully submitted,

H E Sunbury
 H. E. Sunbury, Asst. Treasurer

REMARKS OF COUNSEL

Asbestos Textile Institute — General Meeting — February 3, 1972
The Mills-Hyatt House, Charleston, S. C.

BACKGROUND

The Williams-Steiger Occupational Safety and Health Act (29 U.S.C. 655) was signed into law on December 29, 1970, and became effective April 28, 1971. The Occupational Safety and Health Administration (OSHA) was established to administer the Act under the Department of Labor.

The expressed purpose of the legislation is "to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources" To implement this purpose, provision is made for the promulgation of mandatory occupational health and safety standards, as well as related research, information, education and training functions. Machinery is also provided to assist and encourage the states to develop satisfactory programs to promote occupational safety and health.

The Secretary of Labor is authorized to set three types of standards: interim, permanent and emergency. Whenever the compliance division of OSHA concludes that an employer (defined as a person "engaged in a business affecting commerce who has employees") has violated a standard, a citation is issued and the employer is notified of any proposed penalty. If the employer objects to the citation or the proposed penalty, the Occupational Safety and Health Appeals Commission conducts a review and issues an order, which is subject to judicial review by a U. S. Circuit Court of Appeals.

OSHA, in cooperation with the U. S. Department of Health, Education and Welfare, is proceeding to develop and carry out occupational safety and health research. HEW has responsibilities under the Act, and these are being met by the newly formed National Institute for Occupational Safety and Health (NIOSH). NIOSH is responsible for most occupational safety and health research, evaluation of hazards, toxicity determinations and manpower training and development. Also, it is undertaking special industry-wide studies of chronic or low-level exposure to hazardous substances as well as research into psychological, motivational and behavioral factors involved in occupational safety and health programs.

INCREASED EMPHASIS ON HEALTH

OSHA's increased concern with occupational health problems is prompted by the fact that about 60% of the complaints received by it have alleged health hazards. As part of its emphasis on health, OSHA issued an emergency standard limiting the exposure of employees to asbestos dust, effective December 7, 1971. The standard was adopted pursuant to Section 6(c) of the Act following studies by NIOSH and recommendations by the American Conference on Government Industrial Hygienists (ACGIH).

It has been determined by both NIOSH and ACGIH that the former asbestos standard constituted a grave danger to employees exposed to an 8-hour time weighted average concentration and, thus, an emergency standard was required. The old standard for exposure to asbestos dust was promulgated under the Walsh-Healey Public Contracts Act on May 20, 1969. It called for no more than 12 fibers per milliliter greater than five microns in length or two million particles per cubic foot of air. OSHA termed this 12-fiber level of exposure "a grave danger to employees exposed to this 8-hour time weighted average concentration."

NIOSH agreed with ACGIH that the new standard would provide a substantial base for protection of workers in contact with asbestos dust. It limits the 8-hour time weighted average airborne concentration of asbestos dust to which employees are exposed to no more than five fibers per milliliter greater than five microns in length. Concentrations above five fibers per milliliter, but not to exceed ten fibers, are permissible up to a total of 15 minutes per hour up to five hours in an 8-hour day.

An emergency temporary asbestos standard of two fibers per milliliter had been requested by the AFL-CIO in a letter to the Department of Labor. The union cited as evidence of the need for a revised standard a study conducted by Dr. Irvin J. Selikoff and the staff of the Mount Sinai School of Medicine (in cooperation with the AFL-CIO and the Ad Hoc Committee on the Asbestos Hazard of the AFL-CIO Industrial Union Department).

The five-fiber emergency standard was criticized by Lorin E. Kerr, M. D., chief of the Department of Occupational Health for the United Mine Workers of America. He stated that the standard "is appreciably higher than the non-hazardous level" called for in recent medical publications. Dr. Raymond Murphy of the department of physiology at Harvard, who has studied the effects of asbestos dust exposure on industrial workers, agrees with the union physician. Dr. Murphy concludes that even a level of two fibers per milliliter, or one-thousandth of a liter, may be hazardous to health. Dr. Murphy and his colleagues found that lung disease developed in workers who sanded asbestos floor tiles and were chronically exposed to about 1.3 fibers per milliliter.

Also, in a letter to Assistant Labor Secretary George Guenther, Dr. Kerr advised that the UMW is "equally concerned that this emergency standard is restricted in its applicability to construction workers," to the exclusion of coal miners (who are covered the Coal Mine Health and Safety Act). Recent studies indicate that some strip miners may be exposed to dangerous levels of asbestos dust.

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In announcing the Target Health Hazards program, Mr. Guenther noted that asbestos can produce asbestosis and asbestos fibers in the lungs may lead to cancer. Urgent action to curtail this health hazard is indicated by the fact that in the fields of insulation, manufacturing of products using asbestos, shipbuilding, construction and other industries, there are more than 200,000 employees who face risks from asbestos exposure.

OSHA conducted an "Executive-briefing Special Session" on the Target Health Hazards program in Washington on January 26, which Mr. Sheckler of Johns-Manville attended. The briefing was aimed at informing employers of the details of the program. Yesterday, February 2, a general orientation meeting was scheduled for management, labor, government and professionals.

On the state level, the Illinois Pollution Control Board, in January 1972, passed controls on asbestos which prohibit the manufacturing or the processing of asbestos-containing products without a permit after June 30, 1972. Such material applied in construction or repair must be coated with a sealant and installed to safeguard against emissions. Emission from plants manufacturing such products will be limited to two fibers per cubic centimeter of air. Emission regulation is also applied to demolition projects, and all transported asbestos material must be enclosed. A ban was placed on the spraying of such materials or fibers as well as on visible emissions of nonasbestos fibers in open areas during construction, alteration and repair of structures as of March 31, 1972. The City of Chicago passed a similar, but less stringent, ban.

CONCLUSION

Since the Federal Act became effective, the emphasis by OSHA has shifted in at least two significant ways. During the early stages, the so-called "general duty clause" was the basis for many compliance actions. This clause is Section 5(a)(1) of the Act. It states"

"Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

As evidenced by OSHA's enforcement actions, the general duty clause was not mere window dressing. However, as standards for safety and health have been promulgated and adopted by OSHA, use of the general duty clause has given way to the enforcement of these specific standards themselves.

The second major shift in emphasis has been from the initial accent on safety, as evidenced by the Target Industries Program, to a concentration on occupational health hazards. This has resulted from statistics compiled by OSHA which show that most complaints concern health rather than safety hazards.

But it would be erroneous to think that either the general duty clause of OSHA's concern with safety conditions can be ignored with impunity by employers. Instead, the conclusion must be that now OSHA is equally concerned with health hazards as with safety problems and is moving forward to develop, adopt and continually improve standards for occupational health and safety, all in coordination with NIOSH.

Wendell B. Alcorn, Atty.
Cadwalader, Wickersham & Taft

MINUTES
TECHNICAL COMMITTEE

Asbestos Textile Institute
February 3, 1972 - The Mills Hyatt House, Charleston, S.C.

In Attendance:

J.W. Hawkins-----Raybestos-Manhattan, Inc.
William Maaskant-----American Asbestos Textile Corp.
D.T. Austin-----Uniroyal, Inc.
J.W. Echerd-----H.K. Porter Company, Inc.

The ASTM Asbestos Textile Standards approved in 1967 are up for revision this year. These include D1571, D315 and D1918.

Most of the Technical Committee's time was used in work on ASTM Specification D1571 and review of proposed Revision "C" of MIL-C-82249. The following recommendations were made:

D1571, Woven Asbestos Cloth

1. That we investigate increasing the relative humidity requirement from 50 to 65 to agree with Specification D1776 for Standard Conditions.
2. That we issue a statement on Precision and Accuracy similar to that we used in Standard D628.

MIL-C-82249; Cloth, Coated, Asbestos, Herringbone Twill, Aluminized.
Proposed Rev. "C".

1. That the committee chairman write Mr. C.J. Zemme requesting the reference to cotton be eliminated in Item 1.1 and that "cotton fibers" be replaced by "nontoxic organic fibers" in Item 3.2.1.

MIL-I-24244, Insulation Materials, Thermal, with Special Corrosion and Chloride Requirements - the committee recommends that producers of material sold against MIL-I-24244 specify the material conforms to specification when shipped. Contamination in route may alter the chemical composition before it reaches its destination.

It was reported that the following items were approved by subcommittee A4 of ASTM committee D-13.

1. Proposed revision of "Magnetic Rating of Asbestos Fibers and Textile Products" dated December 3, 1971 (D1118).
2. Proposed revision Section 14 on Precision and Accuracy "Asbestos Content of Asbestos Textile Materials". (D1918).
3. Deletion of Standard "Heat Aging of Asbestos Textiles". (D1573).

The Spring Meeting of Committee D-13, Subcommittee A-4 will be held at the Belmont Plaza Hotel, New York, N.Y. on March 22, 1972. Our Task Group on Revision of Standards will meet at 9:30 A.M. The General Meeting is scheduled for 1:30 P.M.

Respectfully submitted,


J.W. Echerd
Chairman

() Minutes ()
ASBESTOS ADVISORY COMMITTEE
Asbestos Textile Institute

February 3, 1972 - The Mills Hyatt House, Charleston, S.C.

The Asbestos Advisory Committee met with all member companies in attendance.

From time to time, the Institute receives requests from various outside concerns for pictures, graphs, and charts such as those which appear in our Handbook of Asbestos Textiles. The problem in fulfilling these requests is obvious -- you always run the risk of not getting the photographic plates or "cuts", back! To alleviate this situation the Committee has asked the Secretary to procure and maintain a catalog of glossy prints which can be used to fill these requests from qualified sources.

The Asbestos Advisory Committee spent a great deal of time last year in the preparation of our brochure on the recommended procedures for the safe handling of asbestos textiles. Up until November 1971 the number of requests for this brochure was nominal. However, after a press notice regarding its availability appeared in two trade journals, the requests have multiplied significantly with copies being sent to shipyards, various heavy industries, the U.S. Navy, colleges, insurance companies, and -- the Mount Sinai School of Medicine.

At our meeting last October our Committee requested that Mr. Sheckler, Chairman of our Environmental Health Committee, contact Dr. Lewis Cralley in order to determine the status of his report regarding the HEW study of in-plant potential health hazards to asbestos textile workers when exposed to an environment which contained certain quantities of asbestos dust. In December Mr. Sheckler reported that:-
"Dr. Lewis Cralley appears to be out of the picture as far as the asbestos health study or activities are concerned. In fact, he appears to be out of that total area of responsibility. Dr. Wagner and Dr. Johnson have taken over the work. Both are young and appear to share the Selikoff opinions and approach." Commenting on the thought that Dr. Cralley might serve ATI as a "consultant," Mr. Sheckler said:- "In that Lewis Cralley is apparently not a part of the present team, his services as a consultant to ATI might be of little value and possibly ineffective."

On December 7, 1971, the Department of Labor issued an Emergency Standard for Exposure to Asbestos Dust, the details of which were discussed in detail in our Legal Counsel's Report earlier today. This new proposed standard will be further reviewed on the 14th of March in Washington, D.C. The Asbestos Advisory Committee has asked Mr. Scowcroft to contact the AIA and determine just what type of presentation they plan to make, and to offer what assistance we can in the preparation of this presentation. Further, we are requesting that Mr. Sheckler attend the March 14th meeting as the ATI's representative and make a report to the Secretary regarding the outcome for dissemination to ATI members.

Respectfully submitted,

E.A. Morris, Chairman

Fiber Testing Committee

February 3, 1972 - The Mills Hyatt House - Charleston, S. C.

C. E. Sriefken, Chairman	American Smelting & Refining Co., (Lake Asbestos of Quebec, Ltd.)
D. E. Childers	H. K. Porter Company, Inc.
G.F.A.Brink	Asbestos Corporation Limited
Walter H. Smith	Bell Asbestos Mines Limited
Bernard Lincoln	Turner & Newall, Ltd.
H. E. Sunbury	A.T.I.

Taking over as Chairman Mr. Stiefken called attention to the fact that only one Regular Member of A.T.I. had a representative serving on the Fiber Testing Committee (Mr. Childers) at the present time and that this created an imbalance which should be corrected promptly. The Secretary agreed to bring this matter to the attention of the Board of Governors.

The new edition of the manual, from present indications, will probably be considerably larger. The present thought is to have it in loose-leaf form. While no cost estimates have yet been obtained there is every reason to believe that the new edition will cost substantially more than the 1966 edition, which was \$1.89 per copy.

We anticipate a task force meeting of the committee with representatives of the QAMA Technical Committee will be advisable to expedite the work. This should be held in the near future at a mutually convenient place - possibly Sherbrooke or Montreal.

C. E. Stiefken, Chairman

()

MINUTES

Air Hygiene & Mfg. Committee

Asbestos Textile Institute

February 3, 1972 - The Mills Hyatt House, Charleston, S. C.

In attendance:

K. A. Roberts, Chm.	Johns-Manville Corp.
L. E. Moody	H. K. Porter Company, Inc.
E. C. Bratt	H. K. Porter Company, Inc.
R. T. Matthew	Raybestos-Manhattan, Inc.
J. E. Day, Jr.	Raybestos-Manhattan, Inc.
Dr. J. L. Goodwin	Raybestos-Manhattan, Inc.
H. H. Walter	American Asbestos Textile Corp.
E. A. Farrell	Lake Asbestos of Quebec, Ltd.
S. G. Dixit	Garlock, Inc.
R. C. Hunt	Uniroyal, Inc.
B. E. Carden	Uniroyal, Inc.
J. K. Whittaker	Nicolet Industries, Inc.
Y. Sato	Nippon Asbestos Co. Ltd.
H. J. Corson	Turner Bros. Asbestos Co., Ltd.

* * * * * Minutes * * * * *

1. Waste Disposal Procedures - The most generally practical method of disposing of non-usable asbestos waste is to bag it, using plastic bags, and tie. The use of baling equipment was discussed, but same is felt to be unacceptable due to the fact that the final compressed unit is not wrapped thus leaving the asbestos fibers exposed.

2. Vacuum Cleaning Procedures, and Equipment used to Comply with the Ban on Dry Sweeping. - All member companies reported that they were working on programs to eliminate dry sweeping.

Two companies reported that they have discussed the use of sweeping compounds and items such as "Endust" with the OSHA inspector. In both cases the inspectors indicated that using these sweeping aids would be acceptable.

There was considerable discussion of the types of vacuum equipment in use. Reference was made to the following:

- Abington (central system)
- Atlas (55 gallon drum type)
- Batson Litter Gitter
- Billy Goat
- Clark(wet & dry)
- Huffman
- Nilfish
- Tennent Walkie-sweeper (10 to 40 gallon shop-vac type)

The company reporting on the shop-vac type of cleaners indicated that a portion of filter bag sewn to fit the external exhaust port on these vacuums gives added insurance against dust leaks should one of the internal filters fail.

3. Dust Collection Equipment - There was no new technology in dust collection reported on; however, two companies did discuss their experience with recent installations of negative pressure and pulse-type collectors. Two methods of automatic bagging of fly or fiber were discussed. Photos of the installations were reviewed.

4. Wet Processing Techniques - All companies are using some form of wet processing. The area of most general use is in weaving. Considerable experimentation in wet twisting is being carried out. At least three companies indicated that they were working on wet carding techniques.

5. OSHA - Recent Inspections - Only one company reported any OSHA inspections since the last meeting. General impression was that the inspectors were well trained and willing to help with interpretations of rules. They specifically stated that in situations of question you should ask them, or call the Regional Office if necessary, rather than take someone else's advice on interpretation.

6. Noise Control & Protective Equipment - In weaving some companies are experimenting with acoustical fiberglass panels to box in the ends of looms. Only moderate success to date. Major problem is that sound is bounced toward operator. Experiments with "Sound-Mat LF" and Plexiglas enclosure are promising for reducing braider noise.

7. Protective Clothing - One company is using disposable spin-bonded Olefin garments. This material sheds asbestos well.

8. Respirators - One new model was exhibited. Unit had replaceable cartridge housing and was approved by the U. S. Bureau of Mines.

Respectfully submitted,

K. A. Roberts, Chairman

Minutes
GENERAL MEETING
Asbestos Textile Institute

JUN 8 - 1972

ASBESTOS TEXTILE INSTITUTE

Page -1-

MINUTES -- GENERAL MEETING

June 8, 1972 - The Key Bridge MARRIOTT Hotel, Arlington, VA.

Attendance:

AMERICAN ASBESTOS TEXTILE CORP.

Wm. Maaskant
J.L. Rainey
H.H. Walter

GARLOCK INC.

S.G. DIXIT
Alex. Kuzmuk

JOHNS-MANVILLE CORPORATION

C.G. Guerin
M.S. Lindstrom
K.A. Roberts
J.P. Power (Canadian J/M Co.)

NICOLET INDUSTRIES

Geo. Griswold

H.K. PORTER COMPANY

E.C. Bratt
D.E. Childers
L.E. Moody

RAYBESTOS-MANHATTAN, INC.

J.W. Hawkins
R.T. Matthew
M.Q. Scowcroft
I.H. Weaver

UNIROYAL, INC.

D.T. Austin, Jr.
B.E. Carden
B.D. Bittinger
L.F. Dieringer
W.C. Hitchcock
E.A. Morris
S.J. Peele, Jr.

ASBESTOS CORPORATION LIMITED

P.E. Leclerc

BELL ASBESTOS MINES LIMITED

Walter H. Smith
Wm.J.W. Smith

LAKE ASBESTOS OF QUEBEC, LTD.

E.A. Farrell
C.E. Stiefken (ASARCO)

NIPPON ASBESTOS CO., LTD.

Y. Sato

CADWALADER, WICKERSHAM & TAFT

Wendell B. Alcorn, Atty.

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury, Exec. Sec'y

Guest-of-Honor (Luncheon only)

Carl A. Gnam
Miscellaneous Metals & Min'ls Div
U.S. Dept. of Commerce, Wash., D.C.

Other attendees:

John H. Marsh (on June 7th only)
Raybestos-Manhattan, Inc.

***** Minutes *****

1. President Moody called the meeting to order at 2:00 P.M. Those in attendance were asked to stand and give their name and company.
2. The minutes of the last meeting were presented for reading. On motion of Mr. Scowcroft, seconded by Mr. Morris, it was voted to omit the reading of same.
3. Treasurer Kuzmuk presented the Financial Report. Mr. S.J. Peele, Jr. moved that it be accepted. Motion was seconded by L.F. Dieringer. So voted unanimously. The report is attached to these minutes.

ASBESTOS TEXTILE INSTITUTE

Report of Funds

May 1, 1972

Balance On Hand at last report (Jan.10,1972)

General Fund	\$ 160.84	
Reserve Fund	9040.68	
Petty Cash Fund	72.58	
Total On Hand as of Jan.10th, 1972		\$9274.10

Receipts

To Reserve Fund (Interest to 3/31/72)	133.06	
To " " (1972 Dues)	2000.00	
To General Fund (1972 Dues)	7500.00	
To " " (Book Sales)	242.66	
		9875.72

Total On Hand and Received		\$19149.82
Legal Services (.6 mos.ending 3/31/72)	3437.00	
Legal Expenses (6 mos. " 3/31/72)	497.45	
Secretary's salary (4 mos.)	938.00	
F.I.C.A. Tax (3 mos.)	78.00	
N.J.U.A.D. Tax (3 mos.)	33.75	
Secretary's travel expense	135.00	
Office rent (4 mos.)	300.00	
A.T.I. meeting expense, Feb.2-3,1972	225.71	
A.T.I. Meeting expense, Oct.6-8,1971	23.66	
Printing & Office Supplies	40.44	
Stenographic	32.50	
Telephone (4 mos.)	150.40	
Travel Reimbursement (J.B.Gordon)	36.20	
Flowers, plaque, etc.	65.60	
Petty Cash (Vouchers 580-609 inclusive)	112.93	
		6106.64

Balance On Hand as of May 1st,1972 - - - - \$13043.18

Funds as of May 1,1972

General Fund	\$ 1815.67	
Reserve Fund (with interest to 3/31/72)	11173.74	
Petty Cash Fund	53.77	
Total Funds		\$13043.18

Assets as of May 1, 1972

Total Funds as listed above	\$13043.18	
Accounts Receivable (1972 Dues)	250.00	
" " (Book Sales)	25.35	
Postage On Hand	10.60	
Furniture & Equipment (Nominal Value)	1.00	
Total Assets - - - - -		\$13330.13

Liabilities

none

Respectfully submitted,

Net worth

\$13330.13

H. E. Sunbury
H. E. Sunbury
Asst. Treasurer

MINUTES

AIR HYGIENE & MFG. COMMITTEE

Asbestos Textile Institute

June 8, 1972 - Key Bridge Marriott Hotel, Arlington, VA.

In attendance:

Chm. K.A. Roberts	Johns-Manville Corp.
C.G. Guerin	" " "
J.P. Power	Canadian Johns-Manville Co.
J.L. Rainey	American Asbestos Textile Corp.
H.H. Walter	" " "
S.G. Dixit	Garlook Inc.
E.C. Bratt	H.K. Porter Company, Inc.
L.E. Moody	" " "
R.T. Matthew	Raybestos-Manhattan, Inc.
I.H. Weaver	" " "
E.A. Farrell	Lake Asbestos of Quebec, Ltd.
Y. Sato	Nippon Asbestos Co., Ltd.
B.D. Bittinger	Uniroyal, Inc.
B.E. Carden	" "
L.F. Dieringer	" "
P.E. Leclerc	Asbestos Corporation Limited

* * * Minutes * * *

1. OSHA Standards for Asbestos:- Copies of the Federal Register for June 7, 1972 containing the new OSHA Standards for Asbestos were distributed to those in attendance in sufficient quantity to permit reading and discussing. The committee spent the major portion of its time on the Rules and Regulations for exposure to asbestos dust, Methods of Compliance; Monitoring; Warning Signs, Record Keeping; Medical Examinations and Medical Records; as set forth in the Standards.

There was general agreement that the asbestos textile industry, because of the nature of textile manufacturing operations, faced a real problem in trying to comply with the new regulation of 2 fibers per cubic centimeter(which are longer than 5 micrometers) of air, on a time-weighted average, effective July 1, 1976, without incurring excessive manufacturing costs.

2. Vacuum cleaning equipment:- A good discussion was had of various types. A favorable comment was made relative to Nilfish equipment.

3. Other items discussed:-

- Dust collecting equipment
- Wet processing technique in spinning and weaving
- Protective clothing (under OSHA regulations)
- Respirators (as specified by OSHA)

Respectfully submitted,

K.A. Roberts, Chairman

4. Legal Counsel Wendell B. Alcorn reviewed developments under the Williams-Steiger Occupational Safety and Health Act that have occurred since our last meeting. The full text of his remarks is attached to these minutes.

5. Mr. Wm. J. W. Smith, V.P.-Sales, BELL ASBESTOS MINES LIMITED reported for the Fibre Producers. He commented that some of the very long grades of spinning fibers were still in short supply, but the medium and lower spinning grades were ample to meet current demand. In respect to other grades the No. 4 and No. 7 Group fibers are in good balance, in contrast to a slight oversupply of No. 5 and No. 6.

6. Announcements:- President Moody announced the resignation of Mr. C. L. Sheekler as Chairman of the ATI Environmental Health Committee, and the appointment of Mr. L. F. Dieringer, Industrial Hygienist, Uniroyal, Inc., as the new chairman of that committee.

Also, the resignation of Mr. K. A. Roberts as Chairman of the ATI Air Hygiene & Mfg. Committee due to a change in his company duties. Mr. B. E. Carden, Uniroyal, Inc. was appointed to succeed Mr. Roberts.

Mr. Moody reported that the Institute was represented at the Public Hearing held in Washington on March 14, 1972 on "Proposed Standards for Exposure to Asbestos Dust" by Mr. Alex. Kuzmuk, who is a member of the ATI Board of Governors and Treasurer of ATI. The full text of Mr. Kuzmuk's excellent presentation is attached..

7. Committee Reports:- The Chairmen of the committees listed below presented their reports. A copy of each is attached.

Air Hygiene & Mfg. Committee - K. A. Roberts, Chairman
Asbestos Advisory Committee - E. A. Morris, Chairman
Technical Committee - J. W. Hawkins, (Acting Chairman)
Fiber Testing Committee - C. E. Stiefken, Chairman

8. President Moody announced that the next A.T.I. General Meeting would be held on:

September 18 - 20, 1972 (Monday - Wednesday)

at the SEAVIEW COUNTRY CLUB

Absecon, N.J. (near Atlantic City, N.J.)

9. There being no further business to come before the meeting it was duly adjourned.

Respectfully submitted,


H.E. Sunbury, Sec'y

ASBESTOS ADVISORY COMMITTEE
MEETING
June 8, 1972

Key Bridge Marriott Hotel
Washington (Arlington) D.C.

Mr. President:
Mr. Secretary:
Gentlemen:

The Asbestos Advisory Committee met this morning with all member companies in attendance.

Our discussion this morning centered on--as I am sure most of the other committee discussions did--the newly published Standard for Exposure to Asbestos Dust.

We touched on the various interpretations and the possible impact of the Standard, and I want to thank Wendell Alcorn for his succinct review of the Standard's content.

In addition, the proposed banning rule of the Food and Drug Administration was also discussed.

This rule, as presently constituted, would prohibit or ban the shipment of asbestos-containing consumer garments from interstate commerce, except those which were considered to be bona fide protection devices.

Although professing to be on the side of reason, the FDA claims to be under pressure to issue such a ruling which is predicated on the infamous "asbestos coat affair."

Advance copies of the second draft of the proposed banning rule will be mailed to the ATI for review. In the meantime, however, the Chairman of the Asbestos Advisory Committee, representing the ATI, will meet with the appropriate members of the FDA and attempt to present a truer picture of the issue at hand.

Since there was no further business to come before the committee, the meeting was adjourned at 10:45 A.M.

Respectfully submitted,

Edward A. Morris

Edward A. Morris
Chairman

TECHNICAL COMMITTEE

Asbestos Textile Institute - June 8, 1972 - Key Bridge Marriott, Wash., D.C.

In Attendance:

J. W. Hawkins-----Raybestos-Manhattan, Inc.
William Maaskant-----American Asbestos Textile Corp.
D. T. Austin-----Uniroyal, Inc.

Mr. J. Hawkins acted as chairman due to the absence of Mr. Echerd.

MIL-C-10316B - Asbestos Cloth

Mr. Echerd has received a letter from Mr. Masson (Dept. of Army) stating that reference to ASTM D 1573, Heat Aging, has been deleted from MIL-C-10316B. ASTM D 1573 is being removed from the Book of Standards.

Mr. A. M. Blank, Dept. of Army, Belvoir, Va., has advised some customers that MIL-C-10316B is up for revision. ATI or member companies have not been advised. Mr. Echerd will ask for a time extension so textile industry can recommend changes prior to the issuance of the new specification.

MIL-C-82278 and MIL-C-82249 - Herringbone Cloth

Mr. Zemme of Natick has requested samples of 1.2 lb. herringbone cloth for their evaluation. These samples will have a rayon carrier fiber. If tests are satisfactory, rayon will be included in the new specifications. R/M will submit samples.

ASTM D 1118 - Magnetic Rating

Edited copies of D 1118 from ASTM and Dr. Scroggie were reviewed. The Technical Committee was in agreement and minor changes will be passed to Mr. Nicodemus by Mr. Maaskant. The section on sampling was rewritten to clarify the procedure. It was also requested that D 2590 remain as a reference in D 1118.

ASTM D 1918 - Asbestos Content

Edited copies of D 1918 from ASTM and Dr. Scroggie were reviewed. Mr. Maaskant will pass comments to Mr. Nicodemus.

Both D 1118 and D 1918 are presently complete and will be published in the next set of standards.

A procedure on resistivity of asbestos products was submitted, it will be discussed at the September meeting.

Respectfully submitted,

John W. Hawkins, Acting Chairman

Minutes

FIBER TESTING COMMITTEE

Asbestos Textile Institute

June 8, 1972 - The Key Bridge Marriott Hotel, Arlington, VA.

In attendance:

C.E. Stiefken, Chm. . . . American Smelting & Refining Co.
(Lake Asbestos of Quebec Limited)
D.E. Childers H.K. Porter Company, Inc.
Walter H. Smith Bell Asbestos Mines Limited

1. The meeting was devoted to a discussion of the testing procedures presently available for use in the forthcoming 3rd Edition of the "Chrysotile Asbestos Test Manual". (See footnote)

Letters have been sent to members at large, and to former chairmen of the ATI Fiber Testing Committee asking for comments and suggestions applicable to the new manual.

2. The Chairman will welcome all suggestions relative to the makeup of the new manual - preferences as to publishing, type of binding, etc. These should reach him well in advance of the next ATI meeting which is to be held on September 18-20, 1972.

3. There are thirty-three available test methods presently being considered for insertion in the new manual. Eighteen of these have been approved by both the QAMA and the ATI, leaving fifteen that have not been approved at this time.

4. We are now at the stage of having to wait for QAMA and ACPA to submit their final approval on the residual tests. When same is received the ATI Fiber Testing Committee will be ready to evaluate all test methods for final printing.

5. A tentative time-table for the test manual project, based on present indications, would be as follows:-

- (a) June 30, 1972 - QAMA working deadline
- (b) September 15, 1972 - QAMA tests delivered to ATI
- (c) October 1972 - Joint meeting of QAMA, ACPA, and ATI to discuss format, printing, binding, etc. (Tentative - probably to be held in Montreal)
- (d) February 1973 - Rough final draft of entire new manual
- (e) March 1973 - All copy for manual to be delivered to the printer.

Assuming the above schedule can be met it is estimated, based on allowing 8 to 10 weeks for printing, that the new edition of the Chrysotile Asbestos Test Manual should be ready for distribution by June 1st, 1973.

Respectfully submitted,

C.E. Stiefken, Chairman (*)

Note: The first and second editions were titled -
"Testing Procedures for Chrysotile Asbestos Fibre".

(*) c/o American Smelting & Refining Co.
P.O.Box 127, So. Plainfield, N.J. 07080

Asbestos Textile Institute -- General Meeting -- June 7-8, 1972

INTRODUCTION

Last February in Charleston, South Carolina we talked at length about the Williams-Steiger Occupational Safety and Health Act (29 U.S.C. §655) which has now been effective for over a year. This is the Federal law which is administered by the Occupational Safety and Health Administration (OSHA).

Since the February meeting, there have occurred several developments with respect to OSHA which directly affect asbestos producers and users. These developments are the subject of my remarks today.

OSHA DEVELOPMENTS

On January 12, 1972, OSHA invited comments from interested persons on its proposed ^{interim} ~~standard~~ ^{rule} ~~standard~~

"Standard for Exposure to Asbestos Dust". Twelve days later, on January 24th, the Advisory Committee on Asbestos Dust was established to review this standard and make recommendations regarding it. The first meeting of the Committee was held February 3 (while we were in Charleston), at which Dr. Marcus M. Key presented the NIOSH "Criteria Document: Recommendations for an Occupational Exposure Standard for Asbestos". The final fruits of the Committee's work were

scheduled to be seen in the form of a permanent standard for asbestos dust exposure to be promulgated by June 7th. That was yesterday, and has been the main topic of many conversations at this meeting. Thus, the development of a permanent asbestos standard is now past history and attention must be turned to present and future compliance.

It can certainly be expected that enforcement of the new permanent asbestos standard will be as vigorous as the limitations of OSHA personnel and facilities will allow. Great pressure will be applied in favor of strict enforcement by labor unions, as surely as such groups have lobbied in the past for a low standard of exposure to asbestos dust.

In mid-March of this year, the Industrial Union Department of the AFL-CIO called exposure to asbestos dust "the most devastating environmental disaster yet perpetrated by any industrial nation" and announced that it planned to use as an example of the disastrous proportions of the asbestos health hazard the Johns-Manville Corporation plant in Manville, New Jersey. The reason the IUD focused on the Johns-Manville plant, according to a press statement, was "only because the facts are best documented in Manville and because these facts illustrate the need for stringent

control." (See Occupational Safety & Health Reporter, March 16, 1972, at page 967.)

In April, the month following the IUD announcement, there appeared a two-part article in the press directed at the alleged health hazards to which the workers in Manville have been exposed. The first part of the article bore the headline, "A Jersey Town is Dying -- Fast"; the second part opened with the heading, "A Man With 8 Months to Live". The article cited several cases of asbestos-related ailments and statements by Dr. Maxwell Borow and Dr. Irving Selikoff.

A short time later, an inspection was completed at the Manville, New Jersey plant by industrial hygienists of OSHA. On June 1, the report of that inspection, which resulted in the citation of five violations, was summarized in the press.

OSHA termed one of the violations at the Manville plant "serious" and the other four "minor". It said that the serious violation was found in the textiles building, where asbestos is made into yarn for weaving and carding. The four minor violations resulted from employees working without the required protective masks.

The investigation and citation of the alleged violations at the Manville plant should be considered typical of future OSHA activities in the enforcement of the asbestos

standard. Following an investigation and citation of violations, OSHA is required to send a notice of proposed penalties to the company, which then has 15 working days within which to notify the Secretary of Labor that it intends to contest either the citation of the violation or the proposed assessment of penalty. If the employer does not file such a notice, the citation and the assessment of penalty is deemed a final order of the OSHA Commission, and such a final order is not subject to review by any court or agency. It should also be noted that employees or their representatives may file a notice with the Secretary claiming that the period of time fixed for the abatement of the violation is unreasonable; in such case, a hearing is held by the Commission.

Where the employer appeals from a notice of violation or proposed assessment of penalty, he is entitled to a hearing and review by the Commission or hearing examiners. This hearing is a fact-finding proceeding in which the Secretary's citation or proposed penalty may be affirmed, modified or vacated. The Commission's order issued as a result of such hearing becomes final within thirty (30) days. However, if an employer can show that the abatement requirements of a Commission order have not been fulfilled because of factors beyond his control, the Secretary may, after a hearing, either affirm or modify the abatement requirements.

Where a notice of proposed penalty is uncontested or where an employer seeks no review of a final order of the Commission, automatic court enforcement is provided. If the employer fails to comply with this court order, he is subject to punishment for contempt.

However, a final order of the Commission may be reviewed, at the option of the person adversely affected or aggrieved by the order, and the review is by a United States circuit court of appeals. To obtain such review, a written petition must be filed in the court within sixty (60) days following the issuance of the order. This court review is governed by the rule of substantial evidence, that is, the findings of fact by the Commission are conclusive before the court if supported by substantial evidence. These court proceedings may result in an enforcement order, the non-compliance with which would subject the employer to contempt proceedings.

CONCLUSION

The promulgation of a permanent asbestos exposure standard has, of course, appeared inevitable for some time. The big issue over the past few months has been the level of exposure which would be written into the standard. That issue has now been settled, subject to revisions which may

occur in the future. Companies in the asbestos industry now face the task of meeting the new standard; and toward this end, OSHA can be expected to conduct inspections and issue citations wherever warranted.

The overall process of developing an asbestos exposure standard has involved the balancing of economics against health considerations. While it is still arguable that many of the medical studies submitted in favor of a very low exposure level are distorted and misleading, the balance between economics and health considerations has now been struck. The cost of implementing the standard will be high; and in recognition of the difficulty of putting into effect OSHA standards, the law provides that under certain specified conditions, an employer may obtain either a temporary or permanent variance from the standard. On the other hand, it may be expected that labor will vigorously oppose all applications for variances which cannot be justified in every respect. The variance rule should be invoked by employers only where a real need and justification can be found.

Wendell B. Alcorn, Atty.

Cadwalader, Wickersham & Taft

Presentation on Proposed Standard
for Exposure to Asbestos Dust on
behalf of the Asbestos Textile
Institute and its member companies.

March 13, 1972

Mr. Arthur M. Goldberg
Hearing Examiner
U. S. Department of Labor
Office of the Under Secretary
Washington, D. C. 20210

Re: Hearing on Proposed Standard
For Exposure To Asbestos Dust
Beginning on March 14, 1972

Dear Mr. Goldberg:

My name is Alex Kuzmuk. I am a member of the Board of Governors
of the Asbestos Textile Institute.

I am here today to officially represent and state the position
of the Asbestos Textile Institute and its member companies.
We are in opposition to the proposed asbestos dust standards as
published in the FEDERAL REGISTER, January 12, 1972. We are
also opposed to recommendations proposed in the NIOSH criteria
package, and by the Asbestos Advisory Committee. /

The asbestos textile industry, which this association represents,
includes over 4000 job opportunities in manufacturing, plus
approximately 35,000 job opportunities in related product fabri-
cation and sales. The gross business volume for manufacturing
alone is over \$80 million per year. The gross volume for related
fabrication and sales is, therefore, many times this amount.
Although this is not the largest segment of the asbestos industry,
it is a very important one. Our product lines include the manu-

Mr. Arthur M. Goldberg
Asbestos Hearing
March 13, 1972
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facture of safety garments, insulations, clutch facings, brake linings, paper dryer felts, mechanical packings and gaskets, laminated plastics, and many other commodities essential to today's technological progress. In many instances, there are no known substitutes for asbestos textile materials.

Subsequent to the enactment of the Occupational Safety and Health Act, the threshold limit value for asbestos dust was reduced from 5 million particles per cubic foot of air to 12 fibres per milliliter, 5 microns or greater in length. We, in the asbestos textile industry, made every possible effort to meet the 12 fibre threshold limit value by re-engineering dust hoods and dust collection equipment on cards, spinners, looms, and many other types of equipment. In addition, many of us initiated wet weaving and made extensive additional changes in processes and materials. When the further reduction to the threshold limit value for asbestos dust was published on December 7, 1971, we began all over again to study plans for revising equipment, processes, and materials, for which we had just spent thousands of dollars to install to meet the 12 fibre level. Many of us have not, and cannot, reduce our dust levels to the emergency and proposed 5 fibre threshold limit value.

If engineering to a 5 fibre level were feasible on the complex types of machinery and equipment used in the textile industry, the cost of implementation would make it extremely doubtful that this industry could survive economically. We are presently being pressed to the wall by our competitors. The cost of a

Mr. Arthur M. Goldberg
Asbestos Hearing
March 13, 1972
Page 3

program to meet the proposed asbestos dust standards could be the determining factor for removing American-made asbestos textiles from the market place.

The competition to which I refer will not be required to make extensive capital investments to change processes, provide ~~protective clothing~~, provide medical examinations, and monitoring. This competition is primarily from foreign imports. I, therefore, take this opportunity to ask this Federal agency whether it will take the responsibility of recommending equitable tariffs to prevent this economic disaster, if the proposed Asbestos Dust Standards become effective.

Beyond the proposed asbestos dust standards published in the January 12, 1972 FEDERAL REGISTER, there are recommendations by the National Institute of Occupational Safety and Health, and the Asbestos Advisory Committee. These recommend further reduction of the asbestos dust threshold limit value to 2 fibres per milliliter, plus many additional requirements concerning respirator equipment, protective clothing, monitoring, and others.

With the problems we are encountering in attempting to reach the present Emergency Asbestos Standard, it is unrealistic to even consider the feasibility of a 2 fibre standard. I would like to point out that Mr. Clifford L. Sheckler, Chairman of the Asbestos Textile Institute Environmental Health Committee, took the initiative in 1964 to request Dr. Lewis Cralley of the

Mr. Arthur M. Goldberg
Asbestos Hearing
March 13, 1972
Page 4

United States Public Health Service to conduct an epidemiological study of our asbestos textile industry. We recognized then that a potential health problem existed and, therefore, we wanted expert advice and assistance to help us solve it. We have neither received the advice nor the assistance which we had hoped for.

We opened our plants to the United States Public Health Service personnel for environmental studies, review of our records, and physical examinations of our people. Our member companies urged employee participation in the study, and a substantial representative group of workers were involved. We continually requested the United States Public Health Service to increase their efforts and provide interim progress reports.

The Public Health Service Asbestos Study of which I speak has not been completed. A recent report, which is a primary factor in the recommendations by NIOSH and the Advisory Committee, was based on this incomplete study. The information provided in the report was based on opinion and speculation, rather than fact. Had the United States Public Health Service Asbestos Epidemiological Study been completed as continually requested by the Asbestos Textile Institute, we might now be in a position of having factual information as to what the safe threshold limit for asbestos dust really should be.

One factor is pertinent to this point. The asbestos related

Mr. Arthur M. Goldberg
Asbestos Hearing
March 13, 1972
Page 5

disease involvement in the asbestos textile industry is being related to asbestos dust exposure levels as they presently exist rather than at the time the disease was incurred 25-30 years ago. Such a comparison is invalid. All of the past monitoring for asbestos dust in American textile plants has been done using the impinger method for sampling. Today's proposed standards are based on a fibre level using the Milapore filter method for sampling. There is no accurate correlation of impinger counts versus Milapore filter counts established to date. There has been some work done by the United States Public Health Service, but the results are incomplete. This is but one area that demonstrates the need for further health research studies and evaluations before unnecessarily creating an unrealistic standard that can be the demise of this industry and its related job opportunities.

We respectfully urge the Secretary of Labor to: (1) Reconsider the establishment of asbestos standards; (2) reinstate the threshold limit value for asbestos dust at 12 fibres per milliliter, 5 microns or greater in length for an interim period pending a comprehensive epidemiological study of the entire asbestos industry in the United States. I would like to point out that many comparisons have been made between the British and United States asbestos textile industry concerning health problems. The vast differences in materials, equipment and processes make such comparisons unrealistic. (3) Provide for representation of the Asbestos Textile Institute on future advisory and study

Mr. Arthur M. Goldberg
Asbestos Hearing
March 13, 1972
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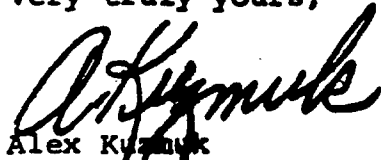
committees.

I would also like to point out that while many detailed requirements are included in the proposed standard, it is absolutely mute on the very important medically substantiated problem of cigarette smoking as associated with exposure to asbestos fibre.

We, of the Asbestos Textile Industry, have the greatest desire to prevent injury to our employees. We believe this can be accomplished without destroying the asbestos textile industry.

Thank you for the privilege of appearing at this hearing today.

Very truly yours,



Alex Kuznetsov
Treasurer and
Member of Board of Governors
for the
Asbestos Textile Institute

ak:jc

June 8, 1972

ASBESTOS TEXTILE INSTITUTE

MINUTES -- GENERAL MEETING

Page -1-

June 8, 1972 - The Key Bridge MARRIOTT Hotel, Arlington, VA.

Attendance:

AMERICAN ASBESTOS TEXTILE CORP.

Wm. Maaskant
J.L. Rainey
H.H. Walter

GARLOCK INC.

S.G. DIXIT
Alex. Kuzmuk

JOHNS-MANVILLE CORPORATION

C.G. Guerin
M.S. Lindetrom
K.A. Roberts
J.P. Power (Canadian J/M Co.)

NICOLET INDUSTRIES

Geo. Griswold

H.K. PORTER COMPANY

E.C. Bratt
D.E. Childers
L.B. Moody

RAYBESTOS-MANHATTAN, INC.

J.W. Hawkins
R.T. Matthew
M.Q. Scowcroft
I.H. Weaver

UNIROYAL, INC.

D.T. Austin, Jr.
B.E. Cardan
B.D. Bittinger
L.F. Dieringer
W.C. Hitchcock
E.A. Morris
S.J. Peele, Jr.

ASBESTOS CORPORATION LIMITED

P.E. Leclerc

BELL ASBESTOS MINES LIMITED

Walter H. Smith
Wm. J.W. Smith

LAKE ASBESTOS OF QUEBEC, LTD.

E.A. Farrell
C.E. Stiefken (ASARCO)

NIPPON ASBESTOS CO., LTD.

Y. Sato

CADWALADER, WICKERSHAM & TAPT
Wendell B. Alcorn, Atty.

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury, Exec. Sec'y

Guest-of-Honor (Luncheon only)

Carl A. Gnam
Miscellaneous Metals & Min'ls Di
U.S. Dept. of Commerce, Wash., D.C.

Other attendees:

John H. Marsh (on June 7th only)
Raybestos-Manhattan, Inc.

***** Minutes *****

1. President Moody called the meeting to order at 2:00 P.M. Those in attendance were asked to stand and give their name and company.
2. The minutes of the last meeting were presented for reading. On motion of Mr. Scowcroft, seconded by Mr. Morris, it was voted to omit the reading of same.
3. Treasurer Kuzmuk presented the Financial Report. Mr. S.J. Peele, Jr. moved that it be accepted. Motion was seconded by L.F. Dieringer. So voted unanimously. The report is attached to these minutes.

4. Legal Counsel Wendell B. Alcorn reviewed developments under the Williams-Steiger Occupational Safety and Health Act that have occurred since our last meeting. The full text of his remarks is attached to these minutes.

5. Mr. Wm. J. W. Smith, V.P.-Sales, BELL ASBESTOS MINES LIMITED reported for the Fibre Producers. He commented that some of the very long grades of spinning fibers were still in short supply, but the medium and lower spinning grades were ample to meet current demand. In respect to other grades the No. 4 and No. 7 Group fibers are in good balance, in contrast to a slight oversupply of No. 5 and No. 6.

6. Announcements:- President Moody announced the resignation of Mr. C. L. Sheckler as Chairman of the ATI Environmental Health Committee, and the appointment of Mr. L. F. Dieringer, Industrial Hygienist, Uniroyal, Inc., as the new chairman of that committee.

Also, the resignation of Mr. K. A. Roberts as Chairman of the ATI Air Hygiene & Mfg. Committee due to a change in his company duties. Mr. B. E. Carden, Uniroyal, Inc was appointed to succeed Mr. Roberts.

Mr. Moody reported that the Institute was represented at the Public Hearing held in Washington on March 14, 1972 on "Proposed Standards for Exposure to Asbestos Dust" by Mr. Alex. Kuzmuk, who is a member of the ATI Board of Governors and Treasurer of ATI. The full text of Mr. Kuzmuk's excellent presentation is attached..

7. Committee Reports:- The Chairmen of the committees listed below presented their reports. A copy of each is attached.

Air Hygiene & Mfg. Committee - K. A. Roberts, Chairman
Asbestos Advisory Committee - E. A. Morris, Chairman
Technical Committee - J. W. Hawkins; (Acting Chairman)
Fiber Testing Committee - C. E. Stiefken, Chairman

8. President Moody announced that the next A. T. I. General Meeting would be held on:

September 18 - 20, 1972 (Monday - Wednesday)

at the SEAVIEW COUNTRY CLUB

Absecon, N.J. (near Atlantic City, N.J.)

9. There being no further business to come before the meeting it was duly adjourned.

Respectfully submitted,


H. E. Sunbury, Sec'y

ASBESTOS TEXTILE INSTITUTE

Report of Funds

May 1, 1972

Balance On Hand at last report (Jan.10,1972)

General Fund	\$ 160.84	
Reserve Fund	9040.68	
Petty Cash Fund	72.58	
		Total On Hand as of Jan.10th, 1972 \$9274.10

Receipts

To Reserve Fund (Interest to 3/31/72)	133.06	
To " " (1972 Dues)	2000.00	
To General Fund (1972 Dues)	7500.00	
To " " (Book Sales)	242.66	
		9875.72

		Total On Hand and Received \$19149.82
Legal Services (.6 mos. ending 3/31/72)	3437.00	
Legal Expenses (6 mos. " 3/31/72)	497.45	
Secretary's salary (4 mos.)	938.00	
F.I.C.A. Tax (3 mos.)	78.00	
N.J.U.A.D. Tax (3 mos.)	33.75	
Secretary's travel expense	135.00	
Office rent (4 mos.)	300.00	
A.T.I. meeting expense, Feb.2-3, 1972	225.71	
A.T.I. Meeting expense, Oct.6-8, 1971	23.66	
Printing & Office Supplies	40.44	
Stenographic	32.50	
Telephone (4 mos.)	150.40	
Travel Reimbursement (J.B.Gordon)	36.20	
Flowers, plaque, etc.	65.60	
Petty Cash (Vouchers 580-609 inclusive)	112.93	
		6106.64

Balance On Hand as of May 1st, 1972 - - - - \$13043.18

Funds as of May 1, 1972

General Fund	\$ 1815.67	
Reserve Fund (with interest to 3/31/72)	11173.74	
Petty Cash Fund	53.77	
		Total Funds \$13043.18

Assets as of May 1, 1972

Total Funds as listed above	\$13043.18	
Accounts Receivable (1972 Dues)	250.00	
" " (Book Sales)	25.35	
Postage On Hand	10.60	
Furniture & Equipment (Nominal Value)	1.00	
		Total Assets - - - - - \$13330.13

Liabilities

none

Respectfully submitted,

Hot North

\$13330.13

H. E. Sunbury
H. E. Sunbury
Asst. Treasurer

MINUTES

AIR HYGIENE & MFG. COMMITTEE

Asbestos Textile Institute

June 8, 1972 - Key Bridge Marriott Hotel, Arlington, VA.

In attendance:

Chm. K.A. Roberts	Johns-Manville Corp.
C.G. Guerin	" " "
J.P. Power	Canadian Johns-Manville Co.
J.L. Rainey	American Asbestos Textile Corp.
H.H. Walter	" " "
S.G. Dixit	Garlock Inc.
E.C. Bratt	H.K. Porter Company, Inc.
L.E. Moody	" " "
R.T. Matthew	Raybestos-Manhattan, Inc.
I.H. Weaver	" " "
E.A. Farrell	Lake Asbestos of Quebec, Ltd.
Y. Sato	Nippon Asbestos Co., Ltd.
B.D. Bittinger	Uniroyal, Inc.
B.E. Carden	" "
L.F. Dieringer	" "
P.E. Leclerc	Asbestos Corporation Limited

* * * Minutes * * *

1. OSHA Standards for Asbestos:- Copies of the Federal Register for June 7, 1972 containing the new OSHA Standards for Asbestos were distributed to those in attendance in sufficient quantity to permit reading and discussing. The committee spent the major portion of its time on the Rules and Regulations for exposure to asbestos dust, Methods of Compliance; Monitoring; Warning Signs, Record Keeping; Medical Examinations and Medical Records; as set forth in the Standards.

There was general agreement that the asbestos textile industry, because of the nature of textile manufacturing operations, faced a real problem in trying to comply with the new regulation of 2 fibers per cubic centimeter (which are longer than 5 micrometers) of air, on a time-weighted average, effective July 1, 1976, without incurring excessive manufacturing costs.

2. Vacuum cleaning equipment:- A good discussion was had of various types. A favorable comment was made relative to Nilfish equipment.

3. Other items discussed:-

- Dust collecting equipment
- Wet processing technique in spinning and weaving
- Protective clothing (under OSHA regulations)
- Respirators (as specified by OSHA)

Respectfully submitted,

K.A. Roberts, Chairman

ASBESTOS ADVISORY COMMITTEE

MEETING

June 8, 1972

Key Bridge Marriott Hotel
Washington (Arlington) D.C.

Mr. President:
Mr. Secretary:
Gentlemen:

The Asbestos Advisory Committee met this morning with all member companies in attendance.

Our discussion this morning centered on--as I am sure most of the other committee discussions did--the newly published Standard for Exposure to Asbestos Dust.

We touched on the various interpretations and the possible impact of the Standard, and I want to thank Wendell Alcorn for his succinct review of the Standard's content.

In addition, the proposed banning rule of the Food and Drug Administration was also discussed.

This rule, as presently constituted, would prohibit or ban the shipment of asbestos-containing consumer garments from interstate commerce, except those which were considered to be bona fide protection devices.

Although professing to be on the side of reason, the FDA claims to be under pressure to issue such a ruling which is predicated on the infamous "asbestos coat affair."

Advance copies of the second draft of the proposed banning rule will be mailed to the ATI for review. In the meantime, however, the Chairman of the Asbestos Advisory Committee, representing the ATI, will meet with the appropriate members of the FDA and attempt to present a truer picture of the issue at hand.

Since there was no further business to come before the committee, the meeting was adjourned at 10:45 A. M.

Respectfully submitted,

Edward A. Morris

Edward A. Morris
Chairman

TECHNICAL COMMITTEE

Asbestos Textile Institute - June 8, 1972 - Key Bridge Marriott, Wash., D.C.

In Attendance:

J. W. Hawkins-----Raybestos-Manhattan, Inc.
William Maaskant-----American Asbestos Textile Corp.
D. T. Austin-----Uniroyal, Inc.

Mr. J. Hawkins acted as chairman due to the absence of Mr. Echerd.

MIL-C-10316B - Asbestos Cloth

Mr. Echerd has received a letter from Mr. Masson (Dept. of Army) stating that reference to ASTM D 1573, Heat Aging, has been deleted from MIL-C-10316B. ASTM D 1573 is being removed from the Book of Standards.

Mr. A. M. Blank, Dept. of Army, Belvoir, Va., has advised some customers that MIL-C-10316B is up for revision. ATI or member companies have not been advised. Mr. Echerd will ask for a time extension so textile industry can recommend changes prior to the issuance of the new specification.

MIL-C-82278 and MIL-C-82249 - Herringbone Cloth

Mr. Zemme of Natick has requested samples of 1.2 lb. herringbone cloth for their evaluation. These samples will have a rayon carrier fiber. If tests are satisfactory, rayon will be included in the new specifications. R/M will submit samples.

ASTM D 1118 - Magnetic Rating

Edited copies of D 1118 from ASTM and Dr. Scroggie were reviewed. The Technical Committee was in agreement and minor changes will be passed to Mr. Nicodemus by Mr. Maaskant. The section on sampling was rewritten to clarify the procedure. It was also requested that D 2590 remain as a reference in D 1118.

ASTM D 1918 - Asbestos Content

Edited copies of D 1918 from ASTM and Dr. Scroggie were reviewed. Mr. Maaskant will pass comments to Mr. Nicodemus.

Both D 1118 and D 1918 are presently complete and will be published in the next set of standards.

A procedure on resistivity of asbestos products was submitted, it will be discussed at the September meeting.

Respectfully submitted,

John W. Hawkins, Acting Chairman

FIBER TESTING COMMITTEE

June 8, 1972 - The Key Bridge Marriott Hotel, Arlington, VA.

C.E. Stiefken, Chm. . . .	American Smelting & Refining Co. (Lake Asbestos of Quebec Limited)
D.E. Childers	H.K. Porter Company, Inc.
Walter H. Smith	Bell Asbestos Mines Limited

- Letters have been sent to members at large, and to former chairmen of the ATI Fiber Testing Committee asking for comments and suggestions applicable to the new manual.

2. The Chairman will welcome all suggestions relative to the makeup of the new manual - preferences as to publishing, type of binding, etc. These should reach him well in advance of the next ATI meeting which is to be held on September 18-20, 1972.

3. There are thirty-three available test methods presently being considered for insertion in the new manual. Eighteen of these have been approved by both the QAMA and the ATI, leaving fifteen that have not been approved at this time.

4. We are now at the stage of having to wait for QAMA and ACPA to submit their final approval on the residual tests. When same is received the ATI Fiber Testing Committee will be ready to evaluate all test methods for final printing.

5. A tentative time-table for the test manual project, based on present indications, would be as follows:-

- (a) June 30, 1972 - QAMA working deadline
- (b) September 15, 1972 - QAMA tests delivered to ATI
- (c) October 1972 - Joint meeting of QAMA, ACPA, and ATI to discuss format, printing, binding, etc. (Tentative - probably to be held in Montreal)
- (d) February 1973 - Rough final draft of entire new manual
- (e) March 1973 - All copy for manual to be delivered to the printer.

Assuming the above schedule can be met it is estimated, based on allowing 8 to 10 weeks for printing, that the new edition of the Chrysotile Asbestos Test Manual should be ready for distribution by June 1st, 1973.

Respectfully submitted,

C.E. Stierken, Chairman (*)

Note: The first and second editions were titled -
"Testing Procedures for Chrysotile Asbestos Fibre".

{*) c/o American Smelting & Refining Co.
P.O.Box 127, So.Plainfield,N.J. 07060

Asbestos Textile Institute — General Meeting -- June 7-8, 1972

INTRODUCTION

Last February in Charleston, South Carolina we talked at length about the Williams-Steiger Occupational Safety and Health Act (29 U.S.C. §655) which has now been effective for over a year. This is the Federal law which is administered by the Occupational Safety and Health Administration (OSHA).

Since the February meeting, there have occurred several developments with respect to OSHA which directly affect asbestos producers and users. These developments are the subject of my remarks today.

OSHA DEVELOPMENTS

On January 12, 1972, OSHA invited comments from interested persons on its proposed

"Standard for Exposure to Asbestos Dust". Twelve days later, on January 24th, the Advisory Committee on Asbestos Dust was established to review this standard and make recommendations regarding it. The first meeting of the Committee was held February 3 (while we were in Charleston), at which Dr. Marcus M. Key presented the NIOSH "Criteria Document: Recommendations for an Occupational Exposure Standard for Asbestos". The final fruits of the Committee's work were

scheduled to be seen in the form of a permanent standard for asbestos dust exposure to be promulgated by June 7th. That was yesterday, and has been the main topic of many conversations at this meeting. Thus, the development of a permanent asbestos standard is now past history and attention must be turned to present and future compliance.

It can certainly be expected that enforcement of the new permanent asbestos standard will be as vigorous as the limitations of OSHA personnel and facilities will allow. Great pressure will be applied in favor of strict enforcement by labor unions, as surely as such groups have lobbied in the past for a low standard of exposure to asbestos dust.

In mid-March of this year, the Industrial Union Department of the AFL-CIO called exposure to asbestos dust "the most devastating environmental disaster yet perpetrated by any industrial nation" and announced that it planned to use as an example of the disastrous proportions of the asbestos health hazard the Johns-Manville Corporation plant in Manville, New Jersey. The reason the IUD focused on the Johns-Manville plant, according to a press statement, was "only because the facts are best documented in Manville and because these facts illustrate the need for stringent

control." (See Occupational Safety & Health Reporter, March 16, 1972, at page 967.)

In April, the month following the IUD announcement, there appeared a two-part article in the press directed at the alleged health hazards to which the workers in Manville have been exposed. The first part of the article bore the headline, "A Jersey Town is Dying -- Fast"; the second part opened with the heading, "A Man With 8 Months to Live". The article cited several cases of asbestos-related ailments and statements by Dr. Maxwell Borow and Dr. Irving Selikoff.

A short time later, an inspection was completed at the Manville, New Jersey plant by industrial hygienists of OSHA. On June 1, the report of that inspection, which resulted in the citation of five violations, was summarized in the press.

OSHA termed one of the violations at the Manville plant "serious" and the other four "minor". It said that the serious violation was found in the textiles building, where asbestos is made into yarn for weaving and carding. The four minor violations resulted from employees working without the required protective masks.

The investigation and citation of the alleged violations at the Manville plant should be considered typical of future OSHA activities in the enforcement of the asbestos

standard. Following an investigation and citation of violations, OSHA is required to send a notice of proposed penalties to the company, which then has 15 working days within which to notify the Secretary of Labor that it intends to contest either the citation of the violation or the proposed assessment of penalty. If the employer does not file such a notice, the citation and the assessment of penalty is deemed a final order of the OSHA Commission, and such a final order is not subject to review by any court or agency. It should also be noted that employees or their representatives may file a notice with the Secretary claiming that the period of time fixed for the abatement of the violation is unreasonable; in such case, a hearing is held by the Commission.

Where the employer appeals from a notice of violation or proposed assessment of penalty, he is entitled to a hearing and review by the Commission or hearing examiners. This hearing is a fact-finding proceeding in which the Secretary's citation or proposed penalty may be affirmed, modified or vacated. The Commission's order issued as a result of such hearing becomes final within thirty (30) days. However, if an employer can show that the abatement requirements of a Commission order have not been fulfilled because of factors beyond his control, the Secretary may, after a hearing, either affirm or modify the abatement requirements.

Where a notice of proposed penalty is uncontested or where an employer seeks no review of a final order of the Commission, automatic court enforcement is provided. If the employer fails to comply with this court order, he is subject to punishment for contempt.

However, a final order of the Commission may be reviewed, at the option of the person adversely affected or aggrieved by the order, and the review is by a United States circuit court of appeals. To obtain such review, a written petition must be filed in the court within sixty (60) days following the issuance of the order. This court review is governed by the rule of substantial evidence, that is, the findings of fact by the Commission are conclusive before the court if supported by substantial evidence. These court proceedings may result in an enforcement order, the non-compliance with which would subject the employer to contempt proceedings.

CONCLUSION

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occur in the future. Companies in the asbestos industry now face the task of meeting the new standard; and toward this end, OSHA can be expected to conduct inspections and issue citations wherever warranted.

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Wendell B. Alcorn, Atty.
Cadwalader, Wickersham & Taft

Presentation on Proposed Standard
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March 13, 1972

Mr. Arthur M. Goldberg
Hearing Examiner
U. S. Department of Labor
Office of the Under Secretary
Washington, D. C. 20210

Re: Hearing on Proposed Standard
For Exposure To Asbestos Dust
Beginning on March 14, 1972

Dear Mr. Goldberg:

My name is Alex Kuzmuk. I am a member of the Board of Governors of the Asbestos Textile Institute.

I am here today to officially represent and state the position of the Asbestos Textile Institute and its member companies. We are in opposition to the proposed asbestos dust standards as published in the FEDERAL REGISTER, January 12, 1972. We are also opposed to recommendations proposed in the NIOSH criteria package, and by the Asbestos Advisory Committee.

The asbestos textile industry, which this association represents, includes over 4000 job opportunities in manufacturing, plus approximately 35,000 job opportunities in related product fabrication and sales. The gross business volume for manufacturing alone is over \$80 million per year. The gross volume for related fabrication and sales is, therefore, many times this amount. Although this is not the largest segment of the asbestos industry, it is a very important one. Our product lines include the manu-

Mr. Arthur M. Goldberg
Asbestos Hearing
March 13, 1972
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facture of safety garments, insulations, clutch facings, brake linings, paper dryer felts, mechanical packings and gaskets, laminated plastics, and many other commodities essential to today's technological progress. In many instances, there are no known substitutes for asbestos textile materials.

Subsequent to the enactment of the Occupational Safety and Health Act, the threshold limit value for asbestos dust was reduced from 5 million particles per cubic foot of air to 12 fibres per milliliter, 5 microns or greater in length. We, in the asbestos textile industry, made every possible effort to meet the 12 fibre threshold limit value by re-engineering dust hoods and dust collection equipment on cards, spinners, looms, and many other types of equipment. In addition, many of us initiated wet weaving and made extensive additional changes in processes and materials. When the further reduction to the threshold limit value for asbestos dust was published on December 7, 1971, we began all over again to study plans for revising equipment, processes, and materials, for which we had just spent thousands of dollars to install to meet the 12 fibre level. Many of us have not, and cannot, reduce our dust levels to the emergency and proposed 5 fibre threshold limit value.

If engineering to a 5 fibre level were feasible on the complex types of machinery and equipment used in the textile industry, the cost of implementation would make it extremely doubtful that this industry could survive economically. We are presently being pressed to the wall by our competitors. The cost of a

Mr. Arthur M. Golaberg
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program to meet the proposed asbestos dust standards could be the determining factor for removing American-made asbestos textiles from the market place.

The competition to which I refer will not be required to make extensive capital investments to change processes, provide protective clothing, provide medical examinations, and monitoring. This competition is primarily from foreign imports. I, therefore, take this opportunity to ask this Federal agency whether it will take the responsibility of recommending equitable tariffs to prevent this economic disaster, if the proposed Asbestos Dust Standards become effective.

Beyond the proposed asbestos dust standards published in the January 12, 1972 FEDERAL REGISTER, there are recommendations by the National Institute of Occupational Safety and Health, and the Asbestos Advisory Committee. These recommend further reduction of the asbestos dust threshold limit value to 2 fibres per milliliter, plus many additional requirements concerning respirator equipment, protective clothing, monitoring, and others.

With the problems we are encountering in attempting to reach the present Emergency Asbestos Standard, it is unrealistic to even consider the feasibility of a 2 fibre standard. I would like to point out that Mr. Clifford L. Sheckler, Chairman of the Asbestos Textile Institute Environmental Health Committee, took the initiative in 1964 to request Dr. Lewis Cralley of the

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United States Public Health Service to conduct an epidemiological study of our asbestos textile industry. We recognized then that a potential health problem existed and, therefore, we wanted expert advice and assistance to help us solve it. We have neither received the advice nor the assistance which we had hoped for.

We opened our plants to the United States Public Health Service personnel for environmental studies, review of our records, and physical examinations of our people. Our member companies urged employee participation in the study, and a substantial representative group of workers were involved. We continually requested the United States Public Health Service to increase their efforts and provide interim progress reports.

The Public Health Service Asbestos Study of which I speak has not been completed. A recent report, which is a primary factor in the recommendations by NIOSH and the Advisory Committee, was based on this incomplete study. The information provided in the report was based on opinion and speculation, rather than fact. Had the United States Public Health Service Asbestos Epidemiological Study been completed as continually requested by the Asbestos Textile Institute, we might now be in a position of having factual information as to what the safe threshold limit for asbestos dust really should be.

One factor is pertinent to this point. The asbestos related

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disease involvement in the asbestos textile industry is being related to asbestos dust exposure levels as they presently exist rather than at the time the disease was incurred 25-30 years ago. Such a comparison is invalid. All of the past monitoring for asbestos dust in American textile plants has been done using the impinger method for sampling. Today's proposed standards are based on a fibre level using the Milapore filter method for sampling. There is no accurate correlation of impinger counts versus Milapore filter counts established to date. There has been some work done by the United States Public Health Service, but the results are incomplete. This is but one area that demonstrates the need for further health research studies and evaluations before unnecessarily creating an unrealistic standard that can be the demise of this industry and its related job opportunities.

We respectfully urge the Secretary of Labor to: (1) Reconsider the establishment of asbestos standards; (2) reinstate the threshold limit value for asbestos dust at 12 fibres per milliliter, 5 microns or greater in length for an interim period pending a comprehensive epidemiological study of the entire asbestos industry in the United States. I would like to point out that many comparisons have been made between the British and United States asbestos textile industry concerning health problems. The vast differences in materials, equipment and processes make such comparisons unrealistic. (3) Provide for representation of the Asbestos Textile Institute on future advisory and study

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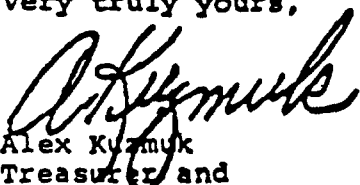
committees.

I would also like to point out that while many detailed requirements are included in the proposed standard, it is absolutely mute on the very important medically substantiated problem of cigarette smoking as associated with exposure to asbestos fibre.

We, of the Asbestos Textile Industry, have the greatest desire to prevent injury to our employees. We believe this can be accomplished without destroying the asbestos textile industry.

Thank you for the privilege of appearing at this hearing today.

Very truly yours,


Alex Kuzmuk
Treasurer and
Member of Board of Governors
for the
Asbestos Textile Institute

ak:jc

Minutes
GENERAL MEETING
Asbestos Textile Institute

SEP 20 1972

MINUTES - - GENERAL MEETING

September 18 - 20, 1972 - SEAVIEW COUNTRY CLUB, Absecon, N.J.

Attendance:

AMERICAN ASBESTOS TEXTILE CORP.

Wm. Maaskant
M.J. Scanlan
H.H. Walter

GARLOCK INC.

S.G. Dixit
Alex. Kuzmuk

JOHNS-MANVILLE CORPORATION

M.J. Cowan
C.G. Guerin
M.S. Lindstrom
J.P. Power (Canadian J/M Co.)
W.B. Reitze
C.L. Sheckler
J.L. Tucker (Retired)

NICOLET INDUSTRIES, INC.

E.W. Russell
J.K. Whittaker

H.K. PORTER COMPANY, INC.

E.C. Bratt
D.E. Childers
J.W. Echerd
L.E. Moody

RAYBESTOS-MANHATTAN, INC.

J.W. Hawkins
R.A. Jann
R.T. Matthew
M.Q. Scowcroft
J.P. Wronski

UNIROYAL, INC.

D.T. Austin, Jr.
B.E. Carden
B.D. Bittinger
L.F. Dieringer
W.C. Hitchcock
S.J. Peele, Jr.

ASBESTOS CORPORATION LIMITED

G.F.A. Brink
P.E. Leclerc

BELL ASBESTOS MINES LIMITED

Marcel Dorais
Walter H. Smith
Wm.J.W. Smith

CASSIAR ASBESTOS CORP. LTD.

Dr. R.A. Kuntze (Ont. Research Fdn)

LAKE ASBESTOS OF QUEBEC LIMITED

E.A. Farrell

MANUFACTURERS MULTIPLES, S.A.

Rafael E. Arnal

NIPPON ASBESTOS CO., Ltd.

Y. Sato

TURNER BROTHERS ASBESTOS CO., LTD.

H.J. Corson, Jr.

ASTM COMMITTEE D13.14

P.O. Nicodemus
P.J. Smith

CADWALADER, WICKERSHAM & TAFT

W.B. Alcorn (Legal counsel)

ASBESTOS TEXTILE INSTITUTE

H.E. Sunbury (Exec. Secretary)

Guests: Frank T. Gatke

(Asbestos Textile Company)

Note: Total attendance at this meeting was 65 persons - which included 21 wives and 44 men!

***** Minutes *****

1. President Moody called the meeting to order at 8:45 A.M. Those in attendance were asked to stand and give their name and company.

(continued)

2. The minutes of the last meeting were presented for reading. On motion by S.J. Peele, Jr., seconded by M.S. Lindstrom, it was voted unanimously to omit the reading of same.

3. Treasurer Kuzmuk presented the Financial Report as of Sept. 1, 1972, stating that the Annual Audit of the Institute's books had been made as of that date under the supervision of Mr. R.E. Jeffery, Controller, GARLOCK INC., and found to be in order. Mr. E.C. Bratt moved that the report be accepted - seconded by Mr. C.G. Guerin - and so voted unanimously. The report is attached.

4. Legal Counsel Wendell B. Alcorn of Cadwalader, Wickersham & Taft, referring to the permanent standard regulating industrial exposure to airborne asbestos dust which was published in June of this year, (OSHA) reviewed one area in which a trade association such as the ATI could take lawful concerted action aimed at influencing governmental processes and obtaining governmental action with respect to the interpretation, implementation and enforcement of the new standard. The full text of his remarks is attached to these minutes.

5. The Fibre Producer's Report was given by Mr. Edward A. Farrell, Sales Manager for Lake Asbestos of Quebec, Limited. His review of the usage of Canadian Spinning Fibre by various countries during the year 1971, and current and anticipated developments in the asbestos mining industry, together with the present supply/demand situation for asbestos fibers of all grades, was most interesting. A brief resume' of his remarks is attached.

6. President Moody announced that the Board of Governors had elected new officers for the coming year:-

President - M.Q. Scowcroft - Raybestos-Manhattan, Inc.

Vice President - Alex. Kuzmuk - Garlock Inc.

Treasurer - E.A. Morris - Uniroyal, Inc.

Also, the election of Mr. M.J. Scanlan, American Asbestos Textile Corporation to serve on the Board of Governors replacing Mr. J.W. Christenbury who resigned last June.

A new chairman for the Asbestos Advisory Committee - Mr. M.S. Lindstrom, of Johns-Manville Corporation - was appointed as successor to Mr. E.A. Morris who has completed the normal two-year term. Mr. Morris, who was unable to attend this meeting due to illness in his family was presented a Certificate of Appreciation "in absentia".

7. Mr. Moody announced with regret that Mr. H.E. Sunbury, Exec. Sec'y of the Institute for the past nine years, had submitted his resignation to be effective by the end of this year. A committee was appointed by the Board of Governors to make recommendations at an early date for his replacement.

8. Committee Reports:- The Chairmen of the committees listed below presented their reports. A copy of each is attached.

Air Hygiene & Mfg. Committee - B.E. Carden, Chairman

Asbestos Advisory Committee - M.S. Lindstrom, Acting Chairman

Technical Committee - J.W. Echerd, Chairman

Fiber Testing Committee - G.F.A. Brink, Acting Chairman

(continued)

Committee reports, continued:-

Environmental Health Committee - L.F. Dieringer, Chairman, was unable to stay for the General Session, and Mr.E.C. Bratt gave the report for him. Mr. Bratt said that every effort possible would be made to convince OSHA that the 5 fiber standard presently in effect should be permitted to continue in lieu of the proposed 2 fiber standard four years hence.

9. President Moody referred to Fiber Testing Committee Report given by acting chairman Brink in which Mr. Brink had suggested that the name of the committee be changed to "Fiber Research and Testing Committee" in order to broaden the scope of activities for future years. Mr. Moody said that the Board of Governors had approved the suggestion, and the committee name would be changed accordingly.

10. Mr. Moody announced that the Board of Governors were planning to change the Institute's BY-LAWS to permit weavers of asbestos-containing fabrics and tapes, for resale as such, who do not manufacture the asbestos yarns used in same, to be eligible for Associate Membership.

11. President Moody thanked the members of the Institute for the beautiful ATMOS clock that was presented to him the previous evening in appreciation of his outstanding leadership during the past two years. He expressed his sincere gratitude for the help and cooperation from members in connection with his duties as president.

12. President Moody introduced incoming president M.Q. Scowcroft and asked him to take over the meeting. Mr. Scowcroft said that as Vice President of the Institute during the past two years it had been a privilege to serve under Mr. Moody's capable leadership and that he would try to live up to the high standard set by his predecessor!

13. The next A.T.I. General Meeting will be held on -

February 8 - 9, 1973 (Thursday & Friday)

at the HYATT REGENCY ATLANTA, Atlanta, Ga.

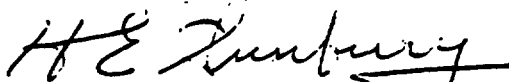
14. The meeting recessed at 9:45 A.M.

15. Luncheon was served at 11:30 A.M.

During the luncheon the Secretary was presented with a clock by members of the Institute in appreciation of his service during the nine years that have elapsed since he took office on July 1, 1963. He expressed his most sincere gratitude for the gift, and for the splendid cooperation given him by the Board of Governors, Committee Chairmen, and Members of the Institute in respect to his duties as Exec. Secretary & Asst. Treasurer. Had faith that the Institute would continue to supply a vital need in the Asbestos Textile Industry in the years to come as it had since its founding back in 1944!

16. Meeting adjourned at approximately 12:45 P.M.

Respectfully submitted,


H.E. Sunbury, Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

September 1, 1972

Balance On Hand at last report (May 1, 1972)

General Fund	\$ 1815.67
Reserve Fund	11173.74
Petty Cash Fund	53.77

Total On Hand

\$13043.18

Receipts:

To Reserve Fund (Interest to 6/30/72)	139.67
To General Fund (1972 Dues)	250.00
To " " (Special Assessments)	2250.00
To " " (Voluntary Contributions)	1375.00
To " " (Book Sales)	54.92

4069.59

Total On Hand and Received

17112.77

Disbursements:

Legal Services (3 mos ending 6/30/72)	\$ 973.00
Legal Expenses (3 " " ")	165.66
Secretary's salary (4 mos.)	938.00
F.I.C.A. Tax (3 mos.)	78.00
N.J.U.A.D. Tax (3 mos.)	33.75
Secretary's travel Expense	98.53
Office rent (4 mos.)	300.00
ATI Meeting expense (June 7-8,1972)	394.94
Printing & Office Supplies	179.84
Telephone (4 mos.)	210.97
Insurance (Office contents - 3 yrs.)	33.50
Revision of Fiber Test Manual	37.35
Postage (Minutes of June mtg.)	24.30
Miscellaneous (Gifts, Flowers, etc.)	141.50
Petty Cash (Vouchers 610-628 inclusive)	97.38

Total Disbursements

3706.72

Balance On Hand as of Sept.1st, 1972 . . . \$ 13406.05

Funds as of Sept.1st,1972

General Fund	\$ 3992.64
Reserve Fund (with interest to 6/30/72)	9313.41 (*)
Petty Cash Fund	100.00

Total Funds

\$ 13406.05

Assets as of Sept.1st, 1972

Total Funds as listed above	\$ 13406.05
Accts Receivable (Special Assessments)	750.00
Accts " " (Book Sales)	4.78
Postage On Hand	10.48
Furniture & Equipment (Nominal Value)	1.00

Total Assets

\$ 14172.31

Liabilities:

none

Net Worth . . . \$ 14172.31

(*) : 2000.00 transferred to General Fund on 7/6/72

Respectfully submitted,

H.E. Sunbury, Asst. Treasurer

FIBRE PRODUCER'S REPORT

Asbestos Textile Institute meeting

Page -1-

September 20, 1972 - Absecon, N.J.

In 1971 the United States was again the largest importer of spinning fibre from Canada. The United Kingdom and Germany followed. Total shipments were down slightly to 30,000 Short Tons from 31,000 Short Tons to a total of 27 countries, as listed below:-

1971 Canadian Group 3 Shipments

United States	13,428	(Short Tons)
United Kingdom	6,001	
West Germany	2,263	
India	1,631	
Japan	1,616	
France	1,029	
Italy	624	
Mexico	588	
Netherlands	530	
Czechoslovakia	469	
	28,179	
17 Others	2,222	
Total 1971	30,401	Short Tons
Total 1970	31,231	" "

The 1971 slowdown of the European and Japanese economies has continued into 1972. This is reflected in the first six months 1972 Canadian shipments (total of all grades) which were 14,000 ST (2.5% less than 1971) in spite of strong U.S. business.

All grades of fibre are currently in good supply except No.7 group is in tight supply.

Many important developments occurred in the Asbestos World including:-

1. Canada - Asbestos Corporation plans to make their first shipment of concentrate ore from Ungava, Quebec to Nordenham, Germany in September 1972.

2. Australia - Woodsreef Mines Ltd., N.S. Wales, Australia (formerly) Pacific Asbestos) controlled by Canadian Pacific Asbestos Ltd., started production in January 1972. The initial production rate will be 45,000 S.Tons per year with a capacity of 80,000 ST/YR.

3. Mexico - Freeport Minerals and Minerva Pegaso's Oaxaca mine is in the field evaluation stage.

4. Greece - Cerro Corporation's Zidani deposit near Kozani is ready for development.

(continued)

5. The Nicolet Industries - Colombian Government mine-mill development has been terminated. A new party may continue the development.
6. Brazil - The new mine at Cana Brava will produce about 20,000ST in 1972. Metas e Bases is also developing a mine-mill for 1973 prodn.
7. Canada - Abitibi Asbestos Mining Company's property near Amos, Quebec, will be explored by Brinco Ltd. A pilot plant evaluation of the ore and fibre grades is planned. Brinco has a 4 year option to put the property in operation and to purchase 51% of the shares. Exploration indicates one million tons of 4% ore. Brinco Ltd. is controlled by Rio Tinto Zinc Co. of England (49%) and Bethlehem Steel (4%).
8. Canada - McAdam Mining Corporation property in the Chibougamau District of Quebec is in exploration by the Rio Tinto Canadian Explorations (Riocanex). Rio Tinto is a wholly owned subsidiary of Rio Algom Mines. Initial McAdam exploration indicates 90 million tons of 3.87% ore.
9. United States - Jim Walter Corporation acquired Glen Alden's Pancon Corp. which includes the old Carey Company asbestos mining, mill, and plants.

Edward A. Farrell
Sales Manager
Lake Asbestos of Quebec, Ltd.

MINUTES

AIR HYGIENE & MFG. COMMITTEE

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Asbestos Textile Institute - September 19, 1972 - Absecon, N.J.

In attendance:-

Buel E. Carden, Chairman ..	Uniroyal, Inc.
L.E. Moody	H.K. Porter Company, Inc
Frank T. Gatke	Asbestos Textile Co., Inc.
H.J. Corson	Turner Brothers Asbestos Co.
Y. Sato	Nippon Asbestos Co., Ltd.
E.W. Russell	Nicotex, Inc.
L.F. Dieringer	Uniroyal, Inc.
B.D. Bittinger	Uniroyal, Inc.
M.J. Cowan	Johns-Manville Corp.
R.T. Matthew	Raybestos-Manhattan, Inc.
S.G. Dixit	Garlock Inc.
J.P. Power	Johns-Manville Co. of Canada
H.H. Walter	American Asbestos Textile Cpn.
E.A. Farrell	Lake Asbestos of Quebec, LTD
C.G. Guerin	Johns-Manville Products Cpn
R. Arnal	Manufacturas Multiples, S.A.
J.K. Whittaker	Nicolet Industries, Inc.

Minutes:-

The meeting included discussions in the following areas:

1. Cleaning to meet OSHA Standards including Vacuum Cleaners and other methods of cleaning.

One company has been very successful in keeping their equipment clean by using small lightweight vacuum units for individual operators. Machine operators are responsible for keeping their machines and work areas clean and dust free. Usually, two operators are used with one on each side of a frame. This enables them to do a better job of cleaning with less cleaning time. The larger vacuum units are used for floors, walls, and heavy cleaning. The use of a chemical (Guardian) light spray is used on machinery, light fixtures, and walls which reduces airborne fibers and dust, making it easier to vacuum and wipe-off these areas.

Another plant has greatly improved the dust and fiber count by eliminating their blending line and using a lap system as they have both breaker and finisher cards. This change has also reduced the amount of cleaning required in this area.

2. Dust Collection Equipment - Methods of Collecting and Frequency:-

The Membrane Filter method is now being used to collect airborne fibers. Counts are usually made after one or two hours. In a good many cases, two (2) pumps are used with one stand-by pump. A new method of weighing fibers rather than counting is under consideration but it is not definite that a change will be made at this time.

(continued)

3. Respirators and Respirator Programs:-

Respirators must be worn in all areas where the asbestos dust concentration is five fibers longer than five (5) microns per cubic centimeter of air. Only respirators approved by the U.S. Bureau of Mines with a rating of 21B, or valveless respirators providing an equivalent protection, shall be used. All respirators must be kept clean and filters changed as often as necessary.

4. Protective Clothing:-

Some plants are using rental clothing while others use a non-woven disposable type. Both types are available in one and two-piece uniforms and the price is about the same. Plastic bags are used for storing the work clothes with two sets of lockers - one for work and one for street clothes.

5. Recent Experiences with OSHA Inspections:-

Two types of inspections are made:

- A. Guards, aisles, signs, and other conditions for worker safety.
- B. Dust and Fiber Counts. This is usually done with two (2) to three (3) pumps.

On a recent inspection the inspector put a pump on an employee. The company also put one of their pumps on this employee. The Inspector's results showed a higher dust count as compared with the company count. However, in this case the company did not agree that its dust count was incorrect and produced past records to prove this. In this particular case the company did not receive a citation.

Respectfully submitted,

Buel E. Carden
Chairman
Air Hygiene & Mfg. Committee

ASBESTOS ADVISORY COMMITTEE - Asbestos Textile Institute

September 19, 1972 - Seaview Country Club, Absecon, N.J.

In attendance:- Mr. M.S. Lindstrom, Acting Chairman;
Mr. M.Q. Scowcroft; Mr. Alex. Kuzmuk; Mr. M.J. Scanlan;
Mr. S.J. Peele, Jr.; W.B. Alcorn, Attorney; H.E. Sunbury, Sec'y

Absent:- Chairman E.A. Morris and Mr. E.W. Russell

Mr. Morris was absent due to illness in his family, and Mr. Lindstrom, acting as Chairman, called the meeting to order at 9:00 A.M.

The proposal by the Food and Drug Administration to ban shipment of asbestos-containing consumer garments from interstate commerce, except those which were bona fide protection devices, as mentioned at this committee's last meeting, was discussed. There was no new information available regarding same.

It was mentioned that a leading manufacturer of safety clothing had suggested that a cooperative program might be set up to determine the extent of any hazard that could develop from use of asbestos safety clothing (such as linting-off) and that McGill University might be a suitable place to have such tests conducted.

Mr. Scowcroft said that if meaningful tests could be developed that he would think it worthwhile for his company to contribute to the cost of the program.

The Secretary suggested that the ABRADO-FLEX machine, developed by the late Dr. Shaw during the time he was Research Fellow for ATI, might have possibilities for use in measuring linting characteristics of asbestos fabrics used in safety clothing.

After some discussion it was decided that the ATI Technical Committee should be asked to devise a test method to determine the amount of airborne dust that may be released during normal use of asbestos textiles.

Chairman Echerd of the ATI Technical Committee was invited in to the meeting, and Mr. Peele explained the need for developing a suitable test method as an aid to the safety clothing industry.

Mr. Echerd said that his company had an ABRADO-FLEX machine and he was familiar with its operation. However, his company had developed a device for flexing fabrics that he thought was better adapted for the purpose, and illustrated the principle by a blackboard sketch.

Attorney Alcorn stressed that a third party, as for example McGill University, should certify the test (or method), NOT A.T.I.

Mr. Scowcroft commented favorably on the bi-lingual folder entitled "ASBESTOS AND YOUR HEALTH" published recently by the Quebec Asbestos Mining Association as a public information aid on behalf of its member-companies. Copies may be obtained by writing to:- Mr. John A. Gossip, Director of Information Services, Quebec Asbestos Mining Association, Room 412, 5 Place Ville Marie, Montreal 113, P.Q., Canada.

The Secretary reported that the ATI brochure "Recommended Health Safety Practices for Handling and Fabricating Asbestos Textile Products" was given some publicity in the August 10th issue of PLANT ENGINEERING Magazine and has resulted in 265 requests for single copies. The requests come from Industrial Hygienists, plant engineers, plant safety personnel, insurance companies, etc. The names and addresses of those to whom the brochure has been sent will be made available to each member of this committee.

Mr. M.J. Scanlan was welcomed as a new member of the committee replacing Mr. J.W. Christenbury who resigned to accept a position outside the asbestos industry.

This meeting concludes the two-year term of Chairman Morris, and the undersigned has been appointed by the Board of Governors as his successor.

Respectfully submitted,

M.S. Lindstrom
Acting Chairman

MINUTES
TECHNICAL COMMITTEE

ASBESTOS TEXTILE INSTITUTE
SEPTEMBER 18-20, 1972 - SEAVIEW COUNTRY CLUB, ABSECON, N.J.

IN ATTENDANCE:

J.W. Hawkins	Raybestos-Manhattan, Inc.
D.T. Austin	Uniroyal, Inc.
W. Maaskant	American Asbestos Textile Corp.
J.W. Echerd	H.K. Porter Company, Inc.
P.O. Nicodemus	General Electric Co.
P.J. Smith	ASTM

Messrs P.O. Nicodemus and P.J. Smith represented ASTM Subcommittee D13.14, Asbestos Textiles.

Proposed Federal Specifications HH-T-1782 for Asbestos Tape and SS-C-1783 for Asbestos Cloth were reviewed by the Technical Committee along with the revised Military Specification MIL-C-10316C for Asbestos Cloth.

Among the changes to be recommended is the deletion of all tolerances covered by ASTM Standards. A reference to the corresponding ASTM Standard should eliminate unnecessary tables and simplify future revisions. Due to numerous other modifications proposed by the committee, the appropriate representatives will be invited to attend a joint meeting with our group.

ASTM Specification D-315, Woven Asbestos Tapes, was reaffirmed as a standard without revision and will be submitted for letter ballot.

ASTM Specification D-1571, Woven Asbestos Cloth, has been revised and will be submitted for letter ballot.

The Board of Governors requested our committee devise a test method to determine the amount of airborne dust that may be released during normal use of various asbestos products. Procedures covering weight loss and dust counts were discussed. Additional methods will be investigated prior to our next meeting.

The following ASTM Standards are under possible revision for next year:

ASTM D-1061, Asbestos Lap
ASTM D-375, Asbestos Roving
ASTM D-299, Asbestos Yarns
ASTM D-2100, Asbestos Textiles Used for Electrical Insulating Purposes.

Plans are to hold a special meeting at the ASTM Headquarters in Philadelphia on November 14th to decide what action should be taken on the above standards.

Respectfully submitted,



J.W. Echerd

Chairman

MINUTES

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Special ATI Fiber Testing Committee Meeting
Seaview Country Club, Absecon, N.J. 18th September 1972

In attendance:

Members: *G.F.A. Brink A/Chairman Asbestos Corporation Limited
 *D.E. Childers H.K. Porter Company, Inc.
 *E.A. Farrell Lake Asbestos of Quebec, Ltd.
 *R.A. Kuntze Cassiar Asbestos Corp., Ltd.
 *W.H. Smith Bell Asbestos Mines Limited
 *J.P. Wronski Raybestos-Manhattan, Inc.

Other ATI

Members: D.T. Austin, Jr. Uniroyal, Inc.
 B.E. Carden " " "
 S.G. Dixit Garlock Inc.
 J.W. Echerd H.K. Porter Company, Inc.
 J.W. Hawkins Raybestos-Manhattan, Inc.
 Wm. Maaskant American Asbestos Textile Corp.

Visitors: F.T. Gatke Asbestos Textile Co., Inc.
 Ralph Lanz Nicolet Industries, Inc.
 Paul O. Nicodemus General Electric Company
 *J.L. Tucker (Editor of 381 Brook Avenue,
 Test Manual) North Plainfield, N.J. 07062

Mr. G.F.A. Brink acted as chairman in the absence of Chm. Stiefken.

Business:

1. Chrysotile Asbestos Test Manual

- 1.1 A special meeting of the Fiber Testing Committee was convened at 3:00 P.M. on the 18th September, 1972 to discuss the third edition of the "Chrysotile Asbestos Test Manual". There were sixteen in attendance at the meeting.
- 1.2 A report on the present status of the thirty-three test methods being considered for inclusion in the manual was submitted by the acting chairman; and Mr. J.L. Tucker reviewed some of the details associated with the preparation and compilation of the material for printing. Preference was still expressed for a loose leaf binder to allow for insertion of revised test methods after printing. It was decided to obtain preliminary quotations from the printers on the basis of 425 pages to enable the various member companies and other organizations to submit estimates for their requirements.
- 1.3 There were a number of worthwhile suggestions from those present; and it was moved and adopted that on account of the time limit involved, no additional new test methods be considered for inclusion in the manual.

(continued)

- 1.4 The acting chairman reported that although the original deadline for the delivery of completed QAMA Test Methods to ATI had been revised to mid-October, it was still hoped that it would be possible to convene a joint meeting of the QAMA, ACPA, and ATI members involved to discuss the format, etc., of the new manual at the end of October.

Minutes of the ATI Fiber Testing Committee - 19th September, 1972

There were six in attendance (indicated by asterisks in the attendance list) at the regular Fiber Testing Committee meeting on the morning of the 19th September, 1972.

Business:

1. New Test Manual

- 1.1 There was some further discussion on the new test manual eg: that the provision of a good quality loose leaf binder (seven ring type) should be reconsidered.
- 1.2 The opinion was expressed that the title of the manual should probably read, 'Test Manual for Chrysotile Asbestos' rather than, 'Chrysotile Asbestos Test Manual'.
- 1.3 It was agreed that, when the final drafts of the QAMA procedures were received, they would be circulated to the committee members for review and comments (10 to 20 copies to be supplied to the chairman for this purpose).
- 1.4 A procedure for the Alpine Test, submitted by Johns-Manville Research, was briefly reviewed. Mr. Tucker was requested to forward ten (10) copies to the acting chairman for distribution to the Fiber Testing Committee and interested QAMA members for their comments and opinions as to whether it should be included in the new manual.

2. Test Methods in General

- 2.1 It was recommended that a list of the test methods submitted to the committee for consideration, but not accepted for printing in the new manual, be established so that copies could be made available to ATI members interested in a particular test.
- 2.2 It was agreed that criteria for the acceptance of new test methods should be established eg; supporting test data and documents.

3. Report to Board of Governors:- Ratification of the acting chairman's 18th September recommendations to the Board of Governors for the future working progress of the committee was requested, namely:-

(continued)

- 3.1 Change the name of the committee to 'Fiber Research and Testing Committee'; and expand its scope to include R.& D. activities of interest to ATI.
- 3.2 Appoint subcommittees to work and report on definite projects etc., in the area of ATI's interest.
- 3.3 Prepare a display of typical asbestos ores and fibers vs man-made fibers for exhibit at a future ATI meeting with appropriate technical presentations by qualified speakers.
- 3.4 Place more emphasis on the presentation of technical papers within the committee and periodically to the Institute eg; annual review of developments in the state of the art of fiber testing.

Respectfully submitted,

G.F.A. Brink, A/Chairman
ATI Fiber Testing Committee
6th October, 1972

Asbestos Textile Institute

September 19 - 20, 1972 - Absecon, N.J.

The OSHA standard for exposure to asbestos continues to dominate activities in the field of environmental health. On July 28, the IUD (Industrial Union Department) of the AFL-CIO filed a petition in the U. S. Court of Appeals in Washington, D. C., challenging the validity of the OSHA standard for asbestos on behalf of 5 unions. The suit as filed contained no detail on which sections of the standard that were challenged. It is expected that a full brief would probably be filed after Labor Day. The Asbestos Information Association plans to file a brief as a "friend" of the court.

At a meeting on August 8 in Washington, OSHA personnel discussed problems OSHA was experiencing because of the lack of reliability of the membrane filter sampling technique. At the meeting, they expressed favor in changing to a gravimetric system of monitoring. A 15 member advisory committee is being assembled to study the many ramifications of the sampling techniques and arrive at a solution.

Three recently published articles may be of interest to members: (1) "Pathology of Carcinoma of the Lung Associated with Asbestos Exposure" by M. Kannerstein and J. Churg, Cancer Journal, Volume 30, page 14, July, 1972; (2) "Asbestos Air Pollution" by I. Selikoff, W. Nicholson and A. Langer, Arch. Environmental Health; Volume 25, page 1, July 1972; and (3) "Carcinogenicity of Amosite Asbestos" by I. Selikoff, E. Hammond and J. Churg, Arch. Environmental Health, Volume 25, page 183, September 1972.

In their article Kannerstein and Churg say that they have confirmed through human lung cancer cases the theory that occupational exposure to asbestos enhances the cancer causing effects of cigarette smokers. Further, asbestos exposure by itself does not appear to increase the incidence of lung cancer among asbestos workers who do not smoke. Their data indicates that the incidence of lung cancer among cigarette smoking asbestos workers was 92 times as great than for non-smokers not exposed to asbestos. They draw the conclusion that it is as a cocarcinogen in combination with cigarette smoking, that asbestos has an effect. In their article, Asbestos Air Pollution, Selikoff et al, states that the occurrence of asbestos air pollution has been established, based on finding by others of mesothelioma among individuals living in the vicinity of asbestos plants and their findings in a study on measurement of asbestos (chrysotile) content of ambient air in New York City and lungs of New York residents examined at autopsy regularly showing chrysotile fibrils.

(continued)

Based on a study of the mortality experience of a group of workers occupationally exposed solely to amosite when excess lung cancer and mesothelioma were found, Selikoff, Hammond and Churg state in their paper that a serious health hazard is associated with the industrial use of amosite and that its continued use requires rigorous control.

Since the June meeting, NIOSH has submitted published criteria packages for noise, carbon monoxide and hot environments to the OSH Administration. Members of the Institute should become familiar with the provisions of these proposed standards which may have an effect on some of their operations.

At a meeting of the Georgia Textile Manufacturers Association in August at Atlanta, the Assistant Regional OSHA Administrator stated that as soon as the new noise standard is adopted, plant inspectors for Noise will increase in tempo with strict enforcement expected. He emphasized that (1) companies must show evidence that efforts are being made to reduce noise levels through documentation of any study whether the results are positive or negative; (2) hearing conservation programs be initiated; (3) hearing protection be used only as an interim measure; (4) companies start thinking in terms of an 85 decibels standard rather than 90 decibels; and (5) OSHA inspectors will base citations on their measurements, not company data.

L. F. Dieringer
Chairman Environmental Health Committee

LFD:rg

REMARKS OF COUNSEL

Asbestos Textile Institute -- General Meeting -- Sept. 20, 1972

INFLUENCING GOVERNMENTAL ACTION

An organization such as ATI is an association of competitors. As such, its activities must conform to federal and state antitrust laws. These laws forbid certain kinds of conduct, such as agreements to fix prices among competitors, allocations of markets or customers and so forth. In general, antitrust prohibitions, in the context of trade associations, are aimed at contracts, combinations and conspiracies among competing companies, or suppliers and their customers which result in unreasonable restraint of trade.

It is important to recognize, on the other hand, that the antitrust laws do not forbid all concerted action among companies. If the law were otherwise, there would be no purpose for which a trade association could legally exist.

This morning, I shall review with you one area in which a trade association may take lawful concerted action. That is, efforts aimed at influencing governmental processes and obtaining governmental action. This should be of particularly vital concern during the coming months

with respect to the interpretation, implementation and enforcement of the permanent standard regulating industrial exposure to air-borne asbestos dust which was published in June of this year, and which will limit such exposure to two fibers not longer than 5 micrometers per cubic centimeter of air by July 1, 1976.

Legal Criteria for Influencing Governmental Processes

Broadly speaking, there have historically been two kinds of attempts to affect governmental processes through collective efforts of businessmen: first, attempts to influence the enactment and enforcement of legislation and, second, attempts to influence purely commercial activities of governmental agencies. Those actions designed to influence the enactment and enforcement of legislation have been held by the courts to be protected by the First Amendment's guarantee of the right to petition government, and thus they do not violate the antitrust laws, specifically, for example, the Sherman Act. See, e.g., Eastern Railroad Presidents Conference v. Noerr Motor Freight, Inc., 365 U.S. 127 (1961). Conversely, concerted efforts to influence

purely commercial activities of governmental agencies have been viewed as outside the protection of the First Amendment, and therefore such attempts may constitute antitrust violations. See, e.g., Continental Ore Co. v. Union Carbide Corp., 370 U.S. 690 (1962).

The Noerr Doctrine -- In 1961, the U.S. Supreme Court handed down a decision in Eastern Railroad Presidents Conference v. Noerr Motor Freight, Inc., 365 U.S. 127 (1961). That case arose when a number of trucking firms and their trade association brought suit against some railroads, an association of ~~the~~ railroads' presidents and a public relations firm. The complaint charged a conspiracy to discredit truckers through a publicity campaign and to influence legislation in a manner purposely designed to harm the trucking industry. Id. 129, 133, 138. The lobbying efforts by the railroad interests were made through "front" organizations, ostensibly organized for civic purposes. Id. at 130, 140.

The trial court found the defendants guilty of violating the Sherman Act, and this was affirmed by the court of appeals. However, the Supreme Court, in reviewing the case, reversed in favor of the railroad interests

and emphasized that the Sherman Act is intended to regulate "business activity" and not "political activity". Id. at 137. To allow the antitrust laws to be used to regulate political activity would "raise important constitutional questions" under the First Amendment. Id. at 138.

In an effort to get around this basic constitutional principle, the truckers argued that the railroads' "sole purpose in seeking to influence the passage and enforcement of laws was to destroy the truckers as competitors * * *" Id. Also it was alleged that unethical means, such as the use of "front" organizations, had been used to state the railroads' position. Id. at 140. Nevertheless, the Supreme Court held that such purpose and such practices failed to nullify the railroads' constitutional right to petition government.

In explaining its holding in the Noerr Motor Freight case, the Supreme Court said that the "campaign designed to influence governmental action" was not illegal under the Sherman Act regardless of any anticompetitive purposes which may have motivated it. This, in spite of the fact that the means employed by the railroads fell "far short of ethical standards generally approved in this country". Id.

Continental Ore Co. v. Union Carbide Corp.,
370 U.S. 690 (1962) -- The year following its decision in the Noerr Motor Freight case, the Supreme Court handed down its decision in Continental Ore Co. v. Union Carbide Corp. This case involved an issue of legality concerning group activity designed to influence the purchasing practices of a governmental agency. Although this group activity was not conducted through a trade association, the holding is nevertheless pertinent to trade association activities.

The defendants included Union Carbide and Carbon Corporation and four of its wholly owned subsidiaries. The plaintiff, Continental Ore, alleged that defendants had engaged in monopolistic and restrictive practices which resulted in the frustration of Continental's efforts to enter and maintain itself in the vanadium business in the following manner: Continental had established a vanadium trade with a Canadian customer during 1942. But when a Canadian subsidiary of Carbide was appointed by the Canadian Government as the exclusive wartime agent to purchase and allocate vanadium for Canadian industries, Continental was eliminated from the Canadian market, allegedly through actions by Carbide's Canadian subsidiary.

The lower courts held for the defendants, relying on the rationale that the Canadian subsidiary of Carbide "was acting as an arm of the Canadian Government and we [the Court of Appeals] do not see how such efforts as * * * defendants took to persuade and influence the Canadian Government through its agent are within the purview of the Sherman Act." 289 F.2d at 94, citing Noerr, supra.

The Supreme Court reversed the holding for defendants and distinguished the Noerr Motor Freight case. Rather than engaging in protected political activity, the vanadium producers "were engaged in private commercial activity, no element of which involved seeking to procure the passage or enforcement of laws." 370 U.S. at 707.

United Mine Workers v. Pennington, 381 U.S. 657 (1965) -- In 1965 the Supreme Court decided a case which involved a claim by several small coal operators that the United Mine Workers and a number of larger operators had violated the Sherman Act by concerted influence on government. Specifically, it was alleged that the defendants had persuaded the Secretary of Labor to establish wage rates for companies selling coal to the Tennessee Valley Authority at a rate too high for small coal operators to pay. 381 U.S. at 660. The alleged

intent underlying such action was to prevent small coal operators from competing for TVA orders and thereby to hurt nonunion coal operators. Id.

The lower federal courts considered the Noerr Doctrine and ruled that protection afforded thereunder from the antitrust laws was applicable "only to conduct 'unaccompanied by a purpose or intent to further a conspiracy to violate a statute'". Id. at 669. But the Supreme Court reversed and re-emphasized the teaching of the Noerr holding by saying that it "shields from the Sherman Act a concerted effort to influence public officials regardless of intent or purpose. * * * Joint efforts to influence public officials do not violate the antitrust laws even though intended to eliminate competition." Id. at 670.

Limits on the Noerr Doctrine -- Since the decision in the United Mine Workers case, there have been limitations placed on the protection afforded group activity among businessmen in dealing with governmental bodies and agencies. In 1970, it was held by a U.S. Circuit Court of Appeals that the Constitution does not immunize from the Sherman Act efforts to obtain restrictive product specifications. George R. Whitten, Jr., Inc. v. Paddock Pool Builders, Inc., 424 F.2d 25 (1st Cir.), cert. denied,

400 U.S. 850 (1970). In this case, the defendant was charged with having violated the antitrust laws by influencing product specifications used by a governmental agency for competitive bidding purposes with the result that only the defendant's product could meet the specifications. Id. at 27. The court held this activity unprotected from antitrust attack and said, "The entire thrust of Noerr is aimed at insuring uninhibited access to government policy makers * * * to influence the passage or enforcement of laws." Id. at 32. Protection from antitrust does not extend to purely commercial activity involving governmental administrators which the legislature itself has decided should be subject to competitive bidding. Id. at 33.

A distinction has thus been drawn between actions designed to influence executive or administrative agencies in implementing rather than forming governmental policy. When efforts are designed to affect implementation of governmental policy, a showing by a plaintiff that the efforts were motivated by anti-competitive designs may result in a holding that the Sherman Act has been violated. For example, the filing of false forecasts of demand on which production quotas for gas fields were based was held unprotected by the Noerr Doctrine in Woods Exploration & Producing Co., Inc. v. Aluminium Co. of America, 1971 Trade Cases ¶ 73,422 (5th Cir. 1971).

The most recent Supreme Court decision that has struck down group activity designed to influence the government involved two opposing groups of California truckers. One group sued the other claiming that defendants conspired to monopolize trucking in California by opposing plaintiffs' application for additional operating rights filed with the California Public Utilities Commission. The Supreme Court pointed out that Noerr recognized that "there may be instances where the alleged conspiracy 'is a mere sham to cover what is actually nothing more than an attempt to interfere directly with the business relationships of a competitor and the application of the Sherman Act would be justified.'" Quoting Noerr, 365 U.S. at 144. In the California Trucking case, the defendants had sought not to influence public officials but rather to bar their competitors from meaningful access to tribunals and usurped the decision-making process. And although Noerr indicated that unethical tactics did not necessarily spell antitrust violations, concerted activity which is intended to deprive one group of access to agencies and courts may violate the antitrust laws if intended to "build up one empire and destroy another". In writing for the majority, Mr. Justice Douglas conceded that the distinction between a

political campaign (protected from the antitrust laws) and a conspiracy to prevent access to the political process may be difficult to draw. Nevertheless, that is a distinction on which the present state of the law rests.

Conclusion -- Organizations of businessmen, whether in the form of trade associations or otherwise, can take comfort from the pronouncement and development of the Noerr Doctrine. In this time when governmental decisions and enforcement affect this industry's welfare so dramatically, the right collectively to petition and be heard by government is a precious one that should be jealously guarded and exercised at every appropriate opportunity.

Wendell B. Alcorn, Attorney
CADWALADER, WICKERSHAM & TAFT

Minutes
GENERAL MEETING
Asbestos Textile Institute

FEB 9 1973

ASBESTOS TEXTILE INSTITUTE

General Meeting

February 9, 1973
Hyatt Regency Atlanta, Atlanta, Georgia

In Attendance

AMATEX CORPORATION

H. H. Walter

GARLOCK INC.

S. G. Dixit
A. Kuzmuk

JOHNS-MANVILLE CORPORATION

C. G. Guerin
A. R. Morrill (C.J-M)

NICOLET INDUSTRIES, INC.

E. W. Russell

H. K. PORTER COMPANY, INC.

D. E. Childers
J. W. Echerd
L. E. Moody

RAYBESTOS-MANHATTAN, INC.

G. F. Ducker
J. W. Hawkins
R. T. Matthew
M. Q. Scowcroft

UNIROYAL, INC.

D. T. Austin
B. E. Carden
L. F. Dieringer
R. C. Hunt
E. A. Morris
S. J. Peele, Jr.

ASBESTOS CORPORATION LTD.

P. E. Leclerc

BELL ASBESTOS MINES LTD.

W. H. Smith

CASSIAR ASBESTOS CORPORATION LTD.

Dr. R. A. Kuntze
(Ontario Research Foundation)

LAKE ASBESTOS OF QUEBEC LTD.

E. A. Farrell
C. E. Stiefken (Asarco)

NIPPON ASBESTOS COMPANY, LTD.

Y. Sato

TBA INDUSTRIAL PRODUCTS LTD.

H. J. Corson, Jr.

CADWALADER, WICKERSHAM & TAFT
W. B. Alcorn (Legal Counsel)

ASBESTOS TEXTILE INSTITUTE

D. M. Fagan (Executive Secretary)

Total attendance during this two-day meeting was 43 people, including 9 women and 34 men.

M I N U T E S

1. President M. Q. Scowcroft called the General Meeting to order at 1:30 P.M., February 9, 1973, with a welcome to all in attendance. He stated each member of the Board of Governors is making every effort to strengthen the organization and some ideas are in the making that

will be announced in the very near future. He voiced it was an exciting experience to start out with a wonderful new slate, including the new Executive Secretary, Mrs. Doris M. Fagan. He hoped the Board will be innovative but will not try to be too revolutionary. He expressed a desire for the same support and cooperation from all involved with the ATI as has been received in the past.

2. Continuing the already-established tradition, President Scowcroft asked each member in attendance to rise and state his name and company affiliation.

3. Upon presentation, it was moved by A. Kuzmuk, seconded by E. A. Morris, to dispense with the reading of the minutes of the last stated meeting. The motion was so carried.

4. Treasurer Morris presented the Financial Report (see attached) showing total assets and net worth of the ATI as of January 2, 1973. As an up-date to the report, as of February 7, 1973, the Institute had received all dues from the member companies and the total in the savings account as of that date stood at \$21,346.91. S. J. Peele, Jr., moved that the report be accepted. The move was seconded by C. G. Guerin and so voted, unanimously.

5. The Legal Counsel address was given by W. B. Alcorn of Cadwalader, Wickersham & Taft. Since the current activities concerning OSHA requirements are being reviewed within the pertinent committees, Mr. Alcorn confined his talk to some of the basic principles of antitrust law which govern the distribution and marketing of products. He reviewed four U.S. Supreme Court cases that have been decided in this area. The full text of his report, written as formal Remarks of Counsel, is attached to these Minutes.

6. The Fibre Producers' Report was presented by Paul E. Leclerc, Regional Sales Manager with Asbestos Corporation Ltd. For the year 1972, total shipments of asbestos from the Quebec Asbestos Mining Association were 1,372,677 tons, 2.3% or roughly 31,000 tons over those for 1971. The increase was mostly in Group 7. Group 3 shipments were up only 154 tons. For 1973, Eastern Quebec producers' stocks of Group 3 Spinning Fibre are good and production should be adequate for any increase in demand. Mr. Leclerc then referred to Asbestos Corporation's activities, especially the new finishing mill at Nordenham, Germany, and gave a few remarks about the availability of certain asbestos grades from Cassiar Asbestos Corporation. A copy of the full report as presented by Mr. Leclerc is attached.

7. Committee Reports were presented to the general membership, as listed below:

Air Hygiene & Manufacturing, by Chairman R. E. Carden;
Asbestos Advisory, by Acting Chairman E. A. Morris;
Technical, by Chairman J. W. Echerd;
Fiber Research & Testing, by Chairman C. E. Stiefken;
Environmental Health, by L. F. Dieringer.

In presenting the Asbestos Advisory Committee report, Mr. Morris added his personal note by thanking the members of the Institute for the Certificate of Appreciation he received, in absentia, at the last General Meeting. He expressed it had been both a pleasure and his honor to have served as Chairman of the Asbestos Advisory Committee over the past two years.

Response from the floor concerning Environmental Health included the following comment by S. J. Peele, Jr. Even though it appears the pressure is off on dust count citations, companies would be well advised to get the obvious things corrected at their plants to avoid OSHA citations in other areas. L. F. Dieringer agreed and elaborated on the idea by saying when a citation is received, companies should be sure to request a reasonable abatement period within which to correct the situation. This will diminish the chance for a premature second inspection, the result of which could be a "willful" citation charge.

8. Addressing the Membership, President Scowcroft stated he wished to retain the flexibility of having a speaker at a given ATI meeting when it was deemed meaningful and important. He advised of the probability there will be a speaker at the next two meetings and requested that members suggest to others at their companies that they attend the meetings as the presentations should be pertinent and interesting. Tentatively, Dr. J. Corbett McDonald is being considered as a speaker at the June 1973 meeting and will be contacted through the efforts of E. A. Farrell. A recognized expert on the medical aspects of asbestos and health and representing the Quebec Asbestos Mining Association, Dr. McDonald is an Epidemiologist with the Department of Epidemiology and Health, McGill University. Also, ATI has been approached by the Asbestos Information Association/North America who is currently in the process of establishing a program of capable speakers on what the AIA/NA is doing. Possibly ATI will contact AIA/NA for the October 1973 meeting. President Scowcroft praised the AIA/NA stating it is doing an admirable job of keeping the Industry informed. He specifically referred to an article by Robert Sherrill printed in the January 21, 1973, edition of the New York Times. In rebuttal, the AIA/NA wrote a factual, comprehensive Letter to the Editor of the "Times." The newspaper responded it would consider publishing the rebuttal, if it were reduced to 400 words from the original six-page typewritten letter.

9. The next General Meeting of the Asbestos Textile Institute will be held --

June 6-7, 1973
Key Bridge Marriott, Arlington, Virginia

Other future General Meetings include October 3-5, 1973, at Wychmere Harbor Club, Harwichport, Massachusetts; February 6-7, 1974, at the Mills Hyatt House, Charleston, South Carolina; June 1974 in the Washington, D.C., area; September 25-27, 1974, at The Cloister, Sea Island, Georgia; and February 1975 in the Philadelphia or surrounding area.

P. E. Leclerc expressed preference that the last day of each meeting fall on a Friday so members may extend their stay into the weekend if they so desired. It was agreed this was the general feeling of Institute members and every effort will be made to oblige whenever possible.

10. President Scowcroft advised that the mailing of the Minutes of this General Meeting will include the new ATI Directory.

11. President Scowcroft expressed appreciation to H. E. Sunbury, the former Executive Secretary of the ATI, and to D. M. Fagan for being so detailed with the changeover, resulting in a very smooth transition.

12. As the new Executive Secretary, Mrs. Fagan thanked the members for their confidence in her capabilities. She stated it is and will be a privilege and a pleasure to work with this segment of the Industry -- and an honor for ASBESTOS Magazine. She also expressed the appreciation of the Magazine for ATI member support to the proposed reprinting of "The History of the Asbestos Textile Industry in the United States," by John A. Bettes, Jr., and regretted to advise the response was insufficient to justify printing costs plus other expenses that would necessarily be involved. In answer to a query from the floor, via E. A. Farrell, separate chapters of the "History" are available solely through the purchase of the individual issues of the Magazine in which they appeared.

13. There being no further business to be brought before the membership, the meeting was adjourned at approximately 3:30 P.M. via a move by E. A. Morris, seconded by L. F. Dieringer, and unanimous approval by the attending members.

Respectfully submitted,

Doris M. Fagan
Doris M. Fagan,
Executive Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds

January 2, 1973

Balance On Hand at last report (Sept.1,1972)

General Fund	\$ 3992.64
Reserve Fund	9313.41
Petty Cash Fund	100.00

Total On Hand

\$ 13406.05

Receipts

To Reserve Fund (Interest to 12/31/72)	233.49
To General Fund (Special Assessments)	750.00
To General Fund (Voluntary Contributions)	250.00
To General Fund (Book Sales)	99.48

Total Received

1332.97

Total On Hand & Received

14739.02

Disbursements

Legal Services & expenses (3rd Qtr,1972)	1284.11
Secretary's salary (4 mos.)	938.00
F.I.C.A. Tax (3rd Qtr.,1972)	78.00
N.J.U.& Dis. Tax (3rd Qtr.,1972)	33.75
Secretary's Travel expense	188.14
Office rent (4 mos.)	300.00
A.T.I. Meeting expense (Sept.18-20, 1972)	905.61
Printing & Office Supplies	245.53
Telephone (4 mos.)	166.44
Insurance - \$92.00; ASTM Dues-\$25.00	117.00
Revision of Fibre Test Manual	171.45
Accountant (Caruso, Year ending Sept.1972)	300.00
Moving expense (Office equipment to W.G.,Pa.)	111.30
Miscellaneous (Gifts, Flowers,etc.)	176.15
Petty Cash (Vouchers 629-664 inclusive)	129.71

Total Disbursements

5145.19

Balance On Hand as of January 2, 1973 \$ 9593.83

Funds as of January 2, 1973

General Fund	1396.93 (*)
Reserve Fund (with interest to 12/31/72)	8096.90 (**)
Petty Cash Fund	100.00

Total Funds

\$ 9593.83

Assets as of January 2, 1973

Total Funds as listed above	9593.83
Accts Receivable (Member's Dues,1973)	14250.00
Accts " (Book Sales)	18.71
Postage On Hand	.66
Furniture & Equipment (Nominal value)	1.00

Total Assets

\$ 23864.20
none

Liabilities

Net Worth

\$ 23864.20

(*) \$50.00 transferred to Reserve Fund on 11/18/72

(**) \$1500.00 transferred to General Fund on 12/11/72

Respectfully submitted,

H.E. Sunbury
H.E. Sunbury

FIBRE PRODUCERS' REPORT

[Presented at ATI General Meeting, February 9, 1973, at the Hyatt Regency Atlanta, Atlanta, Georgia]

Following is a brief report on the asbestos industry for 1972.

Total shipments from the Quebec Asbestos Mining Association were up 2.3% or 31,000 tons. It should be noted however that the increase was in group 7 which is up 63,000 tons.

Shipments of group 3 were up by 154 tons and group 4 by 3,800 tons. Shipments of groups 5 and 6 were down 37,000 tons. Total shipments from the QAMA were 1,372,677 for the year.

Now looking at 1973 and especially to the group that is of most interest to you, stocks of spinning fibre from the Eastern Quebec producers are good and production should be adequate to take care of any increase in demand this year, which we sincerely hope will materialize.

Present stocks of groups 4, 5, 6 and 7 are good but there has been a stronger demand than usual for asbestos at this time of year and customers are, on the whole, very optimistic as to their total requirements for the year.

It could very well happen that some of these grades might be in short supply before year end.

Talking about my own company, as you know, we have been mining in Northern Quebec and last year we started shipping ore concentrate to our finishing mill in Germany to start the mill production. Unfortunately, the severe storm which hit Europe last fall was particularly felt in the Nordenham area and some of the buildings at our new plant were severely damaged thus delaying the start of our milling operations.

We are at the moment in the early stages of production and at the outset the tonnages that are forthcoming from this plant will be solely for the asbestos cement industry in Europe and this should release extra Thetford fours and fives to the North American market.

It is possible that at some time in the future, if the Asbestos Hill ore is found to contain sufficient long fibre, and if market conditions warrant it at that time, some spinning fibre may eventually be produced at our Nordenham mill. At the moment, however, only one, two or possibly three grades of asbestos-cement fibre in the four or five-group range will be made.

Regarding Cassiar, Mr. W. J. W. Smith has informed me that grades AAA and AA are in short supply and that grade A and other shorter grades are readily available.

Paul E. Leclerc,
Regional Sales Manager
Asbestos Corporation Ltd.

M I N U T E S

AIR HYGIENE & MANUFACTURING COMMITTEE

Asbestos Textile Institute
February 9, 1973 -- Hyatt Regency Atlanta, Atlanta, Georgia

The following fifteen (15) members and guests attended, representing ten (10) companies:

Amatex Corporation -- H. H. Walter;
Garlock Inc. -- S. G. Dixit;
Johns-Manville Corporation -- C. G. Guerin, A. R. Morrill (C.J-M)
W. B. Reitze;
Lake Asbestos of Quebec Ltd. -- E. A. Farrell;
Nippon Asbestos Co. Ltd. -- Y. Sato;
H. K. Porter Company, Inc. -- L. E. Moody;
Raybestos-Manhattan, Inc. -- G. F. Ducker, R. T. Matthew, I. H. Weaver;
TBA Industrial Products Ltd. -- H. J. Corson, Jr.;
Uniroyal, Inc. -- B. E. Carden, L. F. Dieringer, R. C. Hunt.

The meeting included discussions in the following areas: recent experiences with OSHA inspections, cleaning to meet OSHA standards, protective clothing, lockers, etc., noise control, changes and improvements in manufacturing.

OSHA inspectors usually spend two to three days on asbestos plant inspections. The number one item on the inspection list is dust counts, and is closely followed by electrical equipment and associated controls. Also, warning and information signs. Good house-keeping practices and properly marked aisles are also near the top of the OSHA check list.

In all recent inspections, OSHA's dust count is much higher than the company count, and in some cases it is from three (3) to five (5) times higher.

The best effort or degree of accuracy in checking dust counts is a plus or minus 40% and in some cases has checked as much as plus or minus 300%. In view of these differences, some plants have used an outside laboratory to recheck their dust samples. The outside check correlated very closely with the company check.

It was pointed out that weather conditions affect plant dust counts and counts are usually higher in cold, dry weather. Also, dust counts taken from machine to machine show higher counts. For example, a count taken at number 1 machine will be lower than a dust count taken at machine number 3. This is caused by dust generated by machines number 1 and 2, some of which is picked up by the number 3 machine.

Some plants have a daily schedule of cleaning all cards while others clean twice a week. As far as cleaning and housekeeping are concerned, the advice from those who have had inspections is to keep the plant in tip-top shape at all times, as "good" is not good enough for OSHA.

In one recent inspection, protective clothing from head to foot was recommended by the inspector. It is felt that in all plants, workers in some areas will be required to wear some protective clothing.

Companies should be looking closely for ways of lowering plant noise levels. The use of ear plugs is a temporary means of controlling noise. As discussed in this meeting, noise levels can be reduced by slight changes in some machinery and with better fixing and repairs.

One plant eliminated the use of ear plugs in the carding department by making changes in the condenser section. This change reduced the noise level from 92 decibels to 84 decibels.

Respectfully submitted,

Buel E. Carden, Chairman

M I N U T E S

ENVIRONMENTAL HEALTH COMMITTEE

Asbestos Textile Institute
February 9, 1973 -- Hyatt Regency Atlanta, Atlanta, Georgia

The Environmental Health Committee met for a short time on Friday morning, February 9, 1973. Present were L. F. Dieringer and W. B. Reitze, and at the Committee's invitation, Mr. I. H. Weaver.

Discussion on asbestos centered mainly on problems associated with the method of measurement of airborne asbestos fibers. Controversy surrounds the reproductibility of fiber counts on the same membrane filter samples. Various studies and round-robin fiber counting of samples have shown variations of up to three-hundred percent in fiber counts. The general feeling was that as a result of the controversy, there has been a slow-down in OSHA inspections for airborne asbestos exposures, and that citations are very possible where the ceiling concentration of ten fibers per cubic centimeter was exceeded and respiratory protection not provided.

Other discussion centered around the NIOSH criteria for recommended standards, particularly for noise and heat stress. The proposed noise standard differs from the presently promulgated OSHA standard in that it is recommended that: (1) new installations be designed with noise control for a limit of 85 dBA and that after a time period determined by the Department of Labor, 85 dBA be the limit for all places of employment; (2) medical surveillance in the form of an audiometric testing program be carried out; (3) hearing protection be authorized only as an interim measure until engineering and administrative controls and procedures are implemented. The proposed heat stress standards have many features which will be difficult to administer. It should be remembered that NIOSH, which is a part of the Department of Health, Education and Welfare, bases its criteria for recommended standards on a compilation of research and actual experience. Their recommendations are forwarded to the Department of Labor for consideration for incorporation in proposed OSHA standards. The Department of Labor has established standards advisory committees for both noise and heat stress, who held their initial meetings in February. It is difficult at this time to speculate when these standards will be issued.

Respectfully submitted,

L. F. Dieringer, Chairman

M I N U T E S

ASBESTOS ADVISORY COMMITTEE

Asbestos Textile Institute
February 9, 1973 -- Hyatt Regency Atlanta, Atlanta, Georgia

IN ATTENDANCE:

E. A. Morris, Acting Chairman
M. Q. Scowcroft
A. Kuzmuk
E. W. Russell
W. B. Alcorn (Legal Counsel)

ABSENT:

E. C. Bratt
T. P. Jackson
M. J. Scanlan
D. M. Fagan
(Executive Secretary)

Mr. Jackson was not able to attend due to a conflicting national sales meeting of Johns-Manville Corporation. He replaces M. S. Lindstrom on the Committee, due to reassignments at Johns-Manville.

Mrs. Fagan was attending meetings of the other Committees to familiarize herself with their activities.

E. W. Russell was appointed as Chairman of the Asbestos Advisory Committee for the remaining portion of the two-year term, a responsibility previously held by Mr. Lindstrom who is unable to serve in that capacity due to the afore-mentioned reassignment at Johns-Manville. Good wishes were expressed for Mr. Lindstrom in his new position with J-M.

Of primary interest to the Committee was the progress made by the Technical Committee on the development of a meaningful test to determine the amount of dust generated by a given asbestos cloth when subjected to subsequent fabrication. An up-to-date status report on the development of this test is given in the accompanying Minutes of the Technical Committee.

Respectfully submitted,

E. A. Morris,
Acting Chairman

MINUTES

FIBER RESEARCH & TESTING COMMITTEE

Asbestos Textile Institute
February 9, 1973 -- Hyatt Regency Atlanta, Atlanta, Georgia

IN ATTENDANCE: C. E. Stiefken, American Smelting & Refining Co.
D. E. Childers, H. K. Porter Company, Inc.
W. H. Smith, Bell Asbestos Mines, Ltd.
R. A. Kuntze, Cassiar Asbestos Corporation Ltd.

The Committee Meeting was devoted exclusively to work on the third edition of the Test Manual.

The new manual, titled "Test Manual for Chrysotile Asbestos," will have approximately 400 pages containing 31 tests. It will be in looseleaf form and will cost between \$4.50 and \$5.00, including a flexible binder.

The Quebec Asbestos Mining Association will supply originals of three new tests and sixteen rewritten tests, including all photographs and sketches. The Asbestos Textile Institute will supply master sheets of twelve retained tests, and together these will be submitted in rough draft form to the printer for final cost estimating.

The Asbestos Textile Institute membership is requested to submit to C. E. Stiefken, Chairman of this Committee, its required number of copies of the full manual and any separate individual tests desired.

After discussion, the following Committee decisions were made:

- a) Elimination of the proposed Alpine Dry Screening test. The QAMA does not wish to sponsor this test and the ATI has insufficient background on the test to sponsor it at this time.
- b) It was decided to leave out of the index section the form in which the tests are written.
- c) The manual will be in seven sections, each section divided by a blank card page containing an edge identification tab.
- d) It was decided that where a test was deleted from the old second edition manual, a new test would receive that number, so that no blanks would appear in the test index, and numerical continuity would be retained.
- e) Summary descriptions of all tests would be written in both French and English.
- f) An acknowledgment listing of members of associations contributing to the work of rewriting the manual would be retained.

It was hoped that by the next meeting of the Association in June at Arlington, Virginia, that the printer will have the rough draft, and that by the October meeting the manual will be completed.

Respectfully submitted,
C. E. Stiefken, Chairman

REMARKS OF COUNSEL

Asbestos Textile Institute General Meeting
February 9, 1973, Atlanta, Georgia

Last September in Absecon, New Jersey, I discussed with you one of the antitrust cases which was recently decided by the Supreme Court. That case was California Transport v. Drucking Unlimited, 404 U.S. 508 (1972). It further refined what is known to lawyers as the "Noerr Doctrine". Our discussion centered on the way in which that legal doctrine protects competitors from antitrust liability when they undertake concerted efforts aimed at influencing governmental processes and obtaining governmental action.

Today, I shall address my remarks to another case recently decided by the Supreme Court. This opinion was handed down on March 29, 1972, in United States v. Topco Associates, 405 U.S. 596 (1972).

The defendants in Topco consisted of about 25 small and medium-sized independent regional supermarket chains which operated in 33 states. Topco Associates was organized in 1944 to combine the purchasing power of a few small food stores and small grocery chains. Individually, none had the volume of business necessary to market a private brand of food stuffs.

The individual companies formed an association that had an aggregate volume of business sufficient to make a private brand marketing program feasible. This, Topco proceeded to implement.

However, the Topco associates did not feel that they should compete against each other. Each agreed to sell their products only in a specific, exclusive territory. Only in a few cases did such territories overlap.

In addition to territorial restrictions, Topco did not allow any of its members to sell Topco products at wholesale without permission of other members. Even if permission were granted to sell at wholesale, such sales were restricted to defined geographic areas and had to be made under conditions stipulated by Topco on an ad hoc basis.

Over the years, what began as an association of small grocers and small food store chains grew dramatically in terms of its members' sales. The members of Topco Associates had aggregate retail sales in 1967 of \$2.3-billion. They were surpassed only by the nation's three largest food chains, A&P, Safeway and Kroger.

Not all of the products sold by the members of Topco Associates were purchased through the association. Only about 10% of their total purchases were made through Topco. About 6% of the purchases by the association's members were of products bearing Topco's private brand labels.

The government charged that the Topco marketing program involved restraints of trade which violated the antitrust laws, specifically Section 1 of the Sherman Act, 26 Stat. 209, as amended 15

U.S.C. § 1. The basis of this action was the fact that the Topco associates had agreed not to compete with each other in the marketing of their private label products. In other words, competition among sellers of the same brand (intra-brand competition) was restrained and lessened.

Topco Associates characterized the restraints of trade involved in its marketing program as ancillary to an overriding main purpose which was to enable its members to compete more effectively with the large grocery chains. First, without the association's buying power, its members could not market a private brand. Second, the private label selling through Topco increased competition with such large companies as A&P. Third, however much intra-brand competition was prevented by the territorial agreements among the members of Topco, that was justified by the increased inter-brand competition with the large grocery chains which the Topco marketing plan allowed. And fourth, without the territorial and customer restrictions, Topco felt its private label program was unworkable and would fail, thus inter-brand competition with the large grocery chains would be lessened by the demise of the association.

The trial court agreed with Topco's ancillary restraint rationale and dismissed the case. It recognized the restraints of trade involved but viewed the problem as one to be judged by the "rule of reason". That is, if the restraint in question is a reasonable one under the circumstances, then it does not violate the antitrust laws. 319 F.Supp. 1031 (N.D. Ill. 1970).

The government appealed to the Supreme Court. It argued that the rule of reason was inappropriate and that the Topco restrictions were illegal per se.

The Supreme Court agreed with the government's position and held that the Topco marketing plan involved horizontal restraints of trade, that is, restraints involving the agreement or acquiescence of direct competitors. The territorial and customer restrictions imposed on members of Topco were illegal per se, thus making an inquiry into their reasonableness not only unnecessary but also irrelevant.

With regard to Topco's territorial restrictions which the association tried to justify on the ground that they promoted intra-brand competition, the Supreme Court said, "Topco has no authority under the Sherman Act to determine the respective values of competition in various sectors of the economy." 405 U.S. at 610-611.

With regard to Topco's restriction on its members' right to sell at wholesale, the Supreme Court stated as follows:

"* * *These restrictions amount to regulation of the customers to whom members of Topco may sell Topco-brand goods. Like territorial restrictions, limitations on customers are intended to limit intra-brand competition and to promote inter-brand competition. [But] the arena in which Topco members compete must be left to their unfettered choice absent a contrary congressional determination."
405 U.S. at 612.

Only Chief Justice Burger dissented from the Supreme Court's reversal of the lower court's decision. To gain a better understanding of that reversal, a brief review of several past decisions is necessary.

In 1963, the Supreme Court decided White Motor Co. v. United States, 372 U.S. 253 (1963). The defendant in that case had assigned exclusive sales territories to its dealers and also restricted its dealers from selling to certain customers, that is, government accounts. The trial court granted summary judgment in favor of the government, viewing both kinds of restrictions as illegal per se under the Sherman Act. 194 F.Supp. 562 (N.D. Ohio 1961).

White Motor co. appealed the decision. It argued that the territorial and customer restrictions were justified on at least two grounds: First, whatever lessening of intra-brand competition resulted from the challenged restraints of trade was offset by increased inter-brand competition. Second, without the territorial protection afforded by White's scheme of distribution, dealers would not be willing to invest the substantial sums of capital required.

The Supreme Court reversed the lower court's finding for the government. It remanded the case for trial because the record was insufficient to support a finding that the vertical restraints of trade were illegal.

The White Motor Co. case was subsequently settled. The Supreme Court's decision on the appeal from the summary judgment was used as authority to uphold territorial restrictions by manufacturers in two cases: Snap-On Tools Corp. v. FTC, 321 F.2d 825 (7th Cir. 1963); Sandura Co. v. FTC, 339 F.2d 847 (6th Cir. 1964).

In 1967 the Supreme Court decided another case involving territorial restrictions. That case was United States v. Arnold-Schwinn & Co., 388 U.S. 365 (1967). The defendant, Arnold-Schwinn

& Co., was a family business which accounted for only 12% of the bicycle market and faced large competitors. Schwinn bicycles were distributed through about 5,500 approved retailers with Schwinn service facilities. Between the manufacturer and the Schwinn retailers stood 22 distributors who, by agreement with the manufacturer, could not sell outside assigned territories or to unapproved retailers.

Schwinn bicycles were distributed in three ways: by sales to distributors who resold to approved retailers; by sales to retailers by means of consignment or agency arrangements with the distributors; and by sales to retailers under which the distributors merely transmitted orders from the retailers to the manufacturer. This last manner of distribution was known as the "Schwinn Plan".

Under the "Schwinn Plan", bicycles were shipped directly to the retailers from the manufacturer. On such sales, the manufacturer invoiced and extended credit to the retailers directly, but it paid a commission to the distributors for taking the orders.

The complaint charged several violations of the antitrust laws. Specifically, resale price maintenance by Schwinn; allocation of sales territories among the distributors; and a group boycott of unfranchised retailers.

With respect to the Schwinn Plan of selling and with respect to consignment arrangements, the Supreme Court upheld the restraints of trade on the theory that the distributors in such cases were "undistinguishable in functions from agents or salesmen." It is significant to note that the trial court had found no evidence of price-fixing and that there was ample competition from competing bicycle manufacturers.

However, where the manufacturer sold bicycles to the distributors who in turn resold them to retailers, the restraints of trade were declared illegal per se. The Supreme Court indicated that a per se test was applicable wherever title passed, while the rule of reason approach was appropriate where the manufacturer had not parted title with the goods:

"Once the manufacturer has parted with title and risk, he has parted with dominion over the product, and his effort thereafter to restrict territory or persons to whom the product may be transferred--whether by explicit agreement or by silent combination or understanding with his vendee--is a per se violation of § 1 of the Sherman Act." 388 U.S. at 382.

The Court carved out two narrow exceptions in which territorial and customer restrictions might be allowed even though title passed. These two narrow exceptions are where the manufacturer is a new entrant and must depend upon such restrictions to get a toehold in the market, or where the manufacturer is a failing company and the restrictions are necessary to maintain its existence. 388 U.S. at 374.

In the same year that Schwinn was decided, the Supreme Court handed down a decision in United States v. Sealy, Inc., 383 U.S. 250 (1967). The defendant in Sealy was a venture organized by about 30 manufacturers in order to promote a national brand for bedding. The association, controlled by its members, owned the trademark, assisted with advertising, research, specifications, purchasing and, in turn, assigned each manufacturer a territory in which only it could sell the "Sealy" products. The trademark licenses provided sanctions for violations of the exclusive sales territories. The sanctions were administered by the association of manufacturers.

Despite the fact that a similar arrangement had been upheld in Denison Mattress Factory v. Spring-air Co., 308 F.2d 403 (5th Cir. 1962), as a permissible restraint ancillary to trademark rights, the government attacked the restrictive aspects of the Sealy marketing operation.

On appeal, the Supreme Court characterized the Sealy restraints of trade as horizontal rather than vertical. It noted that the licensees themselves owned virtually all the stock in the trademark owner, which was the defendant in the lawsuit. Thus, the marketing arrangement was really "a joint venture, of, by, and for its stockholder-licensees" and "an instrumentality * * * for purposes of the horizontal territorial allocation." 388 U.S. at 353-354.

Furthermore, the Sealy trial court had found that the marketing plan included price-fixing. The Supreme Court in this context, treated the exclusive territorial restraints as part of "an aggregation of trade restraints" and struck the territorial arrangements down as "unlawful under § 1 of the Sherman Act without the necessity for an inquiry * * * as to their business or economic justification, their impact in the marketplace, or their reasonableness." 388 U.S. at 357-358.

The opinion in Sealy did nothing to encourage the further development of what is known as the "ancillary restraint" doctrine, treated in such cases as Gray Line, Inc. v. Gray Line Sightseeing Cos. Associated, Inc., 246 F.Supp. 495 (N.D. Cal. 1965). But in opinions subsequent to Schwinn, the Court hinted that certain restraints ancillary to the licensing of a valid trademark might be upheld. See, for example, Perma Life Mufflers, Inc. v. Interna-

tional Parts Corp., 392 U.S. 134, 136 n.4 (1968); Albrecht v. Herald Co., 390 U.S. 145, 154-156 (1968) (concurring opinion).

This was the status of the law when the Topco case came before the Supreme Court. The Topco Associates drew some encouragement from the fact that in its Sealy opinion, the Supreme Court had referred to the argument "that a number of small grocers might allocate territory among themselves on an exclusive basis as incident to the use of a common name and common advertisements, and that this sort of venture should be welcomed in the interests of competition." Although the Court expressed no opinion on the merits of that argument in Sealy, it did state that the Sealy case presented a far different situation. 388 U.S. at 357.

However, the Court viewed the Topco situation as being on all fours with the Sealy problem and thus was subject to the per se rule of antitrust illegality. The court pointed out in a footnote in the Topco opinion:

"It is true that in Sealy the Court dealt with price fixing as well as territorial restrictions. To the extent that Sealy casts doubt on whether horizontal territorial limitations, unaccompanied by price fixing, are per se violations of the Sherman Act, we remove that doubt today." 405 U.S. at 609 n.9.

In summary, the restraints of trade, relating both to allocations of territories and restrictions on selling to wholesale customers, were viewed in Topco as products of a horizontal combination and conspiracy among intra-brand competitors. The horizontal aspects of that fact situation triggered the per se rule. The restraints could not be justified as ancillary to valid trademark licenses. Thus it has been reaffirmed that horizontal agreements resulting in restraints of trade cannot be justified by the argument that they are necessary to allow the combination of competitors to compete effectively with third parties larger than themselves.

Wendell B. Alcorn, Attorney
CADWALADER, WICKERSHAM & TAFT

M I N U T E S
TECHNICAL COMMITTEE

Asbestos Textile Institute
February 8 & 9, 1973 -- Hyatt Regency Atlanta, Atlanta, Georgia

IN ATTENDANCE: J. W. Hawkins, Raybestos-Manhattan, Inc.
D. T. Austin, Uniroyal, Inc.
W. Maaskant, Amatex Corporation
J. W. Echerd, H. K. Porter Company, Inc.

Methods to determine the dusting characteristics of asbestos products were discussed at a Special Meeting on February 8th. Messrs. Hawkins and Austin reported on the availability of equipment for this test. After reviewing the properties of several abrasion and piling-type testers, the Committee decided that initial evaluation will begin with the "tumbler" method. Mr. Hawkins will request information on Johns-Manville's Tumbler Test. If the process appears adaptable, the Committee will seek permission to run test samples at Celanese's Physical Testing Laboratory in Charlotte, North Carolina.

The Committee reviewed a letter from G. R. Tucker of the General Services Administration stating there will be coordination between GSA and the Department of Defense on the disposition of Military Specification MIL-C-10316C as soon as Federal Specification SS-C-1783 is published. It is expected the Federal Specification will be in print about March 1973.

A letter from Neptune Meter Company requesting information on laps and braiding yarns was presented to the Committee for comments. Mrs. D. M. Fagan was instructed to reply and advise that pertinent ATI member companies would contact them.

ASTM Standards D299, D375, D1061 and D2100 were submitted to letter ballot for reapproval without revision. Negative votes received for each Standard were reviewed. The basic objection of Messrs. T. R. Bainbridge and J. H. Reynolds concerned the lack of statements pertaining to Precision and Accuracy. Work on the revision of D299 was started by the Committee.

Respectfully submitted,

J. W. Echerd, Chairman

June 7, 1973



- 2 -

PRESENTATION
6/7/73
ASBESTOS TEXTILE
INSTITUTE

P- 000112
For Mr. G.D.
6-15-73

I am sure that many of you have asked yourselves, as I have asked myself, why has the asbestos industry seemingly been singled out as the prime target for so many assaults by government, labor, the press, certain segments of the medical profession, and by various environmental and consumer activist groups?

Why us? Can asbestos really be all that bad? Are the products we produce truly going to kill millions of Americans, as some experts have predicted? Or is there some sort of nefarious conspiracy afoot to destroy the asbestos industry?

The answer to the question of "Why us" is both complex and simple. Complex because it is a combination of three interrelated but separate factors. Simple because each of the factors is, when considered by itself, quite obvious.

The three factors are (1) asbestos causes disease,
(2) a spokesman arose to champion the need for asbestos control,

and (3) a cornucopia of new government agencies were set up to control things that cause disease. Let us look at each of these factors in turn.

First, there is no doubt that the inhalation of substantial amounts of asbestos can lead to increased rates of various types of lung disease, including two forms of cancer. These are facts which cannot be denied, even if they do not apply in all circumstances and under all conditions. The medical literature is full of solid evidence linking asbestos to disease. In my office, I have on file more than 2,000 medical papers dealing with the health risks of asbestos and hundreds more are published every year.

Secondly, the spreading of alarm over the health risks of asbestos has as its prime spokesman one of the most talented medical publicists of the age --- Dr. Irving J. Selikoff of New York's Mount Sinai Hospital. Not only is Dr. Selikoff

capable of arousing the ire and moral indignation of the most conservative reporter or politician with his graphic description and predictions of the ravages of asbestos, but he has also surrounded himself with a group of similarly talented publicity-conscious associates who have carried the Mount Sinai message to the far corners of the nation.

While Dr. Selikoff has, in his zeal, unquestionably painted a far darker picture than the facts warrant, we should always remember in his defense that the insulation workers he has been studying for more than a decade were and still are dying from asbestos related disease at an appalling rate. This would be enough to cloud any man's thinking.

Finally, in the past decade there has been a tremendous growth in public and governmental interest in environmental and occupational health matters. This interest has been translated into a series of far-reaching laws affecting industry

in a manner hitherto unknown in this or any other country. I believe it is accurate to say that these new laws, such as the Occupational Safety and Health Act, the Clean Air Act, the Consumer Protection Act, and others, have forever altered the concept of the free enterprise system as it was known in this country for a hundred and fifty years.

Thus, in combination, these three factors created a situation in which a cadre of freshly created federal agencies with strong statutory authority, were prodded into assigning priority status to asbestos by Dr. Selikoff and his followers, who used and in some cases misused the great wealth of negative asbestos-health data contained in the medical literature to achieve these ends.

In short, the asbestos industry was singled out because it was vulnerable to attack, because there was someone willing, almost anxious, to lead that attack, and because Congress had graciously provided the vehicles for such an assault.

How much of what Dr. Selikoff says about asbestos is true, and the manner in which he has abused the available medical data in order to blow up an essentially occupational problem into a national calamity are topics which we shall examine a bit later.

The background of industry efforts to deal with the asbestos-health problem as a national issue goes back nearly a decade, to Dr. Selikoff's now famous 1964 seminar on asbestos disease at the New York Academy of Sciences. While this seminar did much to prick the industry's conscience about asbestos and health, the problem still remained one of limited public and press interest until around 1967, when the media began beating the medical bushes searching for stories that would graphically portray American industry's supposed complete disregard for the environment and for the health and safety of its workmen and the American public. The asbestos-health problem was found

to be tailor-made for such stories and Dr. Selikoff was not hesitant in catering to the sensationalist whims of the press. As a result, starting with Paul Brodeur's infamous New Yorker article of March 1962, asbestos has since grown into an item of major press interest.

In those years, industry efforts to combat the spate of negative press articles on asbestos were carried on primarily by the Johns-Manville Corporation, which set up a task force of specialists in various fields to do what it could to portray the problem in its proper perspective. While some minor successes were achieved, it was found that no one company acting independently could adequately or effectively represent an entire industry in dealing with the press and with government officials.

As a result, in late 1970, eight companies gathered in New York City to launch the Asbestos Information Association of North America, which was frankly patterned after the British

Asbestos Information Committee, which had been established
some three years earlier.

In our original concept, the Association would limit
its activities to providing accurate, unbiased information on
asbestos and health to the press, to the public and to interested
politicians and other government officials. It must be remembered
that at this particular time, the enormous problems that would
later develop with regard to OSHA and other Federal regulatory
agencies were as yet on the distant horizon and basically
unrecognized by the industry.

Fortunately -- and properly -- the Association has
had the wisdom to alter its original limited concept of its
proper functions, and now endeavors to assume whatever activities
and responsibilities it deems necessary to protect the interests
of the asbestos manufacturing industry in the United States
vis-a-vis asbestos-health.

Association's activities.

From our rather narrow initial public relations concept, the Association has grown in the last two years into an

organization with priorities in eight major fields of endeavor. These are:

- Medical Affairs
- Legal Affairs
- Government Affairs
- Environmental Control
- Publicity and Public Relations
- Customer Relations
- Employee Relations, and
- Inter-industry Relations

In briefly discussing AIA activities in each of these fields, I will leave government affairs for last, not because it has a low priority within the Association --- in fact it is currently the most important --- but because it is the most complicated and requires the most discussion.

To take our activities one at a time then
medical affairs.

It is an obvious fact that if an organization is to speak authoritatively on a medical matter, it must not only be steeped in the literature of that particular medical subject, but it must also keep itself constantly informed of new discoveries and developments. This we have accomplished in a number of ways. For example, by sending representatives to important medical meetings, such as the 1972 international conference on the biological effects of asbestos held at Lyon in France, which was sponsored by World Health Organization.

Both John Marsh, the President of the AIA, and I attended that conference on behalf of the Association.

We also meet on an irregular basis with various medical experts in the field, both from the United States and abroad, to review and discuss recent developments and discoveries.

Our literature research is eased considerably by receiving the monthly medical paper distribution of the Institute of Occupational and Environmental Health in Montreal, which is funded by the Quebec Asbestos Mining Association.

This year, for the first time, the AIA has elected to sponsor medical research of its own. Currently underway is a completely AIA/NA funded study of chest sounds, which is being conducted by Dr. Raymond Murphy of the Harvard School of Public Health. The purpose of the study is to find a new method of determining an individual's potential susceptibility to asbestos disease.

The Association has also recently decided to contribute to some very exciting research into a possible cure for mesothelioma through electromotive treatment. This study is being conducted at Somerset Hospital in New Jersey.

In the legal affairs area, the Association participated in an amicus curiae capacity in the law suit brought by the

Industrial Union Department of the AFL/CIO against the Occupational Safety and Health Administration on the asbestos standards. In our brief, which was considered by the Justice Department to be the best one filed, the Association supported OSHA against the IUD, somewhat of a unique position for an industry to find itself in vis-a-vis a governmental regulatory agency. Oral argument on the case was held April 4 in Washington. While a decision has yet to be handed down by the Court of Appeals, we are confident that the case will be decided in our favor.

The Association has retained the services of C. L. Sheckler, with whom many of you are familiar, as our special consultant on environmental control affairs. At the present time, Cliff is working with the AIA/NA Environmental Control Sub-Committee on the development of a series of five Association compliance manuals on the OSHA standards. We expect to have these manuals available within a short period of time.

...last year, because of the well established unreliability
of the membrane filter method as a monitoring tool in the asbestos
industry, the AIA undertook the sponsorship of a study at a
research laboratory in California to determine the effect of
certain variables on the overall accuracy of the method. The
results of the study showed an error factor of plus or minus
50 per cent under the most favorable of measuring conditions.
These results were sent to both OSHA and to the National
Institute for Occupational Safety and Health. A number of the
recommendations contained in the study for improving the
accuracy of the method have been incorporated into a soon-to-
be-released revised NIOSH operations manual on fiber counting.
In the customer relations area, the total effect of
negative press publicity and government regulations on industry
customers is still today rather poorly defined. Some members
of the Association have reported serious problems in this area,
while others have experienced few or no difficulties thus far.

Where customer problems do exist, they normally fall into one of five categories.

First, the customer has thoroughly investigated his situation and has found that he can no longer afford to continue using asbestos or asbestos-containing products, either because the cost of control is too high or because he would have to raise the price of his product to a level that would make it non-competitive with non-asbestos containing substitutes.

Second, the customer has not thoroughly investigated his situation and only thinks that he can no longer afford to continue using asbestos.

Third, the customer has read one or more negative articles on asbestos in the public press and has made the snap decision that "we ought to get that dangerous stuff out of our plant." Often, decisions of this nature are forced on top management by ill-informed medical advisors or safety and health directors.

As a result, the Association cancelled its scheduled series of seminars and instead elected to develop

a number of packaged slide presentations on such topics as "The Facts About Asbestos and Health," and "Understanding the OSHA Regulations," which could be used by member companies as part of a tailored presentation to individual customers. These slide presentations are still in the works, but should be available shortly.

As with customer relations, the Association feels that employee relations is a problem best handled by the individual member companies. Thus far, the AIA's sole contribution in this area of industry concern has been to prepare the draft of an Employee Safety and Health Guide on Asbestos-Health. The draft was made available to the member companies for their own use and at least one, Raybestos-Manhattan, has produced it in booklet form for distribution to all its employees.

with the offending official's immediate superior or with the government agency involved.

The Association's first reaction to the overall customer relations problem was to approve funds for a series of four regional seminars at which industry customers would be given a number of basic presentations on the various aspects of the asbestos-health problem. The seminars were tentatively scheduled for the Spring of this year.

However, the experiences of a number of our member companies showed that general catchall type seminars of the type originally contemplated would not be effective in dealing with the majority of customer relations problems. In order to do the job properly, it was found that customer presentations have to be tailored to the needs and problems of the individual customer.

Four, the customer has neither a control problem nor is he particularly afraid of using asbestos in his own plant. However, he is fearful that those of his competitors whose finished products do not contain asbestos will stress the adverse health effects of asbestos in trying to take business away from him. Customer fears of this nature are essentially "gut" reactions and hence extremely difficult to deal with. And ...

Five, the customer has none of these problems or fears but he has been advised by a government official or inspector that he would be better off if he quit using asbestos or asbestos-containing products in his plant. While this problem does not appear to be widespread, we have learned of a number of situations where it has occurred. Actions of this nature by government officials are totally uncalled for and should be dealt with promptly and decisively. The best solution is to obtain complete details on the incident and then to register a formal complaint

I personally believe that the employee relations aspect of the asbestos-health problem is one that has been sorely neglected by most companies within the industry. I feel that this could develop into a major problem area in the near future and that steps should be taken now to deal with it. We know that Dr. Selikoff and various organized labor groups are planning a full scale campaign to bring their interpretation of the asbestos-health problem to the attention of asbestos industry employees throughout the nation. If the industry permits this interpretation to be disseminated unchallenged, the consequences could be grave indeed.

Inter-industry relations are best defined as keeping the industry informed about important new developments on the governmental, medical and press relations fronts that affect asbestos. This is accomplished within the AIA by periodic distributions of documents and information to the member companies and to others on our mailing list.

The value of this activity can be gauged by the fact that our overall mailing list increased from approximately a dozen names in 1971 to more than 60 a year later. While we have had to trim the list somewhat this year for logistical

reasons, we assume from the frequent requests we still receive

to be placed on the list that the material we send out is being

read and is of considerable value to those receiving it.

Next to government affairs, our public relations and

publicity activities constitute the single largest consumer

of time, effort and money within the Association. Those of you

who are familiar with the treatment that asbestos has been

receiving in the public press over the years can readily

understand why this activity ranks so high on our priority list.

What you may not understand are the reasons why our

extensive efforts in dealing with the nation's press have been

so unsuccessful to date in producing the theoretical

"balanced" or "positive" story on asbestos and health.

The simple fact is that from the standpoint of today's young activist reporter, industry is the bad guy, and nothing we do, say or achieve can ever change this impression. If we spend \$100 million dollars on environmental control, the press either says we ought to have done it ten years ago or that we should have spent 200 million. If we sponsor medical research, they say we are trying to buy favorable results. If we are opposed to ridiculously stringent standards, they say we are in favor of letting our employees die.

A television executive in Minneapolis described this new breed of reporter as being "so intent on demolishing the establishment that they would blindly destroy the credibility of the media in the bargain." Another TV executive, this time in Chicago, stated "they want to make moral and political and social judgments on their assignments and then take sides. Never mind getting the facts straight."

As a result of this "industry is a monster" philosophy, asbestos will remain a hot news item only so long as the news is bad. The "good" that asbestos does in protecting lives and property is of no concern to the press. Likewise, industry efforts to protect workmen and the general public from asbestos exposure will always be given minimal coverage, since such information is directly contrary to the portrait of an irresponsible industry producing a "killer" product that is the sole element of news worthiness in the asbestos story.

The press relations battle will therefore be won, not when the media starts to print positive or balanced articles about asbestos, but when the press ceases to print anything about asbestos at all. As long as negative news on asbestos-health continues to be generated, the media will continue to eat it up. The media will only cease to carry such stories when the generation of negative news ceases ...

it is as simple as that. Positive or balanced stories are a chimera, since they are, by definition, not newsworthy.

Let me give you a very specific example of this last principle in action. As most of you already know, the

Association is currently engaged in an extensive campaign to interest the trade press in articles on the benefits of asbestos and on industry accomplishments in the environmental control area. The trade press, unlike the national or public media, is much more receptive to articles of this nature and we expect to be seeing a number of positive stories in the trade press in the next few months.

In any case, we also from time to time put out press releases on various subjects relating to asbestos-health. A few weeks ago, we issued a release on the report of the advisory committee on asbestos cancers of the World Health Organization. In brief, the report concluded that the general public is not in danger from asbestos in the environment. Thus far, we have

received nearly two dozen press clippings from trade publications that carried the story. To the best of our knowledge, not a newspaper, news magazine, radio or TV station, or any other segment of the public media ran the story, with the single exception of a French language paper in Toronto. As I said before, if the news is good, the press ain't interested.

Nonetheless, the Association has no intention of abandoning our efforts vis-a-vis the national media. We will continue to issue appropriate press releases, cooperate with feature writers doing stories on asbestos, write scathing letters to the editor when those stories appear, and in short, do all we can to present the press with a balanced view of the asbestos-health situation.

Our most recent effort in this regard has been the preparation and printing of an Asbestos and Health Information File, which we have mailed to some 5,000 newspapers, magazines,

trade publications, radio and TV stations, science writers etc.

across the United States. I have brought a half-dozen files

along with me that you can take a look at after the meeting.

Basically, the file contains copies of the five industry

position papers which were distributed earlier, as well as a

number of important medical papers and a pair of photographs

illustrating the benefits of asbestos and industry efforts at

environmental control. You may be interested to know that

the item chosen to illustrate the benefits of asbestos is a

fire-proof asbestos suit.

While we don't expect our information file to change the whole

attitude of the press toward asbestos, we are hoping that the

media will make use of it to accurately report the industry's

position when doing stories on the subject.

And now, having heard the bad side of the public

relations problem, it's time for the good news.

And the good news is despite all the negative articles on asbestos-health that have appeared in the press over the past half-dozen years, very few people have been paying attention. Let me explain.

In February, the Association undertook a personal interview research survey of the American public to determine its attitude toward asbestos and its awareness of the health issue. The survey was conducted by the Opinion Research Corporation during March and April. More than 2,000 demographically selected Americans were interviewed. I have here with me sufficient copies for all of you of a summary of the results.

(COMMENT FROM SUMMARY)

Before going on to describe our activities in the government relations area, I think it might be interesting at this point to take a very brief look at the manner in

which Dr. Selikoff and his supporters have used his research results to dramatize and exaggerate the seriousness of the asbestos-health problem. I have two slides which point this out rather conclusively.

SLIDE 1 ---- RESEARCH DATA

The first slide shows the actual results of Dr. Selikoff's four mortality studies of asbestos workers. The numbers in parenthesis beside the figures for total number of workers indicate those who have so far died from all causes. The percentage figures alongside the total number of deaths from asbestosis, lung cancer and mesothelioma are based on the total number of deaths from all causes, not on the number of the workers in the study.

The most important study of the lot is the second from the top, showing the deaths from asbestos-related disease among all members of the insulation workers union, regardless

of length of exposure. You will note that 34 per cent of those workers who have died thus far have died from one of the three asbestos-related diseases.

These, then, are the facts Dr. Selikoff works from. This is what he knows from his own investigations. Now let us take a look at what he has done with these figures in order to dramatize the problem.

SLIDE 2 ---- PREDICTIONS

This slide shows Dr. Selikoff's predictions about asbestos-related deaths in the United States. Without going into details, Dr. Selikoff has arrived at his projections by the simple procedure of multiplying the percentage of deaths from asbestos-related disease among his insulation workers by the total number of employees in the entire industry.

You will also note that he has raised his projected death estimate to enormous heights over the past year by simply increasing the base figure of employees exposed, while still retaining the percentage multiplier of 24 per cent being experienced by the insulation workers.

I might point out that this tactic, however improper and deceptive, has been an enormous success since each raising of the estimate has earned Dr. Selikoff correspondingly greater coverage by the media. No finer example exists of the total gullibility of the press than the manner in which Dr. Selikoff manipulated and played on their prejudices to gain publicity. I can readily envision the lot of them up there at Mount Sinai laughing themselves silly over the ease with which they bamboozled the press with these trumped-up predictions.

Please don't get me wrong, gentlemen. I have little doubt that the insulation workers are in fact dying as rapidly as Dr. Selikoff says they are. The problem is he has translated their mortality experience to the rest of the entire industry, which is absolutely ridiculous.

In the first place, the estimated number of employees in the industry is too high --- five times too high to be precise. Even more important, according to an analysis by the Association of more than a dozen mortality studies, including those of Dr. Selikoff, our prediction is that approximately 25,000 past and present employees in the asbestos industry have died or will eventually die of asbestos-related disease. This is less than one-thirteenth of Dr. Selikoff's most recent estimate. In addition, our figures show that 20 of the 25,000 deaths --- or 80 per cent --- will occur among those in the insulation trades.

While these estimates should be reassuring to those of us in the mining and manufacturing areas of the industry, we should not forget that 5,000 of our workmen are still going to die of asbestos-related disease and that, all things considered, there is absolutely nothing that we can do to prevent it. The only thing we can do is to clean up our plants to assure that those entering the industry in the future will not have the same experience.

SLIDE 3 ---- GOVERNMENT AGENCIES

Within the past year and a half, the main thrust of Association effort has shifted to the government affairs front. The principal agencies in Washington with which we have been dealing are, of course, the Occupational Safety and Health Administration; the Environmental Protection Agency; the Food and Drug Administration; the Bureau of Mines; and, to a lesser degree, the National Institute of Occupational Safety and Health.

and the National Institutes of Health, both of which are
mainly involved in research efforts.

In addition, a few weeks ago we were contacted by
the Federal Trade Commission, which had received a petition
from the Center for Science in the Public Interest requesting
an investigation of consumer uses of asbestos for the purpose
of determining whether certain products ought to be labeled
as hazardous and whether warnings should be required on all
advertisements for those products. On the basis of my meeting
with an investigator from the FTC I would say that we have
little to worry about in this particular area.

SLIDE 4 ---- OSHA

The Occupational Safety and Health Administration
has been of enormous concern to the industry over the past
18 months. As most of you already know, the Association
expended tremendous efforts during the six month period

leading to the promulgation of last June's OSHA standards on asbestos. I think it is a gauge of the effectiveness of the total industry involvement in this most crucial matter that of eleven main requirements in the standards, the industry position was accepted totally by OSHA on nine of the eleven, about fifty percent on a tenth, and totally rejected on only one.

Now, of course, OSHA is planning to redo the standard package and we are working closely with them on this project. The first step will be the formation of a 15 man advisory committee to review the current standards and any additional data and information that has been developed in the year since the standards were promulgated.

Working in cooperation with nine other trade associations, including your own, we have selected four individuals as industry-wide recommendations to OSHA for the four so-called employer

spots on the advisory committee. The four people selected were Guy Gabrielson, President of Nicolet; Ike Weaver of Raybestos-Manhattan; Dr. Fred Pundsack, Vice President for Research and Development of Johns-Manville; and Cliff Sheckler.

In discussing the formation of the advisory committee with John O'Neill of the OSHA Standards Development Section, we were asked to add a couple of names to the list so that OSHA would have at least the semblance of a selection. This we have agreed to do.

The committee will be given up to nine months to complete its deliberations and prepare for OSHA a revised standard package. This will be followed by public hearings, approximately a year from now. We do not expect to see a new standard promulgated before the Fall of 1974.

It is of course impossible to determine at this time what the new standards will look like, however, I would venture to say that they will certainly not be less strict than the ones we have today, although they will probably be less confusing and leave less room for employer interpretation. Something will unquestionably be done to improve the current difficulties with the monitoring requirements.

SLIDE 5 ---- NIOSH

These slides, by the way, are merely simplified organization charts of the various agencies with which we deal in Washington.

The main function of the National Institute for Occupational Safety and Health is to conduct research and to prepare so-called Criteria Packages, which are essentially recommendations to OSHA for standards on various materials and chemicals. Such a package on asbestos was prepared

by NIOSH at the time of the OSHA proceedings last year. NIOSH will not be preparing a new or revised criteria package for the upcoming review of the asbestos standards.

I do not believe it would be unfair to say that of all the agencies in Washington dealing with asbestos, Dr. Selikoff has had his greatest influence on the young idealistic scientists and doctors at NIOSH. Consequently, industry influence is weakest in this agency. It was NIOSH, after all, that made the original recommendation for a two fiber standard in the asbestos industry.

SLIDE 6 ---- EPA

Next to OSHA, the Environmental Protection Agency has the greatest potential of any federal agency for adversely affecting the future of the asbestos industry in this country. Not only is the EPA responsible for developing and enforcing air and water pollution standards, but the Toxic Substances

Control Act, now pending in Congress, will also become an EPA function after passage.

For this reason, I am pleased to be able to say that the asbestos industry has an excellent relationship with the EPA. No finer proof of this exists than the fact that there was not a single major industry recommendation or suggestion made to the EPA at the public hearings on the proposed asbestos emission regulations that was not accepted either in toto or in principle in the final standards, which were published in early April of this year.

We are presently working with the EPA on the development of waste water effluent standards for asbestos manufacturing plants. We fully expect that these standards will turn out to be as reasonable as the air pollution regulations. The proposed effluent standards are scheduled to be published in the Federal Register in early July. This will be followed by

public hearings, probably in late July or August, with the final standards being promulgated in the Fall, perhaps as early as October.

We are also planning, in the near future, to meet in Washington with representatives from the standards development and enforcement branches of the EPA to discuss with them questions of interpretation and compliance policy with regard to the new air pollution regulations.

We have already resolved one interpretation question that is of special interest to the asbestos textile industry. Approximately two weeks ago I was asked by a member company of the Association to find out whether the EPA was planning to require the manufacturers of asbestos safety clothing to register as potential emission sources under the law.

In discussing the situation over the phone with EPA compliance officials, I argued that the producers of asbestos safety clothing were not manufacturers as defined in the regulations but were instead only fabrications of an asbestos product, and as such, should not have to register as potential emission sources.

After our phone conversation ended, a brief meeting was held among the EPA compliance people. I was then called back and informed that they agreed with me that the safety clothing producers should not be required to register.

While this rather minor problem took approximately an hour and a half and two or three phone calls to resolve, it is indicative of the type of day-to-day services that the Association provides for its member companies.

SLIDE 7 ---- FDA

Over the past year the Food and Drug Administration has shown an increasing interest in asbestos as a possible hazardous contaminant in various foods, beverages and drugs. Late in 1972 they set up an asbestos task force to review the situation and to propose regulations and guidelines where appropriate.

Thus far they have concentrated their efforts in two areas --- on the use of asbestos-contaminated talc in food packaging and in cosmetics, and secondly, on the use of asbestos cellulose filter pads in the beverage and drug industries.

In our first meeting with the FDA task force last November on the filter problem, they demonstrated an appalling ignorance about the health hazards of asbestos. Since then, they have gotten one heck of a lot smarter, due at least in part to the tremendous amount of data and information which

the Association has been supplying to them. As a consequence the FDA is today less panicky about asbestos and therefore less likely to propose foolish, unsupportable regulations. Spokesmen from the FDA have, in fact, defended the filter against environmentalist attacks in the press and elsewhere in recent months. This is, quite obviously, a healthy sign.

SLIDE 8 ---- INTEREST GROUPS

Since our contacts with the National Institutes of Health have been quite minimal, and since the health and safety section of the Bureau of Mines is presently being reorganized, we can now proceed to take a brief look at the various interest groups that have been in the forefront of the assault on asbestos. These are the groups and organizations that constitute "the other side."

As you can see, there are a lot of them, and between them they can exert powerful pressure on legislators and administrators at all levels of government.

Since time is not available to discuss each of their activities and philosophies in detail, I would like to say that we keep a close watch on all of them and are always prepared to take whatever action is appropriate when they step out of line.

SLIDE PROJECTOR OFF ---- LIGHT ON

Our activities in the area of Congressional relations have been quite minimal to date, although we are preparing for the upcoming struggle in Congress over workmen's compensation reform legislation, at which time asbestos is unquestionably going to be racked over the coals by Dr. Selikoff and his compatriots in organized labor.

Unfortunately, the Association has neither the manpower nor the time to embark on a full-scale legislative information program. We have met on occasion with the legislative and legal assistants to various Senators who have attacked asbestos,

however much more needs to be done in this area and I am afraid individual member companies are going to have to be the prime ball carriers and not the Association.

For essentially the same reason, our government activities at the state and local level have declined to essentially zero over the past year and a half. This has not been too serious a deficiency as most of the authority of the cities and states in asbestos control has been usurped by the various Federal regulatory agencies. Nonetheless, more individual company activity is required at these levels of government.

In conclusion, I think we can all be justifiably pleased with what we have been able to accomplish in the past few years in resolving the cornucopia of interrelated problems that constitute the asbestos-health situation.

Our plants are cleaner and our workmen better protected. The general public has been shown to be in no danger from asbestos, if it ever was. While we have been regulated extensively, for the most part the standards that have been developed have not been as bad as we feared they might be, and in some cases they turned out far better than we ever dared hope. In addition, while we are still taking our lumps in the public press, the net effect of all this adverse publicity has been shown to be surprisingly small.

We have sweated a lot and we have groaned a lot, but we are still standing and we are still viable. I sense today within the industry a greater feeling of confidence in the future than at any time in the past few years. But we must not rest contented.

We must remember that Dr. Selikoff has to date been far less successful than our industry has in influencing the decisions of the various governmental regulatory agencies. This will make him try harder. Just last week I saw a speech of his in which he purposely misinterpreted some data by a distinguished British scientist in order to prove that even two fibers is not a sufficiently safe level for occupational exposure to asbestos.

The struggle is far from over. We must not only continue but indeed expand our activities in the various areas of concern if we are to assure the future well-being of the asbestos industry in the United States.

Thank you very much.

ASBESTOS TEXTILE INSTITUTE

General Meeting

June 7, 1973
Key Bridge Marriott, Arlington, Virginia

In Attendance

MATEX CORPORATION

W. Maaskant
M. J. Scanlan
H. H. Walter

GARLOCK INC.

S. G. Dixit
A. Kuzmuk

JOHNS-MANVILLE CORPORATION

C. G. Guerin
T. P. Jackson
J. P. Power (C.J-M)
W. B. Reitze
W. C. Streib

NICOLET INDUSTRIES, INC.

E. W. Russell
J. K. Whittaker

H. K. PORTER COMPANY, INC.

E. C. Bratt
D. E. Childers
J. W. Echerd
L. E. Moody

RAYBESTOS-MANHATTEN, INC.

M. M. Brooks
J. W. Frampton, Jr.
J. W. Hawkins
R. T. Matthew
H. Q. Scowcroft
I. H. Weaver

UNIROYAL, INC.

W. D. Bittinger
B. E. Carden
L. F. Dieringer
E. A. Morris

ASBESTOS CORPORATION LTD.

P. E. Leclerc

BELL ASBESTOS MINES LTD.

W. H. Smith

LAKE ASBESTOS OF QUEBEC LTD.

E. A. Farrell
R. Lefebvre
C. E. Stiefken (Asarco)

MANUFACTURAS MULTIPLES S.A.

R. Arnal Olivo

CADWILADER, WICKERSHAW & TAFT

E. J. Leff

AMERICAN SOCIETY FOR
TESTING AND MATERIALS

P. O. Nicodemus

ASBESTOS TEXTILE INSTITUTE

D. M. Fagan, Executive Secretary

GUESTS OF THE A.T.I.

Asberit S.A.

Marchello Cattaneo Adorno

Asbestos Information Association/
North America

Matthew M. Swetonic

Industrial Safety Equipment
Association

Charles H. Sumwalt, Jr.

U.S. Bureau of Mines

Robert A. Clifton

Total attendance during the two-day meeting was 46 people, including 10 women and 36 men - representing 18 companies or associations.

M I N U T E S

1. The General Meeting of the Asbestos Textile Institute was called to order by President M. Q. Scowcroft at 1:00 P.M., June 7, 1973.
2. President Scowcroft welcomed the members and guests in attendance and introduced four guests; namely, Matthew M. Swetonic, Executive Secretary, Asbestos Information Association/North America; Marchello Cattaneo Adorno, Asberit S.A.; Robert A. Clifton, Division of Nonmetallic Minerals, U.S. Bureau of Mines; and Charles W. Sumwalt, Jr., Secretary/Treasurer, Industrial Safety Equipment Association, and member of its Safety Wearing Apparel Product Group.
3. Following past tradition, President Scowcroft asked each member in attendance to rise and state his name and company affiliation.
4. President Scowcroft called for the reading of the minutes of the last stated General Meeting. It was moved by A. Kuzmuk, seconded by T. P. Jackson, and so carried, to dispense with the reading of same.
5. Treasurer E. A. Morris presented the Report of Funds of the Institute as of April 30, 1973. C. F. Stiefken moved the report be accepted. The motion was seconded by S. G. Dixit and so voted, unanimously. A copy of the full Report is attached to these minutes.
6. In the absence of W. D. Alcorn, the Legal Counsel address was given by Eugene J. Leff of Cadwalader, Wickersham & Taft. The full text of his report is attached hereto. Mr. Leff discussed two cases -- one concerned with the illegal division of the market, and the other noting a connection between anti-trust violations and the private exercise of governmental power.
7. W. H. Smith, Technical & Sales Representative, Bell Asbestos Mines Ltd., delivered the Fibre Producers' Report (see attached). Mr. Smith stated that crudes and ultra-long spinning fibers continue to be in short supply but medium and short spinning fibers from Grades 3F to 3E are in fair supply from most producers. No shortage in these grades is foreseen for the remainder of this year and a change in the situation is not indicated, at the present time, for 1974.
8. Pursuant to calling for Committee Reports by the respective Chairmen, President Scowcroft advised that C. G. Guerin had replaced I. Barnett on the ATI Technical Committee.
9. The following reports of ATI activities at the Committee level were presented by the respective Chairmen to the general membership. A copy of each Report is attached hereto, i.e.:

Air Hygiene & Manufacturing - R. D. Carden, Chairman;
Asbestos Advisory - F. W. Russell, Chairman;
Technical - J. W. Echord, Chairman;
Fiber Research & Testing - C. E. Stiefken, Chairman;
Environmental Health - L. F. Dieringer, Chairman.

10. It was related by President Scowcroft that recent technological breakthroughs in basic yarn production techniques have influenced the Institute to seek wider representation in its membership. It was reported that as a result, the ATI Board of Governors had approved a change in the Constitution and By-Laws of the Institute involving Associate Membership requirements. Article III, Paragraph 2(c) of the Constitution has been revised as follows: "those weavers of asbestos-containing fabrics and tapes, for resale as such, who do not manufacture the asbestos-containing yarns used in same, shall be eligible for Associate Membership in this Institute."

11. President Scowcroft referred to the new identification cards that had been given to each member in attendance, asking that they be returned to the Executive Secretary for use at future meetings.

12. As stated by President Scowcroft, there seems to be some difficulty with the postal process in that some reservation cards are not arriving at ATI headquarters. In an endeavor to avoid undue problems at future meetings, it was advised that each member who makes a reservation with the Executive Secretary would receive a brief acknowledgment within approximately ten days' time. If same does not arrive in due course, it would be well to so advise the Secretary.

13. The next General Meeting of the Asbestos Textile Institute will be held:

October 3-5, 1973
Wychmere Harbor Club, Harwichport, Massachusetts

Guest Speaker will be Dr. J. Corbett McDonald, Epidemiologist, McGill University, and Medical Advisor to the Quebec Asbestos Mining Association.

14. President Scowcroft advised that every effort is being made to oblige the wishes of the membership-at-large by scheduling, whenever possible, future General Meetings of the Institute so that they end on Fridays. Beginning in 1974, future meetings will be: February 7-8, 1974, at the Mills Hyatt House, Charleston, South Carolina; June 6-7, 1974, at Twin Bridges Marriott, Washington, D.C.; September 25-27, 1974, at The Cloister, Sea Island, Georgia; February 6-7, 1975, at Holiday Inn-Independence Mall, Philadelphia, Pennsylvania. Tentative future meeting sites include Ponte Vedra Club, Ponte Vedra Beach, Florida, in October 1975 and the Marriott in New Orleans, Louisiana, in February 1976.

15. Before introducing the Guest Speaker, President Scowcroft referred to five booklets that were distributed prior to calling the

meeting to order. Just off the press, the booklets were published by the AIA/NA and are entitled: The Asbestos Information Association/North America, What Asbestos Is--How And Where It Is Used, Asbestos And Health, Questions And Answers--Asbestos And Health, and Protecting The Asbestos Worker. Single copies of the booklets are available from the AIA/NA, 22 East 40th Street, New York, New York 10016 (bulk rates on request).

16. President Scowcroft introduced the Guest Speaker: Matthew M. Swetonic, Executive Secretary, Asbestos Information Association/North America. Mr. Swetonic (whose profile is attached) discussed the AIA/NA, its formation, its history and the work it is doing on behalf of the asbestos industry in the United States. He also talked about the impact of OSHA and EPA regulations to control the amount of asbestos dust in the atmosphere. He discussed the question: Why has the Asbestos Industry been singled out by government, the press and various conservative groups? He stated that the industry is passing through a crisis period in the U.S. and that closer ties between trade associations would be beneficial. Mr. Swetonic advised that he has been talking with the press about asbestos and health since 1968 and that out of 150-175 reporters, only 2 were over 35. We are dealing with a young and idealistic group, he said. From a survey taken of the awareness and attitudes toward the use of asbestos, it was discovered that asbestos is relatively unknown to the general public. The situation changes little between urban and rural areas. It was interesting to note that the survey indicated that those in the 18-25 age bracket knew little about asbestos but that awareness increased in those interviewed who were between 40 and 49 years of age. A copy of Mr. Swetonic's presentation, in its entirety, is attached to these Minutes.

17. There being no further business to be brought before the membership, the meeting was adjourned at approximately 3:00 P.M., as per a motion by E. A. Farrell, seconded by E. A. Morris, and unanimously approved by the attending members.

Respectfully submitted,

Doris M. Fagan
Doris M. Fagan,
Executive Secretary

NOTE: Enclosed herewith is your copy of the Constitution and By-Laws of the Asbestos Textile Institute, revised as of June 6, 1973. Paragraph 9 of the By-Laws (page 7) is subject to approval by the Internal Revenue Service.

Minutes
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Asbestos Textile Institute

JUN 7 1973

ASBESTOS TEXTILE INSTITUTE

General Meeting

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Key Bridge Marriott, Arlington, Virginia

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2. President Scowcroft welcomed the members and guests in attendance and introduced four guests; namely, Matthew M. Swetonic, Executive Secretary, Asbestos Information Association/North America; Marchello Cattaneo Adorno, Asberit S.A.; Robert A. Clifton, Division of Nonmetallic Minerals, U.S. Bureau of Mines; and Charles W. Sumwalt, Jr., Secretary/Treasurer, Industrial Safety Equipment Association, and member of its Safety Wearing Apparel Product Group.

3. Following past tradition, President Scowcroft asked each member in attendance to rise and state his name and company affiliation.

4. President Scowcroft called for the reading of the minutes of the last stated General Meeting. It was moved by A. Kuzmuk, seconded by T. P. Jackson, and so carried, to dispense with the reading of same.

5. Treasurer E. A. Morris presented the Report of Funds of the Institute as of April 30, 1973. C. F. Stioffen moved the report be accepted. The motion was seconded by S. G. Dixit and so voted, unanimously. A copy of the full Report is attached to these Minutes.

6. In the absence of W. B. Alcorn, the Legal Counsel address was given by Eugene J. Leff of Cadwalader, Wickersham & Taft. The full text of his report is attached hereto. Mr. Leff discussed two cases -- one concerned with the illegal division of the market, and the other noting a connection between anti-trust violations and the private exercise of governmental power.

7. W. H. Smith, Technical & Sales Representative, Bell Asbestos Mines Ltd., delivered the Fibre Producers' Report (see attached). Mr. Smith stated that crudes and ultra-long spinning fibers continue to be in short supply but medium and short spinning fibers from Grades 3F to 3Z are in fair supply from most producers. No shortage in these grades is foreseen for the remainder of this year and a change in the situation is not indicated, at the present time, for 1974.

8. Pursuant to calling for Committee Reports by the respective Chairmen, President Scowcroft advised that C. G. Guerin had replaced I. Barnett on the ATI Technical Committee.

9. The following reports of ATI activities at the Committee level were presented by the respective Chairmen to the general membership. A copy of each Report is attached hereto, i.e.:

Air Hygiene & Manufacturing - E. F. Carden, Chairman;
Asbestos Advisory - F. W. Russell, Chairman;
Technical - J. W. Echerd, Chairman;
Fiber Research & Testing - C. E. Stiefken, Chairman;
Environmental Health - L. F. Dieringer, Chairman.

10. It was related by President Scowcroft that recent technological breakthroughs in basic yarn production techniques have influenced the Institute to seek wider representation in its membership. It was reported that as a result, the ATI Board of Governors had approved a change in the Constitution and By-Laws of the Institute involving Associate Membership requirements. Article III, Paragraph 2(c) of the Constitution has been revised as follows: "those weavers of asbestos-containing fabrics and tapes, for resale as such, who do not manufacture the asbestos-containing yarns used in same, shall be eligible for Associate Membership in this Institute."

11. President Scowcroft referred to the new identification cards that had been given to each member in attendance, asking that they be returned to the Executive Secretary for use at future meetings.

12. As stated by President Scowcroft, there seems to be some difficulty with the postal process in that some reservation cards are not arriving at ATI headquarters. In an endeavor to avoid undue problems at future meetings, it was advised that each member who makes a reservation with the Executive Secretary would receive a brief acknowledgment within approximately ten days' time. If same does not arrive in due course, it would be well to so advise the Secretary.

13. The next General Meeting of the Asbestos Textile Institute will be held:

October 3-5, 1973

Wyckmere Harbor Club, Harwichport, Massachusetts

Guest Speaker will be Dr. J. Corbett McDonald, Epidemiologist, McGill University, and Medical Advisor to the Quebec Asbestos Mining Association.

14. President Scowcroft advised that every effort is being made to oblige the wishes of the membership-at-large by scheduling, whenever possible, future General Meetings of the Institute so that they end on Fridays. Beginning in 1974, future meetings will be: February 7-8, 1974, at the Mills Wyatt House, Charleston, South Carolina; June 6-7, 1974, at Twin Bridges Marriott, Washington, D.C.; September 25-27, 1974, at The Cloister, Sea Island, Georgia; February 6-7, 1975, at Holiday Inn-Independence Mall, Philadelphia, Pennsylvania. Tentative future meeting sites include Ponte Vedra Club, Ponte Vedra Beach, Florida, in October 1975 and the Marriott in New Orleans, Louisiana, in February 1976.

15. Before introducing the Guest Speaker, President Scowcroft referred to five booklets that were distributed prior to calling the

meeting to order. Just off the press, the booklets were published by the AIA/NA and are entitled: The Asbestos Information Association/North America, What Asbestos Is--How And Where It Is Used, Asbestos And Health, Questions And Answers--Asbestos And Health, and Protecting The Asbestos Worker. Single copies of the booklets are available from the AIA/NA, 22 East 40th Street, New York, New York 10016 [bulk rates on request].

16. President Scowcroft introduced the Guest Speaker: Matthew M. Swetonic, Executive Secretary, Asbestos Information Association/North America. Mr. Swetonic (whose profile is attached) discussed the AIA/NA, its formation, its history and the work it is doing on behalf of the asbestos industry in the United States. He also talked about the impact of OSHA and EPA regulations to control the amount of asbestos dust in the atmosphere. He discussed the question: Why has the Asbestos Industry been singled out by government, the press and various conservative groups? He stated that the industry is passing through a crisis period in the U.S. and that closer ties between trade associations would be beneficial. Mr. Swetonic advised that he has been talking with the press about asbestos and health since 1968 and that out of 150-175 reporters, only 2 were over 35. We are dealing with a young and idealistic group, he said. From a survey taken of the awareness and attitudes toward the use of asbestos, it was discovered that asbestos is relatively unknown to the general public. The situation changes little between urban and rural areas. It was interesting to note that the survey indicated that those in the 18-25 age bracket knew little about asbestos but that awareness increased in those interviewed who were between 40 and 49 years of age. A copy of Mr. Swetonic's presentation, in its entirety, is attached to these Minutes.

17. There being no further business to be brought before the membership, the meeting was adjourned at approximately 3:00 P.M., as per a motion by E. A. Farrell, seconded by F. A. Morris, and unanimously approved by the attending members.

Respectfully submitted,

Doris M. Fagan
Doris M. Fagan,
Executive Secretary

NOTE: Enclosed herewith is your copy of the Constitution and By-Laws of the Asbestos Textile Institute, revised as of June 6, 1973. Paragraph 9 of the By-Laws (page 7) is subject to approval by the Internal Revenue Service.

FIBRE PRODUCERS' REPORT

[Presented at ATI General Meeting, June 7, 1973, at Key Bridge Marriott, Arlington, Virginia]

There has been an increasing demand throughout the world in 1973 for a number of fibre grades, notably in 4 Group and 7 Group. After the fall-off in 1972 in 5 and 6 Group fibres, this market has begun to recover, although not to the same extent as the previously-mentioned 4 and 7 Groups.

Of main interest to members of the A.T.I. are the spinning fibre Group 3 grades. Crudes and ultra-long spinnings continue to be in short supply, but the medium and short spinnings in the 3F to 3Z range are in fair supply from most producers. No shortage is foreseen in these grades during 1973, although individual producers may be tight in some specific gradings.

There are no indications at present that there will be a marked change during 1974 in spinnings; however, in short fibres, the current oversupply of 6D fibres may be closer to balance next year.

One or two new mines in Canada are scheduled to come into production in 1975, but there is no likelihood that they will produce any spinning fibres. The same is true of new sources in Australasia.

Walter H. Smith
Technical & Sales Representative
Bell Asbestos Mines, Ltd.

M I N U T E S

AIR HYGIENE & MANUFACTURING COMMITTEE

Asbestos Textile Institute
June 7, 1973 - - Key Bridge Marriott, Arlington, Virginia

The Committee met with sixteen members and guests in attendance, representative of ten companies, as follows:

Amatex Corporation

H. H. Walter, Norristown, Pennsylvania

Asberit S.A.

M. Cattaneo (Adorno), Rio de Janeiro, Brazil

Cadwalader, Wickersham & Taft

F. J. Leff, New York City

Canadian Johns-Manville Company Ltd.

J. P. Power, Asbestos, Quebec

Garlock Inc.

S. G. Dixit, Palmyra, New York

Johns-Manville Corporation

C. G. Guerin, Manville, New Jersey

W. B. Reitze, Denver, Colorado

Lake Asbestos of Quebec Ltd.

E. A. Farrell, New York City

R. L. Lefebvre, Black Lake, Quebec

H. K. Porter Company, Inc.

F. C. Bratt, Charlotte, North Carolina

L. E. Moody, Charlotte, North Carolina

Raybestos-Manhattan, Inc.

R. T. Matthew, North Charleston, South Carolina

I. H. Weaver, Manheim, Pennsylvania

Uniroyal, Inc.

W. D. Bittinger, Winnsboro, South Carolina

B. E. Carden, Hogansville, Georgia

L. F. Dieringer, Middlebury, Connecticut

The meeting included discussions in the following areas: dust (fiber) counts improvements, special checking, etc.; and recent experiences with OSHA inspections.

When taking dust counts, one company now is using a method of placing the filter intake valve near the person's mouth and nose

and in some cases will use two units with the second on the employee's shoulder.

Also, it was pointed out, again, that the height of the person being checked has some bearing on the dust count. Dust on fiber samples, when checked by different people, shows a difference or a variation of as much as 5 to 1 and an average of 40% variation, plus or minus, with more variation on higher counts.

Spacing of equipment using a larger area and using a second unit to recirculate the air has shown some reduction in dust counts. When stripping cards, use hoods placed as low as possible over the area and strip with a brush attached to a vacuum. Some plants utilize the Abington system when stripping cards.

One plant reported the use of a light spray (T-E-X) on mixes using roughly 2%, while another plant sprays carrier only with a mixture of water and ban-set. Both plants report some reduction in dust as a result of using the sprays.

In a recent plant inspection by OSHA, one company received several fines for the following items:

- 1) Some employees with no respirators;
- 2) Company had not provided protective clothing in required areas;
- 3) Citations resulting in two \$700.00 fines for exceeding five (5) fibers in one area and a time-weighted average of over ten (10) fibers in another area.

In some recent cases the OSHA Agency has reduced dust counts by 25% before actually issuing a citation. Some plants are using rental uniforms and lockers both furnished by the rental uniform people. The uniforms, two per employee each week, averages about \$2.50 weekly.

In most cases the rental uniform is a short-sleeved shirt and pants only, and this has been acceptable.

Respectfully submitted,
Buel F. Carden, Chairman

M I N U T E S

ASBESTOS ADVISORY COMMITTEE

Asbestos Textile Institute
June 7, 1973 -- Key Bridge Marriott, Arlington, Virginia

IN ATTENDANCE:

E. W. Russell, Chairman
T. P. Jackson
A. Kuzmuk
M. J. Scanlan
M. Q. Scowcroft
D. M. Fagan, ATI Executive Secretary
E. J. Leff, ATI Legal Counsel

The Board of Governors of the Asbestos Textile Institute took action at its September 1972 meeting to change the Institute's Constitution and By-Laws. The change permitted weavers of asbestos-containing fabrics and tapes, for resale as such, who do not manufacture the asbestos yarns used in same, to be eligible for Associate Membership. In light of this action, the Asbestos Advisory Committee was requested to determine a method of extending membership.

After considering several alternatives, the Committee accepted the offer of M. Q. Scowcroft to prepare a news release for insertion in the July 1973 issue of ASBESTOS magazine. The release will state the By-Law change and will publicly extend membership to those qualified and interested. T. P. Jackson of Johns-Manville Corporation will serve as Membership Chairman.

Respectfully submitted,

E. W. Russell, Chairman

M I N U T E S
TECHNICAL COMMITTEE

Asbestos Textile Institute
June 6 & 7, 1973 - - Key Bridge Marriott, Arlington, Virginia

IN ATTENDANCE: J. W. Hawkins, Raybestos-Manhattan, Inc.
W. Maaskant, Amatex Corporation
P. O. Nicodemus, General Electric Company/ASTM
C. G. Guerin, Johns-Manville Corporation
J. W. Echerd (Chairman), H. K. Porter Company, Inc.

Carl G. Guerin, of Johns-Manville Corporation, was welcomed as a new member of the ATI Technical Committee, replacing Irvin Barnett.

A special meeting of the Committee was held on June 6th to review the ASTM Standards for Yarn, Roving, and Lap. The Committee's proposed statements on precision and accuracy were approved by the Editorial Committee of ASTM D-13 as being editorial. However, the statements were rejected by the ASTM Standards Editor who specified they must be put to letter ballot after assigning a schedule for inter-laboratory testing. The samples of yarn, roving and lap will be analyzed by Raybestos-Manhattan, Inc., Amatex Corporation, General Electric Company, Garlock Inc. and H. K. Porter Company, Inc. Testing should be completed prior to the Spring 1974 meeting.

The Johns-Manville tumbler-test procedure was discussed as a means to determine the relative dustiness of various asbestos products. J. W. Hawkins will determine if this equipment is available for ATI evaluation. The feasibility of building a similar tester also will be considered.

ASTM Subcommittee D13.14 has been requested by the U.S. Navy to change D-315 Asbestos Tapes to conform with Federal Specification MIL-T-1782 so it may be used for direct procurement purposes. Revision would require the addition of a quality assurance provision, a section on packaging and an obsolete table on tape styles. The ATI Technical Committee feels that this information should not be included in a "Material Specification." P. O. Nicodemus will review the objectionable items with ASTM before replying to the Navy.

A draft of proposed Military Specification MIL-I-3053F--"Insulation, Electrical, Asbestos-Fiber, Treated and Untreated" was submitted for approval. The Chairman was instructed to request an extension for comments until after the October 1973 Committee meeting.

Respectfully submitted,

J. W. Echerd, Chairman

MINUTES

FIBER RESEARCH & TESTING COMMITTEE

Asbestos Textile Institute
June 7, 1973 -- Key Bridge Marriott, Arlington, Virginia

IN ATTENDANCE:

W. C. Streib, Johns-Manville Corporation
W. H. Smith, Bell Asbestos Mines Ltd.
D. E. Childers, H. K. Porter Company, Inc.
C. E. Stiefken (Chairman), American Smelting & Refining Co.

The meeting was totally devoted to discussions of the progress of the 3rd Edition of the Chrysotile Asbestos Test Manual.

It was noted that the ACPA (Asbestos Cement Products Association) has become defunct and all references to that organization have been removed from the new manual.

It was decided that for future test deletions, a substitute page would be inserted into the manual, containing the previous test number with an explanation of the reason for deletion. It would be indicated that the test could be obtained from ATI, if required.

Since ACPA is defunct, the ATI has, for the record, agreed to sponsor an original ACPA test -- Strength in Asbestos Cement Products, F-3.

Test G-9, T&M Magnetic Rating, has been approved for sponsorship by the ATI.

The Test Manual has been assembled in rough form, requiring some editorial changes. This draft will now be reviewed by the ATI Fiber Research & Testing Committee. When approved, the draft will be submitted to the printer for a reasonably-accurate cost estimate. All original typing, sketches and photographs will then be assembled for printing, hopefully by the end of this summer.

It will be helpful for the membership to submit copy requirements to Doris Fagan as soon as possible.

Respectfully submitted,

C. E. Stiefken, Chairman

M I N U T E S
ENVIRONMENTAL HEALTH COMMITTEE

Asbestos Textile Institute
June 7, 1973 -- Key Bridge Marriott, Arlington, Virginia

No formal meeting of the Committee was held, and the three members sat in on the discussions of the Air Hygiene & Manufacturing Committee.

As of meeting time, the following is the status of various proposed OSHA occupational health standards which are of interest to member companies:

- 1) Noise -- A Department of Labor Standards Advisory Committee is meeting periodically to consider this standard. At its meeting in Boston on May 21, 1973, the American Conference of Governmental Hygienists (ACGIH) recommended the adoption of a notice of intent to change the Noise Threshold Limit Values to 85 dBA for an 8-hour-a-day, time-weighted exposure. At the OSHA Standards Advisory Committee meeting in Washington, D.C., on May 30, 1973, Dr. V. H. Wilyard, Committee Chairman, stated that the level of exposure to noise for employees will probably remain at 90 dBA.
- 2) Heat Stress - ACGIH also recommended at its Boston meeting the adoption of the Heat Stress Threshold Limit Values which were published as a notice of intent in 1972. It differs slightly from those recommended by NIOSH in its criteria package in that permissible work-rest regimens are specified. The status of the proposed standards is clouded by recent criticism that the WBGT index is not an adequate indicator of heat stress. Proposals have been made that sweat rates and heart rates are more indicative of heat stress.

Recent articles of interest from the Annals of Occupational Hygiene, Volume 16, 1973, house organ for the British Occupational Hygiene Society, are:

- 1) Pages 1-5, Hygiene Standards for Airborne Amosite (Asbestos) Dust - "The subcommittee (on asbestos) has reviewed the information on human exposure to airborne amosite dust and animal experiments. The subcommittee believes it has insufficient knowledge of the relationship between airborne amosite dust exposure and the risk of asbestosis to permit an accurate statement of the degree of protection afforded by a specified hygiene standard. Nevertheless, on the basis of comparisons between the effects of amosite and chrysotile dust on men and animals, it is recommended that the standards on amosite should be no less stringent than those for chrysotile."
- 2) Page 7, Review of the Hygiene Standard for Chrysotile (Asbestos) Dust - Based on information of Quebec mortality and

REMARKS OF COUNSEL

Asbestos Textile Institute General Meeting
June 7, 1973, Arlington, Virginia

At the February General Meeting in Atlanta, Wendell Alcorn presented to you remarks of counsel dealing with illegal divisions of territory among competing sellers. The cases he referred to then dealt with explicit agreements in which the map was carved up among the selling companies involved on the principle of "one region - one company". The decided cases have held such agreements to be unlawful, with a few limited exceptions.

A recent case has focused attention on the division of markets where the agreement or plan is not clearly spelled out. In Hobart Brothers Company v. Malcolm T. Gilliland, Inc., 471 F.2d 894 (5th Cir. 1973), cert. denied, 41 U.S.L.W. 3622 (May 20, 1973), a distributor of welding equipment was assigned by the manufacturer "primary responsibility" for distribution in Northern Georgia. The natural commercial instincts of the firm, however, led it to begin selling in Tennessee, which was not only outside the Northern Georgia territory, but was within an area supplied directly by the manufacturer. Eventually, the distributorship agreement was cancelled by the manufacturer, and the distributor sued the manufacturer, charging an illegal division of territories.

The defense emphasized the absence of a written contract prohibiting the distributor from selling in any particular area. There had been such an agreement years earlier, but counsel had remedied that problem by drafting new contracts assigning "areas of primary responsibility", which did not on their face limit sales elsewhere.

The courts nevertheless held the arrangement to be illegal. The Fifth Circuit Court of Appeals stated that "A silent understanding can be shown by the course of conduct of the parties." The chief damaging evidence was an intra-office memo from the Tennessee district representative of the manufacturer to the home office which reported the distributor's sales in Tennessee and urged the manufacturer to "counter" by selling directly in the distributor's territory, Northern Georgia.

One of the important teachings of this case is that compliance with the antitrust laws - whether the issue is prices, distribution schemes, refusals to deal with certain companies, or any other sensitive trade regulation matter - is not achieved by merely avoiding the obvious, spelled out forms of transgression. Care must be taken not to lessen competition indirectly or through unexpressed understandings as well.

Having mentioned violations of the law through more devious means, which seems to me appropriate at this gathering, so close to the Watergate building, I would like to note another connection between antitrust law and politics.

Trade associations as well as other commercial groups can run afoul of the law by assuming power in their private activities which properly belongs to the government.

The early price-fixing cases reflect the view that private parties should not be permitted to regulate so sensitive a feature of the economy as prices. Similarly, any joint action which excludes certain companies from important commercial benefits is viewed by the courts as the imposition of a punishment - which is a power reserved to the courts.

In Fashion Originators' Guild, Inc. v. Federal Trade Commission, 312 U.S. 457 (1941), for example, a combination of manufacturers of women's garments and manufacturers of textiles tried to prevent the copying of their fashionable clothes by so-called "style pirates". The fashionable clothes group refused to sell their products to manufacturers or retailers of garments who dealt with the competing "style pirates". The Supreme Court rejected the defense that such a practice was justified by the necessity of ridding the business of unscrupulous garment designers. The Court said:

" . . . the combination is in reality an extra-governmental agency, which prescribes rules for the regulation and restraint of interstate commerce, and provides extra-judicial tribunals for determination and punishment of violations, and thus 'trenches upon the power of the national legislature and violates the statute' (i.e., the Sherman Act)." 312 U.S. at 405.

So long as private companies retain their competitive individuality, however, and restrict their joint efforts to constructive objectives which reasonably serve that individuality, there is little danger of antitrust difficulties.

Eugene J. Loff, Attorney

CADWALADER, WICKERSHAM & TAFT

ABOUT THE SPEAKER

The names Matthew M. Swetonic and Asbestos Information Association/North America are synonymous. It was Matt who developed the original AIA/NA Prospectus in the Fall of 1970 and who prepared the presentations for both the introductory and the organization meetings.

Upon J-M's decision to move its corporate headquarters to Denver and Matt's electing not to make the move, he was employed as AIA/NA's first full-time Executive Secretary. For the first three months of 1972 he handled two jobs: Manager of Environmental Affairs for J-M and Executive Secretary for AIA/NA. During this time he organized the industry effort for the EPA and OSHA hearings and wrote for others or presented himself six major presentations in a period of 45 days, a record which he states he hopes he "will be never asked to break."

Matt is 30 years of age and is married. He is a native New Yorker, was reared in Easton, Penna., and now resides in Manhattan. He holds a B.A. in Creative Writing and an M.S. in Journalism.

Following a tenure as Feature Writer for The Easton Express, he joined J-M in July 1965 as Associate Editor of News/Pic, an employee magazine. He was promoted to Editor in January 1967 and one year later was named Coordinator, Special Projects. This is the job that granted him the expertise to superbly fulfil his duties as Executive Secretary of the AIA/NA as the major responsibilities included writing J-M asbestos-health position papers, preparing speeches on asbestos-health for top J-M executives, working with J-M public relations counsel and learning asbestos-health literature backwards and forwards.

WHY ASBESTOS ?

A Presentation Before the
Asbestos Textile Institute
Arlington, Virginia - June 7, 1973

By: Matthew M. Swetonic, Executive Secretary
Asbestos Information Association/North America

I am sure that many of you have asked yourselves, as I have asked myself, why has the asbestos industry seemingly been singled out as the prime target for so many assaults by government, labor, the press, certain segments of the medical profession, and by various environmental and consumer activist groups?

Why us? Can asbestos really be all that bad? Are the products we produce truly going to kill millions of Americans, as some experts have predicted? Or is there some sort of nefarious conspiracy afoot to destroy the asbestos industry?

The answer to the question of "Why us" is both complex and simple. Complex because it is a combination of three interrelated but separate factors. Simple because each of the factors is, when considered by itself, quite obvious.

The three factors are (1) asbestos can cause disease, (2) a spokesman arose to champion the need for asbestos control, and (3) a cornucopia of new government agencies were set up to control materials and products that can cause disease. Let us look at each of these factors in turn.

First, there is no doubt that the inhalation of substantial amounts of asbestos can lead to increased rates of various types of lung disease, including two forms of cancer. These are facts which cannot be denied, even if they do not apply in all circumstances and under all conditions. The medical literature is full of solid evidence linking asbestos to disease. In my office, I have on file more than 2,000 medical papers dealing with the health risks of asbestos and hundreds more are published every year.

Secondly, the spreading of concern over the health risks of asbestos has as its prime spokesman one of the most talented medical publicists of the age -- Dr. Irving J. Selikoff of New York's Mount Sinai Hospital. Not only is Dr. Selikoff capable of arousing the ire and moral indignation of the most conservative reporter or politician with his graphic descriptions and predictions of the ravages of asbestos, but he has also surrounded himself with a group of similarly talented associates who have carried the Mount Sinai message to the far corners of the nation.

While Dr. Selikoff has, in his zeal, unquestionably painted a far darker picture than the facts warrant, we should always remember in his defense that the insulation workers he has been studying for

more than a decade were and still are dying from asbestos related disease at an appalling rate. Such a situation would be sufficient to make a crusader out of the most conservative of scientists.

Finally, in the past decade there has been a tremendous growth in public and governmental interest in environmental and occupational health matters. This interest has been translated into a series of far-reaching laws affecting industry in a manner hitherto unknown in this or any other country. I believe it is accurate to say that these new laws, such as the Occupational Safety and Health Act, the Clean Air Act, the Consumer Product Safety Act, and others, have forever altered the concept of the free enterprise system as it was known in this country for a hundred and fifty years.

Thus, in combination, these three factors created a situation in which a cadre of freshly created federal agencies, with strong statutory authority, were prodded into assigning priority status to asbestos by Dr. Selikoff and his followers, who achieved these ends through skillful use of the great wealth of negative asbestos-health data contained in the medical literature.

In short, the asbestos industry was singled out because it was vulnerable to attack, because there was someone willing to lead that attack, and because Congress had graciously provided the vehicles for such an assault.

The background of industry efforts to deal with the asbestos-health problem as a national issue goes back nearly a decade, to Dr. Selikoff's now famous 1964 seminar on asbestos disease at the New York Academy of Sciences. While this seminar did much to prick the industry's conscience about asbestos and health, the problem still remained one of limited public and press interest until around 1967, when the media began beating the medical bushes searching for stories that would graphically portray American industry's supposed disregard for the environment and for the health and safety of its workmen and the American public. The asbestos-health problem was found to be tailor-made for such stories. As a result, starting with Paul Brodeur's infamous New Yorker article of March 1968, asbestos has since grown into an item of major press interest.

In those years, industry efforts to combat the spate of negative press articles on asbestos were carried on primarily by the Johns Manville Corporation, which set up a task force of specialists in various fields to do what it could to portray the problem in its proper perspective. While some minor successes were achieved, it was found that no one company acting independently could adequately or effectively represent an entire industry in dealing with the press and with government officials.

As a result, in late 1970, eight companies gathered in New York City to launch the Asbestos Information Association of North America,

which was patterned after the British Asbestos Information Committee, which had been established some three years earlier.

In our original concept, the Association would limit its activities to providing accurate, unbiased information on asbestos and health to the press, to the public and to interested politicians and other government officials. It must be remembered that at this particular time, the enormous problems that would later develop with regard to OSHA and other Federal regulatory agencies were as yet on the distant horizon and basically unrecognized by the industry.

Fortunately -- and properly -- the Association has had the wisdom to alter its original limited concept of its proper functions, and now endeavors to assume whatever activities and responsibilities it deems necessary to protect the interests of the asbestos manufacturing industry in the United States vis-a-vis asbestos-health.

From this rather narrow initial public relations concept, the Association has grown in the last two years into an organization with priorities in eight major fields of endeavor. These are: Medical Affairs, Legal Affairs, Environmental Control, Customer Relations, Employee Relations, Inter-industry Relations, Publicity and Public Relations, and Government Affairs.

To take these activities one at a time, let us start with medical affairs.

It is an obvious fact that if an organization is to speak authoritatively on a medical matter, it must not only be steeped in the literature of that particular medical subject, but it must also keep itself constantly informed of new discoveries and developments. This we have accomplished in a number of ways. For example, by sending representatives to important medical meetings, such as the 1972 Lyon, France, international conference on the biological effects of asbestos, which was sponsored by the World Health Organization.

We also meet on an irregular basis with various medical experts in the field, both from the United States and abroad, to review and discuss recent developments and discoveries.

Our literature research is eased considerably by receiving the monthly medical paper distribution of the Institute of Occupational and Environmental Health in Montreal, which is funded by the Quebec Asbestos Mining Association.

This year, for the first time, the AIA has elected to sponsor medical research of its own. Currently underway is a completely AIA/NA funded study of chest sounds, which is being conducted by Dr. Raymond Murphy of the Harvard School of Public Health. The purpose of the study is to find a new method of determining an individual's potential susceptibility to asbestos disease.

The Association has also recently decided to contribute to some very exciting research into a possible cure for mesothelioma through electromotive treatment. This study is being conducted at Somerset Hospital in New Jersey.

In the legal affairs area, the Association participated in an amicus curiae capacity in the law suit brought by the Industrial Union Department of the AFL/CIO against the Occupational Safety and Health Administration on the asbestos standards. In our brief the Association supported OSHA against the IUD, somewhat of a unique position for an industry to find itself in vis-a-vis a governmental regulatory agency. Oral argument on the case was held April 4 in Washington. While a decision has yet to be handed down by the Court of Appeals, we are confident that the case will be decided in our favor.

The Association has retained the services of a special technical consultant on environmental control affairs. At the present time, he is working with the AIA/NA Environmental Control Sub-Committee on the development of a series of five Association compliance manuals on the OSHA standards.

Last year, because of the well established unreliability of the membrane filter method as a monitoring tool in the asbestos industry, the AIA undertook the sponsorship of a study at a research laboratory in California to determine the effect of certain variables on the overall accuracy of the method. The results of the study showed an error factor of plus or minus 50 per cent under the most favorable of measuring conditions. These results were sent to both OSHA and to the National Institute for Occupational Safety and Health. A number of the recommendations contained in the study for improving the accuracy of the method have been incorporated into a soon-to-be-released revised NIOSH operations manual on fiber counting.

In the customer relations area, the total effect of negative press publicity and government regulations on industry customers is still today rather poorly defined. Some members of the Association have reported serious problems in this area, while others have experienced few or no difficulties thus far.

Where customer problems do exist, they normally fall into one of five categories.

First, the customer has thoroughly investigated his situation and has found that he can no longer afford to continue using asbestos or asbestos-containing products, either because the cost of control is too high or because he would have to raise the price of his product to a level that would make it non-competitive with non-asbestos containing substitutes.

Second, the customer has not thoroughly investigated his situation and only thinks that he can no longer afford to continue using asbestos.

Third, the customer has read one or more negative articles on asbestos in the public press and has made the snap decision that "we ought to get that dangerous stuff out of our plant." Often, decisions of this nature are forced on top management by ill-informed medical advisors or safety and health directors.

Fourth, the customer has neither a control problem nor is he particularly afraid of using asbestos in his own plant. However, he is fearful that those of his competitors whose finished products do not contain asbestos will stress the adverse health effects of asbestos in trying to take business away from him. Customer fears of this nature are essentially "gut" reactions and are hence extremely difficult to deal with.

Fifth, the customer has none of these problems or fears but he has been advised by a government official or inspector that he would be better off if he quit using asbestos or asbestos-containing products in his plant. While this problem does not appear to be widespread, we have learned of a number of situations where it has occurred. Actions of this nature by government officials are totally uncalled for and should be dealt with promptly and decisively. The best solution is to obtain complete details on the incident and then to register a formal complaint with the offending official's immediate superior or with the government agency involved.

The Association's first reaction to the overall customer relations problem was to approve funds for a series of four regional seminars at which industry customers would be given a number of basic presentations on the various aspects of the asbestos-health problem. The seminars were tentatively scheduled for the Spring of 1973.

However, the experiences of a number of our member companies showed that general "catchall" type seminars of the type originally contemplated would not be effective in dealing with the majority of customer relations problems. In order to do the job properly, it was found that customer presentations have to be tailored to the needs and problems of the individual customer.

As a result, the Association cancelled its scheduled series of seminars and instead elected to develop a number of packaged slide presentations on such topics as "The Facts About Asbestos and Health," and "Understanding the OSHA Regulations," which could be used by member companies as part of a tailored presentation to individual customers.

As with customer relations, the Association feels that employee relations is a problem best handled by the individual member companies. Thus far, the AIA's sole contribution in this area of industry concern has been to prepare the draft of an Employee Safety and Health Guide on Asbestos-Health. The draft was made available to the member companies for their own use and at least one has produced it in booklet form for distribution to all its employees.

I personally believe that the employee relations aspect of the asbestos-health problem is one that has been sorely neglected by most companies within the industry, and that it could develop into a major problem area in the near future and that steps should be taken now to deal with it. We know that various organized labor groups are planning a full scale campaign to bring their interpretation of the asbestos-health problem to the attention of asbestos industry employees throughout the nation. If the industry permits this interpretation to be disseminated without rebuttal, the consequences could be grave indeed.

Inter-industry relations are best defined as keeping the industry informed about important new developments on the governmental, medical and press relations fronts that affect asbestos. This is accomplished within the AIA by periodic distributions of documents and information to the member companies and to others on our mailing list.

The value of this activity can be gauged by the fact that our overall mailing list increased from approximately a dozen names in 1971 to more than 60 a year later. While we have had to trim the list somewhat this year for logistical reasons, we assume from the frequent requests we still receive to be placed on the list that the material we send out is being read and is of considerable value to those receiving it.

Next to government affairs, our public relations and publicity activities constitute the single largest consumer of time, effort and money within the Association. Those of you who are familiar with the treatment that asbestos has been receiving in the public press over the years can readily understand why this activity ranks so high on our priority list.

What you may not understand are the reasons why our extensive efforts in dealing with the nation's press have been so unsuccessful to date in producing the theoretical "balanced" or "positive" story on asbestos and health.

The simple fact is that from the standpoint of today's young activist reporter, industry is the bad guy, and nothing we do, say or achieve can ever change this impression. If we spend \$100 million dollars on environmental control, the press either says we ought to have done it ten years ago or that we should have spent \$200 million. If we sponsor medical research, they say we are trying to buy favorable results. If we are opposed to ridiculously stringent standards, they say we are in favor of letting our employees die.

A television executive in Minneapolis described this new breed of reporter as being "so intent on demolishing the establishment that they would blindly destroy the credibility of the media in the bargain." Another TV executive, this time in Chicago, stated "they

want to make moral and political and social judgments on their assignments and then take sides. Never mind getting the facts straight."

As a result of this "industry is a monster" philosophy, asbestos will remain a hot news item only so long as the news is bad. The "good" that asbestos does in protecting lives and property is of no concern to the press. Likewise, industry efforts to protect workmen and the general public from asbestos exposure will always be given minimal coverage, since such information is directly contrary to the portrait of an irresponsible industry producing a "killer" product that is the sole element of news worthiness in the asbestos story.

The press relations battle will therefore be won, not when the media starts to print positive or balanced articles about asbestos, but when the press ceases to print anything about asbestos at all. As long as negative news on asbestos-health continues to be generated, the media will continue to eat it up. The media will only cease to carry such stories when the generation of negative news ceases. It is as simple as that. Positive or balanced stories are a chimera, since they are, by definition, not newsworthy.

Let me give you a very specific example of this last principle in action. As most of you already know, the Association is currently engaged in an extensive campaign to interest the trade press in articles on the benefits of asbestos and on industry accomplishments in the environmental control area. The trade press, unlike the national or public media, is much more receptive to articles of this nature and we expect to be seeing a number of positive stories in the trade press in the next few months.

In any case, we also from time to time put out press releases on various subjects relating to asbestos-health. A few weeks ago, we issued a release on the report of the advisory committee on asbestos cancers of the World Health Organization. In brief, the report concluded that the general public is not in danger from asbestos in the environment. Thus far, we have received nearly two dozen press clippings from trade publications that carried the story. To the best of our knowledge, not a single newspaper, news magazine, radio or TV station, or any other segment of the public media ran the story, with the solitary exception of a French language paper in Toronto. As I said before, if the news is good, the press simply isn't interested.

Nonetheless, the Association has no intention of abandoning our efforts vis-a-vis the national media. We will continue to issue appropriate press releases, cooperate with feature writers doing stories on asbestos, write letters to the editor when those stories appear, and in short, do all we can to present the press with a balanced view of the asbestos-health situation.

Our most recent effort in this regard has been the preparation and printing of an Asbestos and Health Information File, which we have mailed to some 3,000 newspapers, magazines, trade publications, radio and TV stations, science writers, etc., across the United States.

Basically, the file contains copies of five industry position papers on asbestos and asbestos-health, as well as a number of important medical papers and a pair of photographs illustrating the benefits of asbestos and industry efforts at environmental control. While we don't expect our information file to change the whole attitude of the press toward asbestos, we are hoping that the media will make use of it to accurately report the industry's position when doing stories on the subject.

And now, having heard the bad side of the public relations problem, it's time for some good news.

And the good news is that despite all the negative articles on asbestos-health that have appeared in the press over the past half-dozen years, very few people have been paying attention. Let me explain.

In February, the Association undertook a personal interview research survey of the American public to determine its attitude toward asbestos and its awareness of the health issue. The survey was conducted by the Opinion Research Corporation during March and April. More than 2,000 demographically selected Americans were interviewed.

Without going into enormous detail, the results show that only 22 per cent of the American public are aware of the health hazards of asbestos, and that 80 per cent of these consider it a hazard only to those who are occupationally exposed. A mere three per cent of those interviewed stated that they considered asbestos a health hazard to the general public, and less than one quarter of one per cent considered it the most dangerous material on the list they were given to choose from. Surprisingly, the college age youths of America are no more aware of the hazards of asbestos than their parents and grandparents.

These results should be reassuring to those industry customers who fear that the general public will stop buying their products because they contain asbestos.

Before going on to describe our activities in the government relations area, I think it might be interesting at this point to take a very brief look at the manner in which Dr. Selikoff and his supporters have used his research results to dramatize and exaggerate the seriousness of the asbestos-health problem. I have two charts which point this out rather conclusively.

The first chart shows the actual results of Dr. Selikoff's four mortality studies of asbestos workers. The numbers in parentheses beside the figures for total number of workers indicate those who have so far died from all causes. The percentage figures alongside the total number of deaths from asbestosis, lung cancer and mesothelioma are based on the total number of deaths from all causes, not on the number of workers in the study.

The most important study of the group is the second from the top, showing the deaths from asbestos-related disease among all members of the insulation workers union, regardless of length of exposure. You will note that 34 per cent of those workers who have died thus far have died from one of the three asbestos-related diseases.

These, then, are the facts Dr. Selikoff works from. This is what he knows from his own investigations. Now let us take a look at what he has done with these figures in order to dramatize the problem.

Chart number II shows Dr. Selikoff's predictions about asbestos-related deaths in the United States. Without going into details, Dr. Selikoff has arrived at his projections by the simple procedure of multiplying the percentage of deaths from asbestos-related disease among his insulation workers by the total number of employees in the entire industry.

You will also note that he has raised his projected death estimate to enormous heights over the past year by simply increasing the base figure of employees exposed, while still retaining the percentage multiplier of 34 per cent being experienced by the insulation workers.

I might point out that this tactic, however deceptive, has been an enormous success since each raising of the estimate has earned Dr. Selikoff correspondingly greater coverage by the media. No finer example exists of the total gullibility of the press than the manner in which it allowed its prejudices to be manipulated and played upon in this situation.

Please don't get me wrong. I have no doubt that the insulation workers are in fact dying as rapidly as Dr. Selikoff says they are. The problem is that he has translated their mortality experience to the rest of the entire industry, which is completely erroneous.

In the first place, the estimated number of employees in the industry is too high -- five times too high to be precise. Even more important, according to an analysis by the Association of more than a dozen mortality studies, including those of Dr. Selikoff, our prediction is that approximately 25,000 past and present employees in the asbestos industry have died or will eventually die of asbestos-related disease. This is less than one-thirteenth

CHART NUMBER I

DR. I. J. SELIKOFF --- RESEARCH DATA

	<u>NO. OF WORKERS</u>		<u>DESCRIPTION OF COHORT</u>	<u>TOTAL DEATHS FROM ASBES- TOSIS, LUNG CANCER & MESOTHELIOMA</u>
MORTALITY STUDY OF TWO LOCALS OF INSULATION WORKERS UNION	625	(423)	THOSE WITH A MINIMUM OF 20 YEARS EXPOSURE	149 (35%)
MORTALITY STUDY OF <u>ALL</u> MEMBERS OF INSULATION WORKERS UNION	17,800	(1092)	ALL WORKERS ON ROLLS 1/1/67	368* (34%)
MORTALITY STUDY OF WORKERS IN A WORLD WAR II AMOSITE INSULA- TION PLANT	933	(484)	EXPOSED ONLY TO AMOSITE ASBESTOS	107 (22.1%)
MORTALITY STUDY OF WORKERS AT JOHNS- MANVILLE CORP. MANVILLE, N.J., PLANT **	689	(199)	THOSE WITH A MINIMUM OF 20 YEARS EXPOSURE	66 (33%)

* 340 OF THESE DEATHS WERE AMONG THE 5,119
EMPLOYEES WITH GREATER THAN 20 YEARS EXPOSURE

**UNPUBLISHED DATA TAKEN FROM ARTICLE IN
THE NEW YORK POST, MAY 1972

CHART NUMBER II

DR. I. J. SELIKOFF -- PREDICTIONS

	<u>NO. OF WORKERS</u>	<u>DESCRIPTION OF COHORT</u>	<u>TOTAL DEATHS FROM ASBESTOSIS, LUNG CANCER & MESOTHELIOMA</u>
ARTICLE IN WALL STREET JOURNAL - 6/8/72 - "STUDIES BY DR. SELIKOFF... LEAD HIM TO PREDICT..."	250,000	ALL WORKERS CURRENTLY EMPLOYED IN THE ASBESTOS INDUSTRY	85,000*
ARTICLE IN THE NEW YORK TIMES - 6/13/72 - (5 DAYS LATER) - "IF OUR EXPER- IENCES...ARE A GUIDE..."	500,000	ALL WORKERS CURRENTLY & PREVIOUSLY EMPLOYED IN THE ASBESTOS INDUSTRY	170,000
TESTIMONY AT TOXIC SUBSTANCES HEARING - 2/21/73 - "OUR STUDIES INDICATE..."	1,000,000	ALL WORKERS CURRENTLY, PREVIOUSLY & WHO WILL BE EMPLOYED IN ASBESTOS INDUSTRY IN THIS CENTURY	340,000
AP STORY ON TOXIC SUBSTANCES HEARING	1,000,000	(AS ABOVE)	1,000,000 (MIS-QUOTE)

* ACTUAL QUOTED PREDICTION WAS 95,000,
BUT THIS INCLUDED DEATHS FROM GI CANCER,
WHICH I HAVE SUBTRACTED FROM THE TOTAL.

of Dr. Selikoff's most recent estimate. In addition, our figures show that 20 of the 25,000 deaths -- or 80% -- will occur among those in the insulation trades.

While these estimates should be reassuring to those in the mining and manufacturing areas of the industry, we should not forget that 5,000 of our workmen are still going to die of asbestos-related disease and that, all things considered, there is absolutely nothing that we can do to prevent it. The only thing we can do is to clean up our plants to assure that those entering the industry in the future will not have the same experience.

Within the past year and a half, the main thrust of Association effort has shifted to the government affairs front. The principal agencies in Washington with which we have been dealing are the Occupational Safety and Health Administration; the Environmental Protection Agency; the Food and Drug Administration; the Bureau of Mines; and, to a lesser degree, the National Institute of Occupational Safety and Health, and the National Institutes of Health, both of which are mainly involved in research efforts.

In addition, a few weeks ago we were contacted by the Federal Trade Commission, which had received a petition from the Center for Science in the Public Interest requesting an investigation of consumer uses of asbestos for the purpose of determining whether certain products ought to be labeled as hazardous and whether warnings should be required on all advertisements for those products. On the basis of a preliminary meeting with an investigator from the FTC it would appear that we have little to worry about in this particular area.

The Occupational Safety and Health Administration has been of enormous concern to the industry over the past 18 months. As most of you already know, the Association expended tremendous efforts during the six month period leading to the promulgation of last June's OSHA standards on asbestos. I think it is a gauge of the effectiveness of the total industry involvement in this most crucial matter that of eleven main requirements in the standards, the industry position was accepted totally by OSHA on nine of the eleven, about fifty per cent on a tenth, and totally rejected on only one.

OSHA is now planning to redo the standard package and we are working closely with them on this project. The first step will be the formation of a 15 man advisory committee to review the current standards and any additional medical and technical data that has become available in the year since the standards were promulgated.

Working in cooperation with nine other trade associations we have selected four individuals as industry-wide recommendations to OSHA for the four so-called "employer" spots on the advisory committee.

Page 11 - Why Asbestos?, by M. M. Svetonic, AIA/NA
Presented to the ATI at Arlington, Virginia - 6/7/73

In discussing the formation of the advisory committee with John O'Neill of the OSHA Standards Development Section, we were asked to add a couple of names to the list so that OSHA would have more of a selection to choose from. This we have agreed to do.

The committee will be given up to nine months to complete its deliberations and prepare for OSHA a revised standard package. This will be followed by public hearings, approximately a year from now. We do not expect to see a new standard promulgated before the Fall of 1974.

It is of course impossible to determine at this time what the new standards will look like, however, I would venture to say that they will certainly not be less strict than the ones we have today, although they will probably be less confusing and leave less room for employer interpretation. Something will unquestionably be done to improve the current difficulties with the monitoring requirements.

The main function of the National Institute for Occupational Safety and Health is to conduct research and to prepare so-called Criteria Packages, which are essentially recommendations to OSHA for standards on various materials, chemicals and activities. Such a package on asbestos was prepared by NIOSH at the time of the OSHA proceedings last year. NIOSH will not be preparing a new or revised criteria package for the upcoming review of the asbestos standards.

I do not believe it would be unfair to say that of all the agencies in Washington dealing with asbestos, Dr. Selikoff has had his greatest influence on the young idealistic scientists and doctors at NIOSH. Consequently, industry influence is weakest in this agency. It was NIOSH, after all, that made the original recommendation for a two fiber standard in the United States asbestos industry.

Next to OSHA, the Environmental Protection Agency has the greatest potential of any federal agency for adversely affecting the future of the asbestos industry in this country. Not only is the EPA responsible for developing and enforcing air and water pollution standards, but the Toxic Substances Control Act, now pending in Congress, will also become an EPA function after passage.

For this reason, I am pleased to be able to say that the asbestos industry has an excellent relationship with the EPA. No finer proof of this exists than the fact that there was not a single major industry recommendation made to the EPA at the public hearings on the proposed asbestos emission regulations that was not accepted either in toto or in principle in the final standards, which were published in early April of this year.

We are presently working with the EPA on the development of waste water effluent standards for asbestos manufacturing plants. We

certainly hope that these standards will turn out to be as reasonable as the air pollution regulations. The proposed effluent standards are scheduled to be published in the Federal Register sometime this Summer, to be followed by public hearings, with the final standards being promulgated in the Fall, perhaps as early as October.

We are also planning, in the near future, to meet in Washington with representatives from the standards development and enforcement branches of the EPA to discuss with them questions of interpretation and compliance policy with regard to the new air pollution regulations.

We have already resolved one interpretation question that is of special interest to the asbestos textile industry. Approximately two weeks ago I was asked by a member company of the Association to find out whether the EPA was planning to require the manufacturers of asbestos safety clothing to register as potential emission sources under the law.

In discussing the situation over the phone with EPA compliance officials, I argued that the producers of asbestos safety clothing were not manufacturers as defined in the regulations but were instead only fabricators of an asbestos product, and as such, should not have to register as potential emission sources.

After our phone conversation ended, a brief meeting was held among the EPA compliance people. I was then called back and informed that they agreed with me that the safety clothing producers should not be required to register.

While this rather minor problem took approximately an hour and a half and two or three phone calls to resolve, it is indicative of the type of day-to-day services that the Association provides for its member companies.

Over the past year the Food and Drug Administration has shown an increased interest in asbestos as a possible hazardous contaminant in various foods, beverages and drugs. Late in 1972 they set up an asbestos task force to review the situation and to propose regulations and guidelines where appropriate.

Thus far they have concentrated their efforts in two areas -- on the use of asbestos-contaminated talc in food packaging and in cosmetics, and secondly, on the use of asbestos cellulose filter pads in the beverage and drug industries.

In our first meeting with the FDA task force last November on the filter problem, they demonstrated and admitted to an appalling ignorance about the health hazards of asbestos. Since then, they have gotten one heck of a lot smarter, due at least in part to the tremendous amount of data and information which the Association

has been supplying to them. As a consequence, the FDA is today less panicky about asbestos and therefore less likely to propose foolish, unsupportable regulations. Spokesmen from the FDA have, in fact, defended the filter industry against environmentalist attacks in the press and elsewhere in recent months. This is, quite obviously, a healthy sign.

Our activities in the area of Congressional relations have been quite minimal to date, although we are preparing for the upcoming struggle in Congress over workmen's compensation reform, at which time asbestos is unquestionably going to be racked over the coals by Dr. Selikoff and by representatives of organized labor.

Unfortunately, the Association has neither the manpower nor the time to embark on a full-scale legislative information program. We have met on occasion with the legislative and legal assistants to various Senators who have attacked asbestos, however much more needs to be done in this area and I am afraid individual member companies are going to have to be the prime ball carriers and not the Association.

For essentially the same reason, our government activities at the state and local level have declined to essentially zero over the past year and a half. This has not been too serious a deficiency as most of the authority of the cities and states in asbestos control has been usurped by various Federal regulatory agencies. Nonetheless, more individual company activity is required at these levels of government.

In conclusion, I think we can all be justifiably pleased with what we have been able to accomplish in the past few years in resolving the cornucopia of interrelated problems that constitute the asbestos-health situation.

Our plants are cleaner and our workmen better protected. The general public has been shown to be in no danger from asbestos, if it ever was. While we have been regulated extensively, for the most part the standards that have been developed have not been as bad as we feared they might be, and in some cases they turned out far better than we ever dared hope. In addition, while we are still taking our lumps in the public press, the net effect of all this adverse publicity has been shown to be surprisingly small.

We have sweated a lot and we have groaned a lot, but we are still standing and we are still viable. I sense today within the industry a greater feeling of confidence in the future than at any time in the past few years. But we must not rest contented.

We must remember that Dr. Selikoff has to date been far less successful than our industry has in influencing the decisions of the various governmental regulatory agencies. This will make him try

Minutes
GENERAL MEETING
Asbestos Textile Institute
OCT 5 1973

ASBESTOS TEXTILE INSTITUTE

Annual Meeting

October 5, 1973

Wychmere Harbor Club, Harwichport, Massachusetts

In Attendance

AMITEX CORPORATION

W. Maaskant
J. L. Rainey
M. J. Scanlan
H. H. Walter

GARLOCK INC.

S. G. Dixit
A. Kuzmuk

JOHNS-MANVILLE CORPORATION

C. G. Guerin
A. Morrill (C.J-M)
J. P. Power (C.J-M)

NICOLET INDUSTRIES, INC.

E. W. Russell

H. K. PORTER COMPANY, INC.

E. C. Bratt
D. E. Childers
J. W. Echerd
L. E. Moody

RAYBESTOS-MANHATTAN, INC.

M. N. Brooks
S. G. Ledbetter
R. T. Matthew
W. A. Mitchell
M. W. Oliver
M. Q. Scowcroft
I. H. Weaver

UNIROYAL, INC.

D. T. Austin
B. E. Carden
L. F. Dieringer
W. C. Hitchcock
E. A. Morris
S. J. Peele
H. E. Sunbury (retired)

ASBESTOS CORPORATION LTD.

G. F. A. Brink
P. E. Leclerc

BELL ASBESTOS MINES LTD.

M. Dorais
W. J. W. Smith
W. H. Smith

CASSIAR ASBESTOS CORPORATION LTD.

R. A. Kuntze
(Ontario Research Foundation)

LAKE ASBESTOS OF QUEBEC LTD.

E. A. Farrell
C. E. Stiefken (Asarco)

NIPPON ASBESTOS CO. LTD.

Y. Sato

TBA INDUSTRIAL PRODUCTS LTD.

H. J. Corson

AMERICAN SOCIETY FOR TESTING
AND MATERIALS

P. O. Nicodemus

CADWALADER, WICKERSHAM & TAFT

E. J. Leff

ASBESTOS TEXTILE INSTITUTE

D. M. Fagan

GUESTS OF THE A.T.I.

Alison D. McDonald, M.D., D.P.H.
McGill University

John H. Marsh, Asbestos Informa-
tion Association/North America

Robert A. Clifton
U.S. Bureau of Mines

Total attendance during the three-day meeting was 68 people, including 24 wives, and representing 19 companies or associations.

more.....

M I N U T E S

1. The 1973 Annual Meeting of the Asbestos Textile Institute was called to order by President M. Q. Scowcroft at 8:30 A.M., October 5, 1973.
2. President Scowcroft welcomed the members in attendance and introduced the following as guests at the meeting: Alison D. McDonald, M.D., D.P.H., Associate Professor, Department of Epidemiology and Health, McGill University; Robert A. Clifton, Division of Non-metallic Minerals, U.S. Bureau of Mines; John H. Marsh, President of the Asbestos Information Association/North America and newly-appointed Director of Environmental Affairs for Raybestos-Manhattan, Inc.; and Paul O. Nicodemus, General Electric Company, the liaison between the ATI and ASTM.
3. Following past procedure, each person in attendance stated his name and company affiliation. The entire list of delegates is given on page 1 of these Minutes.
4. Upon President Scowcroft's calling for the reading of the Minutes of the last stated meeting, it was moved by A. Kuzmuk, seconded by E. A. Morris, and so carried, to dispense with the reading of same.
5. Treasurer E. A. Morris presented the Report of Funds of the Institute as of August 31, 1973. Net worth of the ATI as of the end of the Fiscal Year was \$16,144.79. The full Report is attached to these Minutes. S. J. Peele moved the Report be accepted. The motion was seconded by E. W. Russell and so voted, unanimously.
6. The President expressed genuine pleasure on the success of the meeting and on such a fine attendance of 68 in toto, including approximately 24 wives.
7. The President asked the members to mark their calendars and to plan to attend the following future meetings, as scheduled by the ATI:
 - Feb 7-8, 1974 - Mills Hyatt House, Charleston, South Carolina;
 - Jun 6-7, 1974 - Twin Bridges Marriott, Washington, D.C.;
 - Sep 25-27, 1974 - The Cloister, Sea Island, Georgia;
 - Feb 6-7, 1975 - Holiday Inn-Independence Mall, Philadelphia, Pa;
 - Oct 1-3, 1975 - Ponte Vedra Club, Ponte Vedra Beach, Florida
 - Feb 5-6, 1976 - New Orleans Marriott, New Orleans, Louisiana.
8. Subsequent to advising the membership that the Institute had graciously accepted the generous invitation by the five ATI mining companies to visit Canada for the June 1975 General Meeting, President Scowcroft called William J. W. Smith, of Bell Asbestos Mines Ltd., to the podium. On behalf of Asbestos Corporation Ltd., Bell Asbestos Mines Ltd., Canadian Johns-Manville Co. Ltd., Cassiar

more.....

Asbestos Corporation Ltd., and Lake Asbestos of Quebec Ltd., Mr. Smith cordially invited the ATI to join them in June 1975 in Quebec City. Included will be a one-day side trip to Thetford to visit the mines. The meeting will be held on a Thursday and a Friday and fishing arrangements will be made for Monday, Tuesday and part of Wednesday at some spot just north of Quebec City. The miners will want to know sometime in 1974 how many men are interested in the fishing trip

9. It was announced by President Scowcroft that the guest speaker at the February 1974 meeting in Charleston, South Carolina, will be Mr. Chain Robbins, newly-appointed Senior Adviser to John Stender and head of the new office of Occupational Health, OSHA. He will be accompanied by Lewis J. Cox, who recently was named special Assistant for Industry Liaison, OSHA.

10. Eugene J. Leff, of Cadwalader, Wickersham & Taft, presented Remarks of Legal Counsel. The full text of his remarks is attached hereto. Mr. Leff discussed the recent decision in Telex Corporation v. International Business Machines Corporation and the question of whether suits against monopolization penalize excellence of management of large corporations.

11. The Fiber Producers' Report was presented by E. A. Farrell, Sales Manager, Lake Asbestos of Quebec Ltd. Mr. Farrell stated that in 1972 the United States again was the largest importer of textile spinning fiber from Canada -- 13,700 tons. The United Kingdom and Yugoslavia followed. Yugoslavia is a new large consumer of spinning fiber. Canada shipped 29,000 tons of spinning fiber throughout the world, compared with 30,000 to 22 countries in 1971. The supply of Quebec spinning fiber is good but long grades from Cassiar are in short supply. The complete report is attached hereto.... Mr. Farrell compared an AIA/NA report on the breakdown of asbestos usage in the U.S. vs a similar report from Industrial Minerals magazine giving world figures. In the U.S., textile fiber consumed 3% of the total tonnage, floor tile consumed 18% and asbestos-cement products, 25%. A different distribution, based on world consumption, was given by IM and included a percentage of 10% for floor tile and 70% for asbestos-cement products (a really big difference from the AIA/NA figures). Following a comment from the floor by R. A. Clifton, U.S. Bureau of Mines, it was agreed the 70% world usage of the asbestos-cement products category is quite high, although it could partly be attributed to the increase in construction in the developing countries. It was also stated that the 70% figure was the same as that given last year by IM, leaving one to ponder if new percentage figures had been compiled for the latest IM report.

12. The following reports of ATI activities at Committee level were presented by the respective Chairmen to the general membership. A copy of each Report is attached hereto, i.e.:

Air Hygiene & Manufacturing - B. E. Carden, Chairman;
Asbestos Advisory - E. W. Russell, Chairman;
Technical - J. W. Echerd, Chairman;

more

Fiber Research & Testing - C. E. Stiefken, Chairman;
Environmental Health - L. F. Dieringer, Chairman.

R. A. Clifton added to Mr. Carden's report by stating that at present it does not appear that the Environmental Protection Agency has any great concern over any asbestos that may be in the water effluent from manufacturing plants. Also, there is no proof that asbestos in water is harmful.

13. The following announcements were made by President Scowcroft:

- a. The ATI was deeply saddened by the demise of George S. Fabel, on Sunday, September 23, 1973;
- b. Re-elected as Officers of the ATI for the ensuing year were M. Q. Scowcroft, President; A. Kuzmuk, Vice-President; and E. A. Morris, Treasurer.
- c. Asberit S.A., Rio de Janeiro, Brazil, was unanimously approved by the Board of Governors as a new Class D Associate Member.
- d. The Asbestos Information Association/North America has relocated to Suite 610, 1660 L Street, N.W., Washington, D.C. 20036 (Telephone: 202 223 4885). Its new Executive Director is Robert H. Mereness, formerly a public relations consultant in the Washington, D.C., area. Matthew M. Swetonic, the previous Executive Secretary, has joined Hill & Knowlton's Environmental Affairs Department in New York City. He will serve in a consulting capacity to the AIA/NA for a year or so.

14. President Scowcroft introduced, as the featured speaker, Alison D. McDonald, M.D., D.P.H., Associate Professor, Department of Epidemiology and Health, McGill University, Montreal, Quebec. He stated that Dr. McDonald has an educational and medically-professional background that makes one stand in awe. She is of British nationality and a Canadian citizen. Formal education includes the University of London Medical School, London School of Hygiene & Tropical Medicine, and a graduate student and Research Assistant, Department of Epidemiology, Harvard University. She holds seven advance degrees and is author or co-author of 45 papers.

15. The full text of Dr. McDonald's comprehensive and well-executed presentation, entitled "Chrysotile -- How Reassuring the Mining Experience," is attached to these Minutes.

16. There being no further business to be brought before the membership, E. A. Morris moved for adjournment. The motion was seconded by A. Kuzmuk and unanimously approved by the attending members, and the meeting was adjourned at 10:30 A.M.

Respectfully submitted,

Doris M. Fagan

Doris M. Fagan,
Executive Secretary

ASBESTOS TEXTILE INSTITUTE

Report of Funds as of August 31, 1973

Balance on Hand April 30, 1973 --

General Fund	\$ 1,462.06
Reserve Fund	19,846.91
Petty Cash Fund	<u>7.95</u>

Total on Hand April 30, 1973 \$ 21,316.92

Receipts

To Reserve Fund	\$
To General Fund (all Book Sales)	<u>97.01</u>

Total Receipts \$ 97.01

\$ 21,413.93

Disbursements

Rental of Office Space (3 months)	\$ 135.00
Telephone (4 months)	128.45
Federal Income/FICA Taxes (2nd Qtr 73)	162.62
Pa. Unemployment Tax (2nd Qtr 73)	5.25
Pa. Income Tax (2nd Qtr 73)	12.09
Secretary's Net Wages (4 months)	508.00
Postage	101.08
Printing Services	103.11
Office Supplies & Miscellaneous Items	77.37
Revision of Fibre Test Manual	42.18
Legal Services/Expenses (1st/2nd Qtr 73)	2,824.29
Secretary's Travel Expense (6/73 meeting)	78.97
Expenses to ATI (2/73 meeting)	326.98
Expenses to ATI (6/73 meeting)	554.89
Advertisement in July 1973 ASBESTOS	129.24
Petty Cash Vouchers #17-34	<u>69.98</u>

Total Disbursements \$ 5,295.37

BALANCE ON HAND AUGUST 31, 1973 \$ 16,118.56

Funds as of August 31, 1973 --

General Fund	\$ 2,683.68
Reserve Fund	13,346.91
Petty Cash Fund	<u>87.97</u>

TOTAL AVAILABLE FUNDS AUGUST 31, 1973 . . . \$ 16,118.56

Assets as of August 31, 1973 --

Total Funds as listed above	\$ 16,118.56
Accounts Receivable (Book Sales)	25.23
Furniture and Equipment (Nominal Value)	<u>1.00</u>

TOTAL ASSETS \$ 16,144.79

TOTAL LIABILITIES

TOTAL NET WORTH AUGUST 31, 1973 . . . \$ 16,144.79

NOTE: During the period 5/1/73 thru 8/31/73 --

\$ 150.00 was drawn from General Fund for Petty Cash;

\$5500.00 was drawn from Reserve for General Fund.

Doris M. Fagan

Respectfully submitted,
Doris M. Fagan,
Executive Secretary, ATI

ASBESTOS TEXTILE INSTITUTE

Report of Funds for Fiscal Year/September 1, 1972, thru August 31, 1973

Balance on Hand September 1, 1972 --

General Fund	\$ 3,992.64
Reserve Fund	9,313.41
Petty Cash Fund	<u>100.00</u>

Total on Hand at 9/1/72 \$ 13,406.05

Receipts

To Reserve Fund - Interest to 12/31/72	\$ 233.50
Dues for Year 1973	14,250.00
To General Fund - Special Assessments	750.00
Voluntary Contributions	250.00
Book Sales	311.78
Insurance Credits	<u>37.00</u>

Total Receipts \$ 15,832.28

\$ 29,238.33

Disbursements

Rental of Office Space	\$ 705.00
Telephone	430.86
Secretary's Net Wages	1,954.00
N.J. Unemployment & Disability Tax	67.50
Pa. Unemployment Tax	10.50
Federal Unemployment Tax	15.00
Pa. Income Tax	24.18
Federal Income & FICA Taxes	481.24
Printing & Office Supplies (9/1/72-1/2/73)	245.53
Postage (1/2/73-8/31/73)	199.49
Printing Services (1/2/73-8/31/73)	139.11
Office Supplies & Misc. (1/2/73-8/31/73)	205.57
Revision of Fibre Test Manual	240.45
Legal Services & Expenses	4,915.88
Secretary's Travel Expense	442.30
ATI Meeting Expense	1,787.48
ASTM Dues	25.00
Insurance	237.00
Accountant (Caruso/Year ended Sep 1972)	300.00
Moving Expenses from N.J. to Pa.	111.30
Gifts, Flowers, etc.	162.40
Advertisement in July 1973 ASBESTOS	129.24
Petty Cash Vouchers #629-664 & #01-34	<u>291.74</u>

Total Disbursements \$ 13,119.77

BALANCE ON HAND AUGUST 31, 1973 . . \$ 16,118.56

More.....

ASBESTOS TEXTILE INSTITUTE

Page 2

Report of Funds for Fiscal Year/September 1, 1972, thru August 31, 1973

Balance on Hand August 31, 1973 \$ 16,118.56

Funds as of August 31, 1973 --

General Fund	\$ 2,683.68
Reserve Fund	13,346.91
Petty Cash Fund	<u>87.97</u>

TOTAL AVAILABLE FUNDS AUGUST 31, 1973 . . \$ 16,118.56

Assets as of August 31, 1973 --

Total Funds as listed above	\$ 16,118.56
Accounts Receivable (Book Sales)	25.23
Furniture & Equipment (Nominal Value)	<u>1.00</u>

TOTAL ASSETS \$ 16,144.79

TOTAL LIABILITIES

TOTAL NET WORTH \$ 16,144.79

Doris M. Fagan

Respectfully submitted,
Doris M. Fagan,
Executive Secretary, ATI

ASBESTOS TEXTILE INSTITUTE -- ESTIMATED EXPENSES, INCOME AND BUDGET
FISCAL YEAR -- SEPTEMBER 1, 1973, thru AUGUST 31, 1974

	Budget 1972 - 1973	Actual 1972 - 1973	Anticipated 1973 - 1974
INCOME:			
Members' Dues	\$ 14,250.00	\$ 14,250.00	*\$ 14,750.00
1972 Interest on Savings	450.00	506.23	550.00
Book Sales	200.00	311.78	300.00
Special Assessments	750.00	750.00	..
Voluntary Contributions	..	250.00	..
Insurance Credits	..	37.00	..
	<u>\$ 15,650.00</u>	<u>\$ 16,105.01</u>	<u>\$ 15,600.00</u>
EXPENSES:			
Legal Services/Expenses	\$ 5,850.00	\$ 4,915.88	\$ 5,000.00
Secretary's Gross Wages	2,824.00	2,400.00	2,100.00
incl FICA & NJ Unem Taxes	447.00	..	..
Unem/FICA Taxes paid by ATI	..	152.42	77.00
ATI Meeting Expense	2,500.00	1,787.48	2,000.00
Secretary's Travel Expense	450.00	442.30	500.00
**Office Expense & Misc.	1,350.00	..	..
Telephone	..	430.86	450.00
Printing & Office Supplies	..	245.53	..
Postage	..	199.49	300.00
Printing Services	..	138.11	200.00
Office Supplies & Misc.	..	205.57	300.00
Petty Cash	..	291.74	300.00
Revision of Test Manual	600.00	240.45	300.00
Rental of Office Space	900.00	705.00	540.00
Accountant (Caruso)	300.00	300.00	300.00
ASTM Dues	50.00***	25.00	25.00
Gifts/Flowers/Plaques/etc.	150.00	162.40	200.00
Insurance	108.00	237.00	250.00
Tumbler Testing Machine	..	..	500.00
Moving Expense	..	111.30	..
Advertising in ASBESTOS	..	129.24	..
	<u>\$ 15,529.00</u>	<u>\$ 13,119.77</u>	<u>\$ 13,342.00</u>
Excess of anticipated income over anticipated expenses --			
for unanticipated or extraordinary expenses or Reserve ..			<u>\$ 2,258.00</u>
			<u>\$ 15,600.00</u>

*Members' Dues for F/Y 1973-1974:

Class A	5@ \$1500.00 = \$ 7,500.00
Class B	2@ \$ 750.00 = \$ 1,500.00
Class C	4@ \$ 750.00 = \$ 3,000.00
Class D	7@ \$ 375.00 = \$ 2,625.00
Class D (prorated 1/3 year)...	1@ \$ 125.00 = \$ 125.00
	<u>\$14,750.00</u>

**Totals for breakdown of Office Expenses: Budgeted 1972-73 = \$1350.00
Actual 1972-1973 = \$1511.30
Budgeted 1973-74 = \$1550.00

***Included \$25.00 for dues in the Industrial Hygiene Foundation

FIBER PRODUCERS' REPORT

(Presented at ATI Annual Meeting, October 5, 1973, at Wychmere Harbor Club, Harwichport, Massachusetts)

In 1972, the United States again was the largest importer of 13,756 short tons of spinning fiber from Canada. The United Kingdom and Yugoslavia followed. Total shipments were down slightly to 29,000 tons, from 30,000 tons to 22 countries in 1971.

1972 Canadian Group 3 Shipments (Short Tons)

	<u>1972</u>	<u>1971</u>
United States	13,756	13,428
United Kingdom	5,329	6,001
West Germany	1,449	2,263
Yugoslavia	1,800	..
India	1,492	1,631
Japan	1,308	1,616
France	709	1,029
Italy	977	624
Mexico	559	588
Netherlands	28	530
Czechoslovakia	99	469
	<u>27,504</u>	<u>28,179</u>
Others	<u>1,686</u>	<u>2,222</u>
TOTAL	29,190	30,401
	<u>s.tons</u>	<u>s.tons</u>

The supply of Quebec spinning fibers is good but long Cassiar Asbestos grades are in short supply. The supply of fiber Groups 4 and 7 has been generally tight with Group 4 in short supply. Groups 5 and 6 are available. These conditions are expected to extend through 1974, in view of a strong and growing demand from Europe and Asia.

A recent survey of end uses of asbestos fibers in the U.S. issued by the Asbestos Information Association/North America shows consumption of fiber for textiles to be 3% of the total. The U.S. end-use breakdown is considerably different than the world breakdown as published in Industrial Minerals, January 1970.

World & United States Asbestos End Use Distribution -- % Tons

	<u>World</u>	<u>U.S.</u>
A-C Pipe & Building Materials	70%	25%
Floor Tile	10	18
Felts & Papers	7	14
Friction Products	3	10
Textiles	2	3
Packing and Gaskets	-	3
Miscellaneous	8	27
	<u>100%</u>	<u>100%</u>

Edward Asa Farrell, Sales Manager
Lake Asbestos of Quebec Ltd.

M I N U T E S

AIR HYGIENE & MANUFACTURING COMMITTEE

Asbestos Textile Institute
October 4, 1973 -- Wychmere Harbor Club, Harwichport, Massachusetts

The Committee met with fourteen members and guests present and ten companies represented, as follows:

Amatex Corporation
H. H. Walter

Nippon Asbestos Co. Ltd.
Y. Sato

Canadian Johns-Manville Co. Ltd.
A. Morrill
J. P. Power

H. K. Porter Company, Inc.
E. C. Bratt
L. E. Moody

Garlock Inc.
S. G. Dixit

Raybestos-Manhattan, Inc.
R. T. Matthew
I. H. Weaver

Johns-Manville Products Corp.
C. G. Guerin

TBA Industrial Products Ltd.
H. J. Corson

Lake Asbestos of Quebec Ltd.
E. A. Farrell

Uniroyal, Inc.
B. E. Carden
L. F. Dieringer

The Committee had another good meeting and discussions included visits to four asbestos textile plants by the National Institutes for Occupational Safety and Health (NIOSH); plant inspections by the Occupational Safety and Health Administration (OSHA); and noise controls.

The main purpose of the NIOSH visit was to observe and discuss engineering controls and work practices directed at reducing the levels of asbestos fibers to which the workers are exposed in textile operations; also, to check fiber counts previously taken in all operations plus any data relating to a particular control or practice that produces a definite reduction in fiber counts.

While touring the plants, the NIOSH people made sketches of the various ventilation systems associated with the textile operations in all departments. The NIOSH group planned to take some air velocity measurements at major exhaust hoods and make some limited personal air sampling. However, this was not done at the Hogansville, Georgia, facility.

It is the Committee's understanding that the NIOSH people have selected two of the four plants visited to conduct approximately 600 dust counts derived from eight one-hour studies on fifteen people per day for one week. Additional one-week studies will be made in October following the initial week's visit.

Under the Occupational Safety and Health Act of 1970, NIOSH has the responsibility of conducting research for new occupational safety and health standards. NIOSH's recommendations are transmitted to

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the U.S. Department of Labor which has the responsibility for the final setting, promulgation and enforcement of the standards.

While we cannot be sure, it is generally felt that NIOSH is conducting the above-mentioned studies for use by the soon-to-be-constituted 15-member Review Board, when reviewing the existing Asbestos Standard. Hopefully, the result will be a more realistic Standard.

From one recent OSHA inspection, machine guarding, exposed horizontal shafting and signs for electrical equipment were the only items listed for correction. This plant was given a period from one week to 30 days to make the proper corrections and received only two very light penalties.

Only dust counts were made during an inspection at another plant. While it is generally felt that the initial impact from OSHA is behind us, we cannot afford to "let up" from doing everything possible to comply with the standards. However, OSHA is aware of the vast amount of improvement that is being accomplished by all plants toward the safety and health of their employees.

Present noise levels above 90 decibels require the use of protective ear plugs. However, there is some indication the 90 decibel-level may be lowered to 85. This is an area where OSHA may take a closer look in the future. It is felt that more work will be necessary to reduce noise levels and to eliminate the use of ear plugs.

In one plant, an employee who is not wearing ear plugs in a work area with noise over 90 decibels is given an oral warning; the second time, a 3-day send-out; the third time, a week send-out; and the fourth time, a discharge.

Respectfully submitted,

Buel E. Carden, Chairman

M I N U T E S

ASBESTOS ADVISORY COMMITTEE

Asbestos Textile Institute
October 4, 1973 -- Wychmere Harbor Club, Harwichport, Massachusetts

IN ATTENDANCE:

Amatex Corporation - M. J. Scanlan
Carlock Inc. - A. Kuzmuk
Nicolet Industries, Inc. - E. W. Russell
Raybestos-Manhattan, Inc. - M. Q. Scowcroft
Uniroyal, Inc. - W. C. Hitchcock, E. A. Morris and S. J. Peale
Asbestos Textile Institute - D. M. Fagan

There was considerable discussion by the Committee concerning the economic philosophy that exists today; that is, one of shortages and increased demands for all materials in the economy, the trend toward world demand and the ability to buy the materials and how these conditions affect the asbestos textile industry.

The publicity that asbestos receives is always a topic of discussion by the Committee. There was a general consensus of opinion that in spite of the adverse publicity directed at asbestos, the demand for asbestos textile products is continuing to increase. However, the industry must continue to make progress wherever possible, not just to avoid further criticism, but to continually improve upon its products and to reduce industrial health and safety hazards for its employees.

Respectfully submitted,

E. W. Russell, Chairman

M I N U T E S

TECHNICAL COMMITTEE

Asbestos Textile Institute
October 3-4, 1973 -- Wychmere Harbor Club, Harwichport, Massachusetts

IN ATTENDANCE:

Amatex Corporation - W. Maaskant
General Electric Co./ASTM - P. O. Nicodemus
H. K. Porter Company, Inc. - J. W. Echerd
Raybestos-Manhattan, Inc. - S. G. Ledbetter and W. A. Mitchell
Uniroyal, Inc. - D. T. Austin, Jr.

The Secretary of ASTM Subcommittee D13.14 reported that our proposed revisions to ASTM Standards for Asbestos Yarn (D299), Asbestos Roving (D375) and Asbestos Lap (D1061) have been approved by Letter Ballot. A Round Robin Test to determine Precision and Accuracy of these Standards is in process. Three of the five participating laboratories have completed the tests. All inter-laboratory testing is expected to be completed by January 1, 1974.

Revision of ASTM Standards for Asbestos Cloth (D1571), Asbestos Tape (D315) and Asbestos Tubular Sleeving (D628) will be undertaken next. The Precision and Accuracy of each Standard will be determined by a Round Robin Test.

ASTM Committee D-13 is scheduled to meet in New York City October 15-19, 1973. Subcommittee D13.14 will be represented by Messrs. P. O. Nicodemus and W. Maaskant on alternate days.

The Johns-Manville Tumbler Test procedure will be pursued as a means to determine the relative dustiness of various asbestos products. Five-hundred dollars (\$500.00) has been budgeted for the project. A location for the Tester will be determined at a later date. J. W. Hawkins, of Raybestos-Manhattan Inc., will investigate and recommend possible sites.

The Shaker Test was discussed as an alternate to the Tumbler Test method. No action was taken.

Proposed revisions to MIL-I-3053E, Insulation, Electrical, Asbestos-Fiber, Treated and Untreated, were reviewed. Committee recommendations will be submitted to the Military Custodian by the Committee Chairman prior to October 15, 1973.

Respectfully submitted,

J. W. Echerd, Chairman

M I N U T E S

FIBER RESEARCH & TESTING COMMITTEE

Asbestos Textile Institute

October 4, 1973 -- Wychmere Harbor Club, Harwichport, Massachusetts

IN ATTENDANCE: American Smelting & Refining Co. - C. E. Stiefken
Asbestos Corporation Ltd. - G. F. A. Brink
Bell Asbestos Mines Ltd. - W. H. Smith
Cassiar Asbestos Corporation Ltd. - R. A. Kuntze
H. K. Porter Company, Inc. - D. E. Childers

Work is progressing on the Chrysotile Asbestos Test Manual, 3rd Edition. Final typing of the new and revised tests, including the introduction (roughly 200 pages) is in process. This will be completed in early December after which we will submit the entire manuscript to U.S. printers for estimates.

Total estimated printed pages will be 375-400, or 200 sheets.
Total tests will be 31, of which 11 will be in ASTM format.

Some current printing estimates are as follows:

	<u>Canadian/as of 10/73</u>	<u>U.S./as of 7/73</u>
Printing & Assembling	\$3.69 per manual	\$3.17 per manual
Binders (includes 5-ring binder, printing via silk screen process, printed front cover & edge)	\$2.43	\$2.00
Spacers	<u>\$1.91</u>	<u>\$1.50</u>
TOTALS	<u>\$8.03</u>	<u>\$6.67</u>

Total manual orders placed at present are slightly over 2000. We anticipate an over-run of about 300 copies. It was recommended that any future modifications to the manual be under the control of ATI (in the interest of continuity).

Future work of this Committee will include the assistance to any other Institute Committee in the form of research projects.

We again are asking for more representation among fiber consumers on the Fiber Research and Testing Committee, as we are heavily over-balanced in the direction of fiber producers.

Respectfully submitted,

C. E. Stiefken, Chairman

MINUTES

ENVIRONMENTAL HEALTH COMMITTEE

Asbestos Textile Institute
October 4, 1973 -- Wychmere Harbor Club, Harwichport, Massachusetts

No formal meeting of the Committee was held and the two members present (E. C. Bratt and L. F. Dieringer) sat in on the discussions of the Air Hygiene and Manufacturing Committee.

As of meeting time, the following is the status of various proposed OSHA health standards which are of interest to member companies:

- 1) Asbestos - A Department of Labor Standards Advisory Committee has not been selected to consider revision to the present Standard. There is some indication that the DOL will by-pass use of this Committee and publish a proposed revised Standard in the Federal Register and then follow with the usual hearing and enactment process;
- 2) Noise - A revised standard is expected to be issued in the near future. It appears that the present 90 dBA limit for daily eight-hour exposure will be retained, that hearing testing will be required where exposure exceeds 85 dBA, and that the definition of engineering control will be changed to include practical and economic considerations. This indicated latter change is important and it gets away from the strict present concept that if the noise can be engineered out, it must be, without considering other factors;
- 3) Heat Stress - The Standards Advisory Committee is still considering a standard on heat stress. There are indications that because of the many controversies over the various provisions of the standard, it may be allowed to die on the vine.

Of interest is a recent law suit in which an industrial worker's law suit against six firms which manufactured the asbestos-containing products he installed, was upheld by a Circuit Court of Appeals. The case, Borel v. Fiberboard Paper Products Corporation, resulted from a suit involving a worker who died from lung cancer which the court said resulted from his work with asbestos over a 33-year period. The worker's complaint was based on the failure of the manufacturers of asbestos with which he worked to warn that their product could be dangerous to the ultimate user. The judge, in the court opinions, said that since the dangers of asbestos were known to the medical community since 1924, the manufacturers had a duty to inform purchasers and ultimate users of the product's inherent dangers, which they had not done.

Recent articles of interest are:

- 1) "Improved Techniques of Identification and Determination of Airborne Asbestos," L. Bartosiewicz, American Industrial Hygiene Association Journal 34, page 252, June 1973;
- 2) "Asbestos," National Safety News 108, page 54, August 1973.

Respectfully submitted,
L. F. Dieringer, Chairman

REMARKS OF LEGAL COUNSEL

Asbestos Textile Institute Annual Meeting
October 5, 1973, Harwichport, Massachusetts

Two weeks ago the business community experienced a shock wave produced by a federal court in an antitrust suit. I suppose that businessmen have become amply aware of the significance of the law in business affairs. But when I.B.M. was ordered to pay Telex \$352-1/2 million, even the lawyers were amazed.

Judge A. Sherman Christensen, sitting in Tulsa, Oklahoma, ruled on September 17, 1973, that the International Business Machines Corporation illegally monopolized the market for "plug compatible peripheral equipment" comprising such items as memories, tape devices and printers that plug directly into the main processing units of computers.

The suit by Telex is one of several brought against the giant of the computer industry. The Antitrust Division of the Federal Government is going directly for the jugular, suing I.B.M. in New York for monopolizing the market for general-purpose digital computers. Other suits have been brought by Controlled Data Corp., Greyhound Computer Leasing Corp., and others.

One body of opinion considers this series of cases to be an unwarranted attack on bigness itself. I.B.M. is being sued according to this view, simply because it has obtained a large share of the computer market, and the plaintiffs are oblivious to the natural and even praiseworthy reasons for I.B.M.'s growth. The law, however, does not make bigness alone illegal. The Sherman Act, Section 2, makes monopolization illegal, not the mere possession of monopoly power. "Monopolization" is a technical legal term which includes bigness plus an intent to acquire a monopoly.

A suit based on monopolization can succeed only if it is proven, first, that the defendant possesses monopoly power in a particular market, and, second, that it has obtained or maintained this power through willful action, such as anti-competitive pricing practices rather than through the excellence of its products or management. To differentiate excellence of management from willful exclusion of competitors is, of course, extremely difficult. Professor Martin Shubick, an economist at Yale and formerly of I.B.M., has said that the question is so difficult in the Government's suit against I.B.M., for example, that if he were offered a high enough consulting fee, he would be willing to work for either side in the suit in "perfect comfort and utter objectivity."

Nevertheless, the Supreme Court of the United States believes that the distinction can be made and that serious legal consequences may properly result. In the case of United States v. Grinnell Corp., 384 U.S. 563, 570-71 (1966), the Supreme Court stated that:

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"The offense of monopoly under P2 of the Sherman Act has two elements: (1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident."

This statement of the law reflects a very widely held sense of fairness. Why should the enterprise that Thomas J. Watson, Sr. built up be penalized, and even split up as the Justice Department would like, if only the best business techniques were the cause of its success?

In a letter to the Editor of The New York Times Magazine, printed on August 19, 1973, an anonymous I.B.M. employee wrote of I.B.M.'s record of technological achievement, stating that "... hard-headed businessmen buy I.B.M. products because of superior performance and service. I.B.M. has been able to aspire to this kind of superiority and keep ahead of its competitors by motivating its employees to regard excellence as a worthwhile goal. ... Why, then, penalize excellence by trying to 'break-up I.B.M.'?" (p.64)

Judge Christensen, for one, has reached the conclusion that I.B.M.'s success is due to some less commendable practices as well. He found that I.B.M. tried to "substantially constrain or destroy its plug peripheral competition by predatory pricing actions and by market strategies bearing no relationship to technological skill, industry, appropriate foresight or customer benefit."

Situations of monopoly may arise in various ways. They may result, on the one hand, innocently from the supremacy of the monopolist as victor in a race of competition, by reason of his technical superiority, or his ownership of an important patent. Monopoly may develop, on the other hand, from the absorption of competitors in an illegal merger. Or monopoly can emerge by driving competitors out of business, by putting deliberate business impediments in their path, or by combining or conspiring with competitors.

Clearly, an unlawful monopoly exists if monopoly power has been established or maintained by means of restraints of trade which would in themselves be illegal under the Sherman Act. Also, if there is proof that the defendant's business policy, his subjective intent, is to acquire or to keep a monopoly position, the law is violated. However, Judge Learned Hand has said that "... no monopolist monopolizes unconscious of what he is doing." Aluminum Co. of America v. United States, 148 F.2d 416, 432 (2d Cir. 1945). Therefore, some business practices will lead the courts to conclude that the company involved must necessarily have intended to acquire a monopoly.

In fact, it is very difficult for a company which possesses monopoly power to prove that it did not intend to monopolize. It is required

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to come forward with substantial evidence that the monopoly was "thrust upon" it. Alcoa raised this defense in 1945, but it was rejected by Judge Hand, who stated that:

"It was not inevitable that it (Alcoa) should always anticipate increases in the demand for ingot and be prepared to supply them. Nothing compelled it to keep doubling and redoubling its capacity before others entered the field."
(148 F.2d at 431.)

Very little indeed is required to show that the monopolist intended to obtain a monopoly.

In 1953 the United Shoe Machinery Corp. was held liable for illegal monopolization. United States v. United Shoe Machinery Corp., 110 F.Supp. 295 (D. Mass. 1953), aff'd per curiam, 347 U.S. 521 (1954). Its monopoly of machines used in manufacturing shoes was found to have been obtained in part through a system of leasing and not selling its machines. The District Court held that the lease-only and certain other practices

"... represent something more than the use of accessible resources, the process of invention and innovation, and the employment of those techniques of employment, financing, production, and distribution, which a competitive society must foster. They are contracts, arrangements, and policies which, instead of encouraging competition based upon pure merit, further the dominance of a particular firm. In this sense, they are unnatural barriers; they unnecessarily exclude actual and potential competition; they restrict a free market."
110 F. Supp. at 344-45.

Some of the cases referred to above have been misunderstood at times to suggest that a company which has monopoly power may become liable for unlawful monopolization merely by being active, enterprising and dynamic. Such a view implies that the safest course for large companies is passive stagnation, with a gradual loss of market share -- a business policy directly at odds with the aims of antitrust law. This, however, is not the teaching of the cases referred to. Enterprise alone is not penalized; the maintenance of monopoly power by policies intended to discourage, impede or even prevent the rise of new competitors is where the courts have drawn the line.

Returning to the recent judgment against I.B.M. for more than a third of a billion dollars, the court's opinion reveals that I.B.M. adopted certain practices which, according to the Judge, were "directed not at competition in an appropriate competitive sense, but at competitors and their viability as such." Among these were the bundling of prices of I.B.M.'s memories with its central processing units, that is, charging a single price for both items, and

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predatory pricing. Therefore, the District Court in the Telex case held the conviction that it was not penalizing excellence as such, or even bigness.

Although the standards governing the illegality of monopolies are, in my opinion, fair and economically beneficial, their application to any particular company is a mystery to all outside observers because of the factual complexity of such cases.

The number of dollars involved in the I.B.M. judgment is almost equaled by the number of documents, let alone testimony of witnesses, which are involved in this type of litigation. We all can take comfort in the fact that even though we do not have \$352-1/2 million to lose, neither must we endure a suit based on monopolization.

Thank you very much for your attention.

Eugene J. Leff, Attorney
CADWALADER, WICKERSHAM & TAFT

ABOUT THE SPEAKER

Alison D. McDonald, M.D., is Associate Professor, Department of Epidemiology and Health, McGill University - - and on a part-time basis is Consultant Epidemiologist, Hopital Riviere-des-Prairies.

British born and a citizen of Canada, Dr. McDonald studied at the Medical School of the Royal Free Hospital, University of London; the London School of Hygiene and Tropical Medicine; and the Harvard School of Public Health. Her academic qualifications are M.R.C.S., L.R.C.P., M.B., B.S., D.C.H., D.P.H., M.D. (Hygiene), and Certification in Public Health.

The latest responsibilities during her 23 years of experience prior to becoming associated with McGill, were: Industrial Medical Officer with the Navy, Army and Air Force Institutes; and Research Associate and Senior Lecturer, Paediatric Research Unit, Guy's Hospital Medical School, London Univ.

The author of no less than 26 papers, Dr. McDonald also has co-authored 19 publications, including:

- Epidemiology of primary malignant mesothelial tumours in Canada;

- Mortality in the chrysotile asbestos mines and mills of Quebec;

- Malignant mesothelial tumours: Histological type and asbestos exposure;

- Health of chrysotile asbestos mine and mill workers of Quebec;

- Epidemiologic surveillance of mesothelioma in Canada.

We are especially pleased to welcome Dr. Alison D. McDonald to the podium. The provocative title of her presentation is. . .

CHRYSOTILE - HOW REASSURING THE MINING EXPERIENCE?

CHRYSOTILE -- HOW REASSURING THE MINING EXPERIENCE?

By: Alison D. McDonald, M.D., D.P.H.
Department of Epidemiology and Health
McGill University, Montreal, Quebec

Presented to the Asbestos Textile Institute at its Annual Meeting held October 5, 1973, at Wychmere Harbor Club, Harwichport, Mass.

What are the health risks associated with working with asbestos? In quantitative and qualitative terms -- What is the relationship between amount and type of exposure and amount and type of disease? Although a great deal of research has been done on the subject, the picture is still fairly incomplete because the main evidence has to come from observations on man -- on people who are known to have been exposed to the mineral. Other investigations, such as animal experiments, do a lot to add to the picture but the evidence basically depends on what disease occurs in man and with what exposures. It is complicated, as you realize, by the different varieties of fibers, and because each fiber type may affect health differently. But I will try to give you some picture of the present state of knowledge, which is, on the one hand, complicated, and on the other, uncertain.

*Slide 1 shows the main types and quantities of asbestos produced and the time period over which they have been produced. It also shows the different uses for the mineral.

The first hazard to be observed was asbestosis. In quantitative terms -- What is the risk of contracting asbestosis? How much dust exposure, and over how long a period of time, is necessary before there is a risk of getting asbestosis?

The matter is still rather poorly assessed, except in the study we have been doing in Quebec where we do now have, for chrysotile mining, a fairly good picture of the amount of exposure which will give rise to asbestosis. It appears that all types of fibers and all types of processes (all industrial groups) are at risk of asbestosis.

The problem really lies in lung cancer. There are two main cancers that are associated with asbestos -- lung cancer, which is really indistinguishable from the lung cancer that smoking can give you; and mesothelioma, which is a very rare tumor that involves the surface of the lung and the lining of the abdominal cavity. A very definite connection has been observed between asbestos exposure and mesothelioma.

*The only slides available for reproducing in this written account are shown as Tables 2 through 9.

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Chrysotile -- How Reassuring the Mining Experience?

TABLE I
Main Industrial Groups and Fiber Exposure

	<u>Chrysotile</u>	<u>Crocidolite</u>	<u>Amosite</u>	<u>Antho- phyllite</u>	<u>Mixes</u>
Mining	+	++?	?	+	N/A
Manu- facture	++?	Not Known	++	Not Known	++
Insu- lation	Not Known	Not Known	Not Known		++ ++

Table I. I'm proposing to look at this in three main industrial groups: mining, manufacture and insulation -- and at the fiber types concerned, i.e., chrysotile, the three main amphiboles, and mixed fiber exposures. Unfortunately, the latter group is the most common.

When we started our studies in Quebec, it was known that very substantial risks of lung cancer and mesothelioma were found in the manufacturing processes and in people working with insulation. This is particularly true for mesothelioma which is very rare and only occurs in one out of a million population -- and yet a substantial number of cases are found with certain asbestos exposures.

Substantial health risks in terms of mesothelioma and lung cancer have been well documented for mixed fiber exposures. When we began our studies in Quebec, there was little evidence of a serious problem in the Chrysotile mining industry.

It was, therefore, very important to look at groups of people who were exposed to only one type of fiber. So we started investigating all persons who had ever been employed in the Quebec chrysotile-producing industry. The main objective, apart from studying pure Chrysotile exposure, was to determine the dose response relationship; that is to say, to try to get some precise information about what exposures could be sustained without a significant risk to health, and at what level was there a significant amount of disease.

As you know, the two main asbestos mining areas in Quebec are Asbestos and Thetford Mines. Slide 2 is a photograph of Canadian Johns-Manville's Jeffrey Mine at Asbestos. Slide 3 is a picture of Smith Street, in Thetford, which is indicative of the extensive environmental exposure to people, locally.

Slide 4. In starting our survey, we obtained personnel records of all of the people who ever had worked in the mines and mills. We documented all of their jobs, recorded as well as possible the amount of dust to which they had been exposed, and allowed for the time during which they had been exposed to these levels. We then divided all of these people into groups, according to the amount of dust exposure.

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TABLE II
Dust Exposure Levels and Numbers in each Analysis

Dust Exposure (mpcf - years)	-10	10-	100-	200-	400-	800+	
Number of Men in Each Analysis							<u>Total</u>
Mortality Study	2810	3329	1124	1007	837	585	9692
Radiographic Study	1537	1522	1133	912	718	707	6529
Lung Function and Respiratory Symptoms	91	455	159	134	109	67	1015
Smokers	69	381	144	117	96	59	866
Non-Smokers	22	74	15	17	13	8	149

The above Table II/Slide 5 shows the extent of the study. Looking at the top line, we have six groups, ranging from a total of less than 10 million particles per cubic foot x years through 800 plus. If you take a lifetime of 50 years of employment, the last group on the right would be equivalent to exposure to an average of at least 15 million particles per cubic foot. This is a very heavily exposed group and, of course, such exposures have only happened in the past and do not occur at the present time. Dr. Graham Gibbs, of the Department of Epidemiology and Health, has been studying the correlation between fiber counts and particle counts and we do not find sufficient correlation between the two to give our findings in terms of fiber counts. For this reason and because all epidemiological information is in terms of particle counts, we consider that these should continue to be used until fiber counts have been done for a long period of time. We do not have any direct information about fiber levels in terms of risks of disease.

One of the three major studies we undertook was of all men born between 1891 and 1920, to study causes of death and what their death rates were in various dust categories. We did an x-ray study in order to determine which dust groups showed an increased incidence of x-ray changes and at what level the increase started. This, of course, was important evidence of disease. Laboratory equipment was moved down to the mining areas and 1000 men were submitted to detailed lung function studies, again to see what the relationship was between the amount of chrysotile dust to which the men had been exposed and changes in their lung function. Slides 6 & 7 show the apparatus that was used to test their lung functions.

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TABLE III
Age-Corrected Mortality by Cause Per 1000 Men
Born 1891-1920 -- Deaths to December 1969
Dust Group

mpcf - years	-10	10-	100-	200-	400-	800+
All Causes	365	355	354	313	323	395
Respiratory Cancers, including malignant pleural mesothelioma	10.3	13.1	13.4	15.5	21.4	32.1
Abdominal Cancers	18.0	13.6	18.7	11.6	26.3	28.7
Pneumoconiosis	1.6	1.5	0.8	4.9	4.9	23.6

Table III/Slide 8 shows the main results of the mortality study. Of all causes of disease, it was only in the highest dust group (800+) that there was a considerable excess of deaths. For respiratory cancers, which includes malignant pleural mesothelioma of which there were very few cases in the industry, a rise is clearly present in the 400 to 800+ dust groups with an exposure (to an average concentration of 8 mpcf over 50 years). The rise probably does begin a little earlier. The highest dust group, which as we said was very heavily exposed, has about 3 times as much respiratory cancer as do the people with minimal exposure (the less than 10 group). The latter group includes people such as those working in clerical jobs and who have virtually no exposure to asbestos. But having information for both groups gave us a population with which to compare the people who were substantially exposed to dust.

There was also some indication that abdominal cancers were related to dust exposure. You will see a higher amount of abdominal cancers in the 400 to 800 and the 800+ groups. The same experience has been observed in other studies. It is by no means certain that this is directly due to asbestos since there are other possible explanations. You will see that the rise in asbestosis occurs at around the 200 dust level, indicating an equivalent of an average of 5 mpcf over 50 years.

Table IV/Slide 9. What is thought to be significant disease is irregular small opacities of grade 2/1. For those cases we observed that a significant increase occurred in the 100 to 200 dust group. We conclude, that for a lifetime exposure, an average of 2 mpcf gives rise to radiological change indicative of significant disease in 1% of persons.

Slide 10. In lung function tests in cigarette smokers and non-smokers, the first change occurred in the capacity to breath in and this started with low levels of dust exposure. But a 10% deficit in breathing capacity occurred at about the same level as the radiological changes that I just talked about -- at the level of about 2 mpcf on average over a lifetime.

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TABLE IV

Radiographic Changes - Prevalent Rates (%) Standardized for Age and Years in Industry -- Males Aged 36-65 at time of Radiograph

mpcf - years	Dust Group						Average
	-10	10-	100-	200-	400-	800+	
Thetford Mines							
Irregular Small							
Opacities - - - 1/0	1.8	3.3	6.3	8.7	12.0	17.2	7.6
2/1	0.0	0.2	2.2	0.9	2.4	9.2	2.0
Pleural Thickening-							
Grade 1	2.4	4.6	6.5	5.8	8.3	10.5	6.4
Grade 2	1.3	0.7	0.8	1.2	1.3	2.0	1.1
Asbestos							
Irregular Small							
Opacities - - - 1/0	6.4	3.7	6.3	5.0	6.8	7.0	5.1
2/1	0.0	0.4	1.5	0.8	0.6	3.9	0.8
Pleural Thickening-							
Grade 1	2.9	2.6	3.0	3.0	4.7	5.8	3.2
Grade 2	0.0	0.6	1.0	0.5	1.4	0.7	0.7

TABLE V

Age-Corrected Prevalence Rates (%) for Bronchitis and Breathlessness by Dust Exposure & Cumulative Smoking Habits

mpcf - years	Dust Index					
	-10	10-	100-	200-	400-	800+
Bronchitis						
Never Smoked	10	19	19	46	21	49
Up to 100 Cigarette Years	18	0	12	0	46	0
100-499	41	28	21	33	42	43
500-999	32	38	44	28	47	58
1000	100	47	45	55	54	35
Breathlessness						
Never Smoked	0	14	24	31	13	44
Up to 100 Cigarette Years	0	12	39	21	41	43
100-499	16	14	8	20	42	18
500-999	9	19	21	19	14	39
1000	0	23	27	31	34	46

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Table V/Slide 11. Lastly, the workers were asked to fill in a questionnaire about smoking. From the answers, we found that there was a relationship between breathlessness and dust exposure not apparently affected by smoking. But if you look at bronchitis and along the line for the "never smoked" and the two groups of smokers, you will note there wasn't any change in bronchitis which increased asbestos dust exposure. Now, if you look at the columns vertically you will see that smoking does a lot of damage in terms of bronchitis.

TABLE VI
Distribution of Cases of Mesothelioma by Year of Death and Province
(1960-1970)

	<u>Ontario</u>	<u>Quebec</u>	<u>Other Provinces</u>	<u>Canada</u>
1960	0	6	9	15
1961	1	6	3	10
1962	4	4	5	13
1963	9	3	7	19
1964	6	8	3	17
1965	7	7	5	19
1966	8	14	9	31
1967	6	13	6	25
1968	7	18	7	32
1969	12	7	6	25
1970	9	16	5	30
	<u>69</u>	<u>102</u>	<u>65</u>	<u>236</u>
Annual Incidence Per Million Popu- lation 1966-1970	1.2	2.3	0.9	1.4
Reviewed by Pathology Panel	57	80	47	194
Accepted as Mesothelioma	71%	42%	57%	55%

Table VI/Slide 12. The other study we did was to survey all mesotheliomas in Canada. At the outset, I should say we had just 5 mesotheliomas out of 3270 deaths in the mining industry. Although this may seem to you to be a small number, there should be no cases of mesothelioma in a general population. One of the problems about mesothelioma is the diagnosis. There is by no means agreement among pathologists about the diagnosis of mesothelioma; so our finding of 5, having searched pretty thoroughly for mesotheliomas, may well be an over-estimate, especially because they were particularly looked for in people with known asbestos dust exposure. Having found very few in the industry, we did a concurrent study -- locating all the mesotheliomas we could in Canada. We obtained from all pathologists reports about all known cases and feel we got fairly full ascertainment. The ascertainment wasn't done until 1967-68. If you look at the graph at the top (Table VI) you will see a gradual rise in the annual number of mesotheliomas across Canada up to 1966. This is

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probably due to poor memory and lack of knowledge about mesotheliomas in these earlier years. We are continuing this surveillance, and between 1966 and 1970 there doesn't appear to have been any change. This is rather a short period of time and we obviously need to know whether this "no change" situation will continue. As you know, the big concern is the lengthy latent period for mesothelioma to develop and the widely expressed fear that we are now going to reap results from exposures which occurred 20-30 years ago and that the rate of mesotheliomas may rise.

We now feel quite happy that a fairly good base line has been established for this surveillance and we shall be able to know within the next few years what is happening in Canada. If you look at the bottom line (Table VI), we looked to see whether mesothelioma occurred more in one part of Canada than in other sections of the country. There was, in fact, more in Quebec -- over 2 per million population, compared with just over one in Ontario and slightly less than one in the rest of Canada. But we must revert to the question of the diagnosis. When the mesotheliomas were submitted to pathologists, a much lower proportion was accepted as mesothelioma by the pathologists' panel -- not only in Quebec but in all of Canada. It looks as though, for cases that are accepted by the panel as mesotheliomas, there is little or no difference in the various parts of Canada.

TABLE VII
Distribution by Age of Cases and Matched Controls
 (The number in parentheses designates those
 successfully investigated, epidemiologically)

Age (Years)	Men		Women	
	Cases	Controls	Cases	Controls
20-29	0 (-)	0 (-)	2 (2)	0 (-)
30-39	3 (2)	2 (2)	4 (4)	4 (4)
40-49	6 (5)	6 (6)	4 (4)	5 (5)
50-59	12 (12)	12 (11)	6 (6)	5 (5)
60-69	8 (8)	10 (10)	6 (6)	8 (8)
70-79	7 (7)	5 (5)	7 (7)	8 (8)
80-89	2 (2)	3 (3)	3 (3)	2 (2)
90-99	1 (1)	1 (1)		
Total	39 (37)	39 (38)	32 (32)	32 (32)
Mean	58.7	59.2	58.9	59.0
Standard				
Deviation	12.9	13.2	18.2	15.2

Table VII/Slide 13. There are two objectives in this mesothelioma study -- to continue to watch the incidence and to examine to what extent the mesotheliomas are caused by asbestos. Here you see that more than 2/3 of the cases are in males, as is expected, and

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that the high rate occurred at the ages in which you would expect to find the results of occupational exposure -- ages 50-70.

TABLE VIII
Average Daily Number of Cigarettes Smoked
(Figures in parentheses represent percentages)

Cigarettes per day	Men		Women	
	Cases	Controls	Cases	Controls
Nil	7 (19.4)	8 (21.1)	14 (45.2)	22 (68.8)
10 or less	6 (16.7)	4 (10.5)	5 (16.1)	5 (15.6)
11-29	18 (50.0)	17 (44.7)	8 (25.8)	3 (9.4)
30 or more	5 (13.9)	9 (23.7)	4 (12.9)	2 (6.3)
Totals	36*	38	31*	32

*Excludes 1 man and 1 woman whose smoking histories were not recorded

Table VIII/Slide 14. We compared the cases that we found with other cases of cancer from the same hospital, by inquiries to their relatives about their occupational histories. We then categorized the occupational histories as having either definite, probable, possible or unlikely exposure to asbestos. For both males and females, the mesothelioma series and the control series represent what happened to the people who did not get mesothelioma but perhaps had a similar type of death. You will note that only 20% of the male mesotheliomas in Canada had a definite or probable history of exposure to asbestos. There was no evidence that possible exposures were associated with mesothelioma because the controls included a similar number. For women who were found to have mesotheliomas, asbestos appeared to be almost non-existent as a causative factor. We simply do not know, as yet, what factors cause these mesotheliomas.

Table IX/Slide 15. When we analyzed the occupations that involved asbestos exposure, we again had cases and controls. You can see that in mining and milling there was an excess in the cases compared with the controls. However, we found the manufacture of asbestos products and insulation work in Canada appeared to be the main causes of mesothelioma. We found none of these occupations in the controls. Mining and milling of chrysotile was associated with mesothelioma, but compared with the other occupations (insulation & manufacture), it was unimportant. In view of the extensive neighborhood exposure, especially at Thetford, we inquired whether any people had mesothelioma who were not employed in asbestos production but who were living in the area. We found no such cases.

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TABLE IX
 Types of Occupation in which there was
Definite or Probable Asbestos Exposure

	Men				Women			
	<u>Occupational</u>		<u>Domestic</u>		<u>Occupational</u>		<u>Domestic</u>	
	Cases	Controls	Cases	Controls	Cases	Controls	Cases	Controls
Mining & Milling	1	--	1 father	--	--	--	1 father	--
Asbestos Products Manufacture	4	--	--	--	--	--	--	--
Insulation Work	2	--	--	--	--	--	3 1 father 2 husbands	--
Other Occupations	4	4	--	--	--	--	--	1 husband

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Table IX: If you will look at the top line, you will note that we did find some indication of domestic exposure. There were a few people who had been exposed to a father or a husband working with asbestos. The diagnosis of mesothelioma may be more likely to be made in such a situation, but nevertheless, this risk is probably real and, especially for children. But there is no indication that the general population is at any risk.

So we found that the mesothelioma study backed up what we found in the mining industry, namely that there is a small excess of mesotheliomas in mining but it was manufacture and insulation that were mainly associated with mesothelioma in Canada rather than the mining and milling of chrysotile.

This has been borne out in other studies of chrysotile mines in Cyprus, Northern Italy and the USSR. Although the information is somewhat incomplete, they indicate a similar experience to that found in Quebec with regard to lung cancer and, in fact, practically no mesotheliomas. The evidence, insofar as the chrysotile-producing industry goes, is good in that the risks are low, and probably controllable.

Now, referring back to Table I -- I'm going to put a + for chrysotile mining. For anthophyllite mining in Finland, the picture is similar in that they find no mesotheliomas in that country. There does appear to be some lung cancer associated with mining but it isn't the high rate that appears in manufacturing and in insulation work.

Our information about crocidolite and amosite mining is fragmentary because it doesn't depend on surveys of people working in the mines. It depends, rather, on a surveillance of all types of cases which come from the mines and surrounding areas.

It does appear, however, that there have been a substantial number of mesotheliomas around crocidolite mines in the Northwest Cape. So, I'll put a ? for crocidolite mining (Table I) because the evidence isn't too secure, especially in regards to rates; i.e., how many cases in relation to how many workers and residents.

Regarding the amosite mines in the Transvaal, there is a very minute + (Table I). There does appear to be some lung cancer but practically no mesothelioma -- which is very different from the Northwest Cape area.

The relationship between mesothelioma and chrysotile has been confirmed in studies by the electron microscope -- studies in which fiber types in the lungs of cases of mesothelioma have been identified by Dr. Fred Pooley, of Cardiff in South Wales. In these studies, practically all of the fibers detected were of the amphi-

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bole variety. So far it has not been possible to distinguish crocidolite from amosite fibers, but chrysotile can be detected. All the cases thus far examined have substantial amounts of amphibole fibers and relatively few chrysotile fibers.

There are reports that persons exposed to chrysotile only in the manufacture of asbestos, have had similar rates of mesothelioma and lung cancer to those found in persons exposed to a mixture of fibers. The evidence isn't any too sure, in fact it's pretty doubtful, that these men were exposed only to chrysotile. So, we must put a ? (Table I) against the risk of cancer in the manufacture of asbestos products using only chrysotile.

Some additional comments to the data in Table I: Dr. Selikoff reports a high rate of mesothelioma and lung cancer in persons exposed only to amosite. Information on the manufacture of anthophyllite is unknown because single types of fiber have not been used in the process. Mixed mining is not applicable. And, we lack satisfactory information about manufacturing with pure crocidolite or with pure anthophyllite.

As you know, there are differences in the nature of each fiber type but experimental work has produced some possible explanations of the varying effects. Chrysotile is a long, thin and curly fiber and there is some evidence that it easily gets held up in the larger airways and, therefore, does not penetrate so well as other fiber types which can enter the smaller airways and reach the pleural surface.

In comparing crocidolite and amosite fibers, both are straight, rather than curly. However, when mined they apparently have quite different diameters; crocidolite having the narrower diameter and amosite being much wider in diameter. This fits in quite well with the findings from studies in the Northwest Cape. There are a lot of mesotheliomas in the Northwest Cape where the diameter of the fibers is small; whereas in the Transvaal area, where amosite is mined, and the fibers are broad, there appear to be practically no mesotheliomas. This doesn't fit with the story of the manufacture of amosite, and, frankly, I really do not know the reason.

Fiber differences could be an explanation; but on the other hand, the big differences between chrysotile mining and the manufacture of asbestos products and insulation certainly cannot be laughed off. Some of the possibilities for the differences between chrysotile mining and manufacture and insulation are

- 1) It is possible that during manufacture the fibers may be broken up into much smaller pieces and, therefore, lose their capacity to be caught up in the bigger airways, thereby penetrating further into the lungs.

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- 2) It is possible that the culprits are crocidolite and/or amosite.
- 3) It also is possible that in the process of manufacturing and insulation, that other carcinogens are involved.

Smoking has been raised as a possible additional factor in causing cancer of the lung; but for mesothelioma it has been pretty clearly shown that smoking is not an added factor. If there is something else that increases the risk of mesotheliomas, it is not smoking.

So I have to conclude that the chrysotile mining experience cannot really be said to be reassuring. It is certainly possible that if one were able to show that the manufacture of pure chrysotile gave cancer rates, similar to those in mining and milling, the picture would certainly be brighter.

But, it isn't brighter at the moment!

- end -

October 5, 1973

Annual Meeting

October 5, 1973

Wychmere Harbor Club, Harwichport, Massachusetts

In Attendance

AMETEX CORPORATION

W. Maaskant
J. L. Rainey
M. J. Scanlan
H. H. Walter

GARLOCK INC.

S. G. Dixit
A. Kuzmuk

JOHNS-MANVILLE CORPORATION

C. G. Guerin
A. Morrill (C.J-M)
J. P. Power (C.J-M)

NICOLET INDUSTRIES, INC.

E. W. Russell

H. K. PORTER COMPANY, INC.

E. C. Bratt
D. E. Childers
J. W. Echerd
L. E. Moody

RAYBESTOS-MANHATTAN, INC.

M. N. Brooks
S. G. Ledbetter
R. T. Matthew
W. A. Mitchell
M. W. Oliver
M. Q. Scowcroft
I. H. Weaver

UNIROYAL, INC.

D. T. Austin
B. E. Carden
L. F. Dieringer
W. C. Hitchcock
E. A. Morris
S. J. Peele
H. E. Sunbury (retired)

ASBESTOS CORPORATION LTD.

G. F. A. Brink
P. E. Leclerc

BELL ASBESTOS MINES LTD.

M. Dorais
W. J. W. Smith
W. H. Smith

CASSIAR ASBESTOS CORPORATION LTD.

R. A. Kuntze
(Ontario Research Foundation)

LAKE ASBESTOS OF QUEBEC LTD.

E. A. Farrell
C. E. Stiefken (Asarco)

NIPPON ASBESTOS CO. LTD.

Y. Sato

TBA INDUSTRIAL PRODUCTS LTD.

H. J. Corson

AMERICAN SOCIETY FOR TESTING
AND MATERIALS

P. O. Nicodemus

CADWALADER, WICKERSHAM & TAFT

E. J. Leff

ASBESTOS TEXTILE INSTITUTE

D. M. Fagan

GUESTS OF THE A.T.I.

Alison D. McDonald, M.D., D.P.H.
McGill University

John H. Marsh, Asbestos Informa-
tion Association/North America

Robert A. Clifton
U.S. Bureau of Mines

Total attendance during the three-day meeting was 68 people, includ-
ing 24 wives, and representing 19 companies or associations.

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MINUTES

1. The 1973 Annual Meeting of the Asbestos Textile Institute was called to order by President M. Q. Scowcroft at 8:30 A.M., October 5, 1973.
2. President Scowcroft welcomed the members in attendance and introduced the following as guests at the meeting: Alison D. McDonald, M.D., D.P.H., Associate Professor, Department of Epidemiology and Health, McGill University; Robert A. Clifton, Division of Non-metallic Minerals, U.S. Bureau of Mines; John H. Marsh, President of the Asbestos Information Association/North America and newly-appointed Director of Environmental Affairs for Raybestos-Manhattan, Inc.; and Paul O. Nicodemus, General Electric Company, the liaison between the ATI and ASTM.
3. Following past procedure, each person in attendance stated his name and company affiliation. The entire list of delegates is given on page 1 of these Minutes.
4. Upon President Scowcroft's calling for the reading of the Minutes of the last stated meeting, it was moved by A. Kuzmuk, seconded by E. A. Morris, and so carried, to dispense with the reading of same.
5. Treasurer E. A. Morris presented the Report of Funds of the Institute as of August 31, 1973. Net worth of the ATI as of the end of the Fiscal Year was \$16,144.79. The full Report is attached to these Minutes. S. J. Peele moved the Report be accepted. The motion was seconded by E. W. Russell and so voted, unanimously.
6. The President expressed genuine pleasure on the success of the meeting and on such a fine attendance of 68 in toto, including approximately 24 wives.
7. The President asked the members to mark their calendars and to plan to attend the following future meetings, as scheduled by the ATI:
 - Feb 7-8, 1974 - Mills Hyatt House, Charleston, South Carolina;
 - Jun 6-7, 1974 - Twin Bridges Marriott, Washington, D.C.;
 - Sep 25-27, 1974 - The Cloister, Sea Island, Georgia;
 - Feb 6-7, 1975 - Holiday Inn-Independence Mall, Philadelphia, Pa.;
 - Oct 1-3, 1975 - Fonte Vedra Club, Ponte Vedra Beach, Florida
 - Feb 5-6, 1976 - New Orleans Marriott, New Orleans, Louisiana.
8. Subsequent to advising the membership that the Institute had graciously accepted the generous invitation by the five ATI mining companies to visit Canada for the June 1975 General Meeting, President Scowcroft called William J. W. Smith, of Bell Asbestos Mines Ltd., to the podium. On behalf of Asbestos Corporation Ltd., Bell Asbestos Mines Ltd., Canadian Johns-Manville Co. Ltd., Cassiar

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Asbestos Corporation Ltd., and Lake Asbestos of Quebec Ltd., Mr. Smith cordially invited the ATI to join them in June 1975 in Quebec City. Included will be a one-day side trip to Thetford to visit the mines. The meeting will be held on a Thursday and a Friday and fishing arrangements will be made for Monday, Tuesday and part of Wednesday at some spot just north of Quebec City. The miners will want to know sometime in 1974 how many men are interested in the fishing trip

9. It was announced by President Scowcroft that the guest speaker at the February 1974 meeting in Charleston, South Carolina, will be Mr. Chain Robbins, newly-appointed Senior Adviser to John Stender and head of the new office of Occupational Health, OSHA. He will be accompanied by Lewis J. Cox, who recently was named special Assistant for Industry Liaison, OSHA.

10. Eugene J. Leff, of Cadwalader, Wickersham & Taft, presented Remarks of Legal Counsel. The full text of his remarks is attached hereto. Mr. Leff discussed the recent decision in Telex Corporation v. International Business Machines Corporation and the question of whether suits against monopolization penalize excellence of management of large corporations.

11. The Fiber Producers' Report was presented by E. A. Farrell, Sales Manager, Lake Asbestos of Quebec Ltd. Mr. Farrell stated that in 1972 the United States again was the largest importer of textile spinning fiber from Canada -- 13,700 tons. The United Kingdom and Yugoslavia followed. Yugoslavia is a new large consumer of spinning fiber. Canada shipped 29,000 tons of spinning fiber throughout the world, compared with 30,000 to 22 countries in 1971. The supply of Quebec spinning fiber is good but long grades from Cassiar are in short supply. The complete report is attached hereto... Mr. Farrell compared an AIA/NA report on the breakdown of asbestos usage in the U.S. vs a similar report from Industrial Minerals magazine giving world figures. In the U.S., textile fiber consumed 3% of the total tonnage, floor tile consumed 18% and asbestos-cement products, 25%. A different distribution, based on world consumption, was given by IM and included a percentage of 10% for floor tile and 70% for asbestos-cement products (a really big difference from the AIA/NA figures). Following a comment from the floor by R. A. Clifton, U.S. Bureau of Mines, it was agreed the 70% world usage of the asbestos-cement products category is quite high, although it could partly be attributed to the increase in construction in the developing countries. It was also stated that the 70% figure was the same as that given last year by IM, leaving one to ponder if new percentage figures had been compiled for the latest IM report.

12. The following reports of ATI activities at Committee level were presented by the respective Chairmen to the general membership. A copy of each Report is attached hereto, i.e.:

Air Hygiene & Manufacturing - B. E. Carden, Chairman;
Asbestos Advisory - E. W. Russell, Chairman;
Technical - J. W. Echerd, Chairman;

more

Fiber Research & Testing - C. E. Stiefken, Chairman;
Environmental Health - L. F. Dieringer, Chairman.

R. A. Clifton added to Mr. Carden's report by stating that at present it does not appear that the Environmental Protection Agency has any great concern over any asbestos that may be in the water effluent from manufacturing plants. Also, there is no proof that asbestos in water is harmful.

13. The following announcements were made by President Scowcroft:

- a. The ATI was deeply saddened by the demise of George S. Fabel, on Sunday, September 23, 1973;
- b. Re-elected as Officers of the ATI for the ensuing year were M. Q. Scowcroft, President; A. Kuzmuk, Vice-President; and E. A. Morris, Treasurer.
- c. Asberit S.A., Rio de Janeiro, Brazil, was unanimously approved by the Board of Governors as a new Class D Associate Member.
- d. The Asbestos Information Association/North America has relocated to Suite 610, 1660 L Street, N.W., Washington, D.C. 20036 (Telephone: 202 223 4885). Its new Executive Director is Robert H. Mereness, formerly a public relations consultant in the Washington, D.C., area. Matthew M. Swetonic, the previous Executive Secretary, has joined Hill & Knowlton's Environmental Affairs Department in New York City. He will serve in a consulting capacity to the AIA/NA for a year or so.

14. President Scowcroft introduced, as the featured speaker, Alison D. McDonald, M.D., D.P.H., Associate Professor, Department of Epidemiology and Health, McGill University, Montreal, Quebec. He stated that Dr. McDonald has an educational and medically-professional background that makes one stand in awe. She is of British nationality and a Canadian citizen. Formal education includes the University of London Medical School, London School of Hygiene & Tropical Medicine, and a graduate student and Research Assistant, Department of Epidemiology, Harvard University. She holds seven advance degrees and is author or co-author of 45 papers.

15. The full text of Dr. McDonald's comprehensive and well-executed presentation, entitled "Chrysotile -- How Reassuring the Mining Experience," is attached to these Minutes.

16. There being no further business to be brought before the membership, E. A. Morris moved for adjournment. The motion was seconded by A. Kuzmuk and unanimously approved by the attending members, and the meeting was adjourned at 10:30 A.M.

Respectfully submitted,

Doris M. Fagan
Doris M. Fagan,
Executive Secretary

Balance on Hand April 30, 1973 --		
General Fund	\$ 1,462.06	
Reserve Fund	19,846.91	
Petty Cash Fund	<u>7.95</u>	
Total on Hand April 30, 1973		\$ 21,316.92
Receipts		
To Reserve Fund	\$	
To General Fund (all Book Sales)	<u>97.01</u>	
Total Receipts		\$ 97.01
		\$ 21,413.93
Disbursements		
Rental of Office Space (3 months)	\$ 135.00	
Telephone (4 months)	129.45	
Federal Income/FICA Taxes (2nd Qtr 73)	152.52	
Pa. Unemployment Tax (2nd Qtr 73)	5.25	
Pa. Income Tax (2nd Qtr 73)	12.09	
Secretary's Net Wages (4 months)	502.00	
Postage	121.36	
Printing Services	103.11	
Office Supplies & Miscellaneous Items	77.37	
Revision of Fibre Test Manual	42.18	
Legal Services/Expenses (1st/2nd Qtr 73)	2,824.29	
Secretary's Travel Expense (6/73 meeting)	78.97	
Expenses to ATI (2/73 meeting)	326.98	
Expenses to ATI (6/73 meeting)	554.89	
Advertisement in July 1973 ASBESTOS	129.24	
Petty Cash Vouchers #17-34	<u>69.98</u>	
Total Disbursements		\$ 5,295.37
BALANCE ON HAND AUGUST 31, 1973		\$ 16,118.56
Funds as of August 31, 1973 --		
General Fund	\$ 2,683.68	
Reserve Fund	13,346.91	
Petty Cash Fund	<u>87.97</u>	
TOTAL AVAILABLE FUNDS AUGUST 31, 1973 . .		\$ 16,118.56
Assets as of August 31, 1973 --		
Total Funds as listed above	\$ 16,118.56	
Accounts Receivable (Book Sales)	25.23	
Furniture and Equipment (Nominal Value)	<u>1.00</u>	
TOTAL ASSETS		\$ 16,144.79
TOTAL LIABILITIES		<u> </u>
TOTAL NET WORTH AUGUST 31, 1973 . .		\$ 16,144.79

NOTE: During the period 5/1/73 thru 8/31/73 --
\$ 150.00 was drawn from General Fund for Petty Cash;
\$6500.00 was drawn from Reserve for General Fund.

Doris M. Fagan
Respectfully submitted,
Doris M. Fagan,
Executive Secretary, ATI

ASBESTOS REMOVAL ASSOCIATION

Report of Funds for Fiscal Year/September 1, 1972, thru August 31, 1973

Balance on Hand September 1, 1972 --

General Fund	\$ 3,992.64
Reserve Fund	9,313.41
Petty Cash Fund	<u>100.00</u>

Total on Hand at 9/1/72 \$ 13,406.05

Receipts

To Reserve Fund - Interest to 12/31/72	\$ 233.50
Dues for Year 1973	14,250.00
To General Fund - Special Assessments	750.00
Voluntary Contributions	250.00
Book Sales	311.73
Insurance Credits	<u>37.00</u>

Total Receipts \$ 15,832.23
\$ 29,238.33

Disbursements

Rental of Office Space	\$ 705.00
Telephone	430.86
Secretary's Net Wages	1,954.00
N.J. Unemployment & Disability Tax	67.50
Pa. Unemployment Tax	10.50
Federal Unemployment Tax	15.00
Pa. Income Tax	24.18
Federal Income & FICA Taxes	401.24
Printing & Office Supplies (9/1/72-1/2/73)	245.53
Postage (1/2/73-8/31/73)	199.49
Printing Services (1/2/73-8/31/73)	139.11
Office Supplies & Misc. (1/2/73-8/31/73)	205.57
Revision of Fibre Test Manual	240.45
Legal Services & Expenses	4,015.88
Secretary's Travel Expense	442.30
ATI Meeting Expense	1,727.43
ASTM Dues	25.00
Insurance	237.00
Accountant (Caruso/Year ended Sep 1972)	300.00
Moving Expenses from H.J. to Pa.	111.30
Gifts, Flowers, etc.	162.40
Advertisement in July 1973 ASBESTOS	129.24
Petty Cash Vouchers #629-664 & #01-24	<u>291.74</u>

Total Disbursements \$ 13,119.77

BALANCE ON HAND AUGUST 31, 1973 . . \$ 16,118.56

More.....

ASBESTOS TEXTILE INSTITUTE

Page 1

Report of Funds for Fiscal Year/September 1, 1972, thru August 31, 1973

Balance on Hand August 31, 1973		\$ 16,113.56
Funds as of August 31, 1973 --		
General Fund	\$ 2,683.68	
Reserve Fund	13,346.91	
Petty Cash Fund	<u>87.97</u>	
TOTAL AVAILABLE FUNDS AUGUST 31, 1973 . .		\$ 16,118.56
Assets as of August 31, 1973 --		
Total Funds as listed above	\$ 16,118.56	
Accounts Receivable (Book Sales)	25.23	
Furniture & Equipment (Nominal Value)	<u>1.00</u>	
TOTAL ASSETS		\$ 16,144.79
TOTAL LIABILITIES		<u>..</u>
TOTAL NET WORTH		<u><u>\$ 16,144.79</u></u>

Doris M. Fagan

Respectfully submitted,
Doris M. Fagan,
Executive Secretary, ATI

FISCAL YEAR -- SEPTEMBER 1, 1973, thru AUGUST 31, 1974

	Budget 1972 - 1973	Actual 1972 - 1973	Anticipated 1973 - 1974
INCOME:			
Members' Dues	\$ 14,250.00	\$ 14,250.00	*\$ 14,750.00
1972 Interest on Savings	450.00	506.23	550.00
Book Sales	200.00	311.78	300.00
Special Assessments	750.00	750.00	..
Voluntary Contributions	..	250.00	..
Insurance Credits	..	37.00	..
	<u>\$ 15,650.00</u>	<u>\$ 16,105.01</u>	<u>\$ 15,600.00</u>
EXPENSES:			
Legal Services/Expenses	\$ 5,850.00	\$ 4,915.83	\$ 5,000.00
Secretary's Gross Wages	2,824.00	2,400.00	2,100.00
incl FICA & NJ Unem Taxes	447.00	..	..
Unem/FICA Taxes paid by ATI	..	152.42	77.00
ATI Meeting Expense	2,500.00	1,787.48	2,000.00
Secretary's Travel Expense	450.00	442.30	500.00
**Office Expense & Misc.	1,350.00	..	..
Telephone	..	430.86	450.00
Printing & Office Supplies	..	245.53	..
Postage	..	199.49	300.00
Printing Services	..	138.11	200.00
Office Supplies & Misc.	..	205.57	300.00
Petty Cash	..	291.74	300.00
Revision of Test Manual	600.00	240.45	300.00
Rental of Office Space	900.00	705.00	540.00
Accountant (Caruso)	300.00	300.00	300.00
ASTM Dues	50.00***	25.00	25.00
Gifts/Flowers/Plaques/etc.	150.00	162.40	200.00
Insurance	108.00	237.00	250.00
Tumbler Testing Machine	..	..	500.00
Moving Expense	..	111.30	..
Advertising in ASBESTOS	..	129.24	..
	<u>\$ 15,529.00</u>	<u>\$ 13,119.77</u>	<u>\$ 13,342.00</u>
Excess of anticipated income over anticipated expenses --			\$ 2,258.00
for unanticipated or extraordinary expenses or Reserve ..			<u>\$ 15,600.00</u>

*Members' Dues for F/Y 1973-1974:

Class A	50	\$1500.00 = \$ 7,500.00
Class B	20	\$ 750.00 = \$ 1,500.00
Class C	40	\$ 750.00 = \$ 3,000.00
Class D	70	\$ 375.00 = \$ 2,625.00
Class D (prorated 1/3 year)...	10	\$ 125.00 = \$ 1,250.00
		<u>\$14,750.00</u>

**Totals for breakdown of Office Expenses: Budgeted 1972-73 = \$1350.00
 Actual 1972-1973 = \$1511.30
 Budgeted 1973-74 = \$1550.00

***Included \$25.00 for dues in the Industrial Hygiene Foundation

(Presented at ATI Annual Meeting, October 5, 1973, at Wychmere Harbor Club, Harwichport, Massachusetts)

In 1972, the United States again was the largest importer of 13,756 short tons of spinning fiber from Canada. The United Kingdom and Yugoslavia followed. Total shipments were down slightly to 29,000 tons, from 30,000 tons to 22 countries in 1971.

1972 Canadian Group 3 Shipments (Short Tons)

	<u>1972</u>	<u>1971</u>
United States	13,756	13,428
United Kingdom	5,329	6,001
West Germany	1,449	2,263
Yugoslavia	1,800	..
India	1,492	1,631
Japan	1,308	1,616
France	709	1,029
Italy	977	624
Mexico	559	588
Netherlands	28	530
Czechoslovakia	99	469
	<u>27,504</u>	<u>28,179</u>
Others	<u>1,686</u>	<u>2,222</u>
TOTAL	<u>29,190</u>	<u>30,401</u>
	<u>s.tons</u>	<u>s.tons</u>

The supply of Quebec spinning fibers is good but long Cassiar Asbestos grades are in short supply. The supply of fiber Groups 4 and 7 has been generally tight with Group 4 in short supply. Groups 5 and 6 are available. These conditions are expected to extend through 1974, in view of a strong and growing demand from Europe and Asia.

A recent survey of end uses of asbestos fibers in the U.S. issued by the Asbestos Information Association/North America shows consumption of fiber for textiles to be 3% of the total. The U.S. end-use breakdown is considerably different than the world breakdown as published in Industrial Minerals, January 1970.

World & United States Asbestos
End Use Distribution -- % Tons

	<u>World</u>	<u>U.S.</u>
A-C Pipe & Building Materials	<u>70%</u>	<u>25%</u>
Floor Tile	10	18
Felts & Papers	7	14
Friction Products	3	10
Textiles	2	3
Packing and Gaskets	-	3
Miscellaneous	8	27
	<u>100%</u>	<u>100%</u>

Edward Asa Farrell, Sales Manager
Lake Asbestos of Quebec Ltd.

AIR HYGIENE & MANUFACTURING COMMITTEE

Asbestos Textile Institute
October 4, 1973 -- Wychmere Harbor Club, Harwichport, Massachusetts

The Committee met with fourteen members and guests present and ten companies represented, as follows:

Amatex Corporation
H. H. Walter

Nippon Asbestos Co. Ltd.
Y. Sato

Canadian Johns-Manville Co. Ltd.
A. Morrill
J. P. Power

H. K. Porter Company, Inc.
E. C. Bratt
L. E. Moody

Garlock Inc.
S. G. Dixit

Raybestos-Manhattan, Inc.
R. T. Matthew
I. H. Weaver

Johns-Manville Products Corp.
C. G. Guerin

TBA Industrial Products Ltd.
H. J. Corson

Lake Asbestos of Quebec Ltd.
E. A. Farrell

Uniroyal, Inc.
B. E. Carden
L. F. Dieringer

The Committee had another good meeting and discussions included visits to four asbestos textile plants by the National Institutes for Occupational Safety and Health (NIOSH); plant inspections by the Occupational Safety and Health Administration (OSHA); and noise controls.

The main purpose of the NIOSH visit was to observe and discuss engineering controls and work practices directed at reducing the levels of asbestos fibers to which the workers are exposed in textile operations; also, to check fiber counts previously taken in all operations plus any data relating to a particular control or practice that produces a definite reduction in fiber counts.

While touring the plants, the NIOSH people made sketches of the various ventilation systems associated with the textile operations in all departments. The NIOSH group planned to take some air velocity measurements at major exhaust hoods and make some limited personal air sampling. However, this was not done at the Hogansville, Georgia, facility.

It is the Committee's understanding that the NIOSH people have selected two of the four plants visited to conduct approximately 600 dust counts derived from eight one-hour studies on fifteen people per day for one week. Additional one-week studies will be made in October following the initial week's visit.

Under the Occupational Safety and Health Act of 1970, NIOSH has the responsibility of conducting research for new occupational safety and health standards. NIOSH's recommendations are transmitted to

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the U.S. Department of Labor which has the responsibility for the final setting, promulgation and enforcement of the standards.

While we cannot be sure, it is generally felt that NIOSH is conducting the above-mentioned studies for use by the soon-to-be-constituted 15-member Review Board, when reviewing the existing Asbestos Standard. Hopefully, the result will be a more realistic Standard.

From one recent OSHA inspection, machine guarding, exposed horizontal shafting and signs for electrical equipment were the only items listed for correction. This plant was given a period from one week to 30 days to make the proper corrections and received only two very light penalties.

Only dust counts were made during an inspection at another plant. While it is generally felt that the initial impact from OSHA is behind us, we cannot afford to "let up" from doing everything possible to comply with the standards. However, OSHA is aware of the vast amount of improvement that is being accomplished by all plants toward the safety and health of their employees.

Present noise levels above 90 decibels require the use of protective ear plugs. However, there is some indication the 90 decibel-level may be lowered to 85. This is an area where OSHA may take a closer look in the future. It is felt that more work will be necessary to reduce noise levels and to eliminate the use of ear plugs.

In one plant, an employee who is not wearing ear plugs in a work area with noise over 90 decibels is given an oral warning; the second time, a 3-day send-out; the third time, a week send-out; and the fourth time, a discharge.

Respectfully submitted,

Buel E. Carden, Chairman

CONFIDENTIAL

Asbestos Textile Institute
October 4, 1973 -- Wychmere Harbor Club, Harwichport, Massachusetts

IN ATTENDANCE:

Amatex Corporation - M. J. Scanlan
Garlock Inc. - A. Kuzmuk
Nicolet Industries, Inc. - E. W. Russell
Raybestos-Manhattan, Inc. - M. Q. Scowcroft
Uniroyal, Inc. - W. C. Hitchcock, E. A. Morris and S. J. Peele
Asbestos Textile Institute - D. M. Fagan

There was considerable discussion by the Committee concerning the economic philosophy that exists today; that is, one of shortages and increased demands for all materials in the economy, the trend toward world demand and the ability to buy the materials and how these conditions affect the asbestos textile industry.

The publicity that asbestos receives is always a topic of discussion by the Committee. There was a general consensus of opinion that in spite of the adverse publicity directed at asbestos, the demand for asbestos textile products is continuing to increase. However, the industry must continue to make progress wherever possible, not just to avoid further criticism, but to continually improve upon its products and to reduce industrial health and safety hazards for its employees.

Respectfully submitted,

E. W. Russell, Chairman

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TECHNICAL COMMITTEE

Asbestos Textile Institute
October 3-4, 1973 -- Wychmere Harbor Club, Harwichport, Massachusetts

IN ATTENDANCE:

Amatex Corporation - W. Maaskant
General Electric Co./ASTM - P. O. Nicodemus
H. K. Porter Company, Inc. - J. W. Echerd
Raybestos-Manhattan, Inc. - S. G. Ledbetter and W. A. Mitchell
Uniroyal, Inc. - D. T. Austin, Jr.

The Secretary of ASTM Subcommittee D13.14 reported that our proposed revisions to ASTM Standards for Asbestos Yarn (D299), Asbestos Roving (D375) and Asbestos Lap (D1061) have been approved by Letter Ballot. A Round Robin Test to determine Precision and Accuracy of these Standards is in process. Three of the five participating laboratories have completed the tests. All inter-laboratory testing is expected to be completed by January 1, 1974.

Revision of ASTM Standards for Asbestos Cloth (D1571), Asbestos Tape (D315) and Asbestos Tubular Sleeving (D628) will be undertaken next. The Precision and Accuracy of each Standard will be determined by a Round Robin Test.

ASTM Committee D-13 is scheduled to meet in New York City October 15-19, 1973. Subcommittee D13.14 will be represented by Messrs. P. O. Nicodemus and W. Maaskant on alternate days.

The Johns-Manville Tumbler Test procedure will be pursued as a means to determine the relative dustiness of various asbestos products. Five-hundred dollars (\$500.00) has been budgeted for the project. A location for the Tester will be determined at a later date. J. W. Hawkins, of Raybestos-Manhattan Inc., will investigate and recommend possible sites.

The Shaker Test was discussed as an alternate to the Tumbler Test method. No action was taken.

Proposed revisions to MIL-I-3053E, Insulation, Electrical, Asbestos-Fiber, Treated and Untreated, were reviewed. Committee recommendations will be submitted to the Military Custodian by the Committee Chairman prior to October 15, 1973.

Respectfully submitted,

J. W. Echerd, Chairman

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FIBER RESEARCH & TESTING COMMITTEE

Asbestos Textile Institute
October 4, 1973 -- Wychmere Harbor Club, Harwichport, Massachusetts

IN ATTENDANCE: American Smelting & Refining Co. - C. E. Stiefken
Asbestos Corporation Ltd. - G. F. A. Brink
Bell Asbestos Mines Ltd. - W. H. Smith
Cassiar Asbestos Corporation Ltd. - R. A. Kuntze
H. K. Porter Company, Inc. - D. E. Childers

Work is progressing on the Chrysotile Asbestos Test Manual, 3rd Edition. Final typing of the new and revised tests, including the introduction (roughly 200 pages) is in process. This will be completed in early December after which we will submit the entire manuscript to U.S. printers for estimates.

Total estimated printed pages will be 375-400, or 200 sheets.
Total tests will be 31, of which 11 will be in ASTM format.

Some current printing estimates are as follows:

	<u>Canadian/as of 10/73</u>	<u>U.S./as of 7/73</u>
Printing & Assembling	\$3.69 per manual	\$3.17 per manual
Binders (includes 5-ring binder, printing via silk screen process, printed front cover & edge)	\$2.43	\$2.00
Spacers	<u>\$1.91</u>	<u>\$1.50</u>
TOTALS	<u>\$8.03</u>	<u>\$6.67</u>

Total manual orders placed at present are slightly over 2000. We anticipate an over-run of about 300 copies. It was recommended that any future modifications to the manual be under the control of ATI (in the interest of continuity).

- Future work of this Committee will include the assistance to any other Institute Committee in the form of research projects.

- We again are asking for more representation among fiber consumers on the Fiber Research and Testing Committee, as we are heavily over-balanced in the direction of fiber producers.

Respectfully submitted,

C. E. Stiefken, Chairman

ENVIRONMENTAL HEALTH COMMITTEE

Asbestos Textile Institute
October 4, 1973 -- Wychmere Harbor Club, Harwichport, Massachusetts

No formal meeting of the Committee was held and the two members present (E. C. Bratt and L. F. Dieringer) sat in on the discussions of the Air Hygiene and Manufacturing Committee.

As of meeting time, the following is the status of various proposed OSHA health standards which are of interest to member companies:

- 1) Asbestos - A Department of Labor Standards Advisory Committee has not been selected to consider revision to the present Standard. There is some indication that the DOL will by-pass use of this Committee and publish a proposed revised Standard in the Federal Register and then follow with the usual hearing and enactment process;
- 2) Noise - A revised standard is expected to be issued in the near future. It appears that the present 90 dBA limit for daily eight-hour exposure will be retained, that hearing testing will be required where exposure exceeds 85 dBA, and that the definition of engineering control will be changed to include practical and economic considerations. This indicated latter change is important and it gets away from the strict present concept that if the noise can be engineered out, it must be, without considering other factors;
- 3) Heat Stress - The Standards Advisory Committee is still considering a standard on heat stress. There are indications that because of the many controversies over the various provisions of the standard, it may be allowed to die on the vine.

Of interest is a recent law suit in which an industrial worker's law suit against six firms which manufactured the asbestos-containing products he installed, was upheld by a Circuit Court of Appeals. The case, Borel v. Fiberboard Paper Products Corporation, resulted from a suit involving a worker who died from lung cancer which the court said resulted from his work with asbestos over a 33-year period. The worker's complaint was based on the failure of the manufacturers of asbestos with which he worked to warn that their product could be dangerous to the ultimate user. The judge, in the court opinions, said that since the dangers of asbestos were known to the medical community since 1924, the manufacturers had a duty to inform purchasers and ultimate users of the product's inherent dangers, which they had not done.

Recent articles of interest are:

- 1) "Improved Techniques of Identification and Determination of Airborne Asbestos," L. Bartosiewicz, American Industrial Hygiene Association Journal 34, page 252, June 1973;
- 2) "Asbestos," National Safety News 108, page 54, August 1973.

Respectfully submitted,
L. F. Dieringer, Chairman

REMARKS OF LEGAL COUNSEL

Asbestos Textile Institute Annual Meeting
October 5, 1973, Harwichport, Massachusetts

Two weeks ago the business community experienced a shock wave produced by a federal court in an antitrust suit. I suppose that businessmen have become amply aware of the significance of the law in business affairs. But when I.B.M. was ordered to pay Telex \$352-1/2 million, even the lawyers were amazed.

Judge A. Sherman Christensen, sitting in Tulsa, Oklahoma, ruled on September 17, 1973, that the International Business Machines Corporation illegally monopolized the market for "plug compatible peripheral equipment" comprising such items as memories, tape devices and printers that plug directly into the main processing units of computers.

The suit by Telex is one of several brought against the giant of the computer industry. The Antitrust Division of the Federal Government is going directly for the jugular, suing I.B.M. in New York for monopolizing the market for general-purpose digital computers. Other suits have been brought by Controlled Data Corp., Greyhound Computer Leasing Corp., and others.

One body of opinion considers this series of cases to be an unwarranted attack on bigness itself. I.B.M. is being sued according to this view, simply because it has obtained a large share of the computer market, and the plaintiffs are oblivious to the natural and even praiseworthy reasons for I.B.M.'s growth. The law, however, does not make bigness alone illegal. The Sherman Act, Section 2, makes monopolization illegal, not the mere possession of monopoly power. "Monopolization" is a technical legal term which includes bigness plus an intent to acquire a monopoly.

A suit based on monopolization can succeed only if it is proven, first, that the defendant possesses monopoly power in a particular market, and, second, that it has obtained or maintained this power through willful action, such as anti-competitive pricing practices rather than through the excellence of its products or management. To differentiate excellence of management from willful exclusion of competitors is, of course, extremely difficult. Professor Martin Shubick, an economist at Yale and formerly of I.B.M., has said that the question is so difficult in the Government's suit against I.B.M., for example, that if he were offered a high enough consulting fee, he would be willing to work for either side in the suit in "perfect comfort and utter objectivity."

Nevertheless, the Supreme Court of the United States believes that the distinction can be made and that serious legal consequences may properly result. In the case of United States v. Grinnell Corp., 384 U.S. 563, 570-71 (1966), the Supreme Court stated that:

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"The offense of monopoly under P2 of the Sherman Act has two elements: (1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident."

This statement of the law reflects a very widely held sense of fairness. Why should the enterprise that Thomas J. Watson, Sr. built up be penalized, and even split up as the Justice Department would like, if only the best business techniques were the cause of its success?

In a letter to the Editor of The New York Times Magazine, printed on August 19, 1973, an anonymous I.B.M. employee wrote of I.B.M.'s record of technological achievement, stating that "... hard-headed businessmen buy I.B.M. products because of superior performance and service. I.B.M. has been able to aspire to this kind of superiority and keep ahead of its competitors by motivating its employees to regard excellence as a worthwhile goal. ... Why, then, penalize excellence by trying to 'break-up I.B.M.'?" (p.64)

Judge Christensen, for one, has reached the conclusion that I.B.M.'s success is due to some less commendable practices as well. He found that I.B.M. tried to "substantially constrain or destroy its plug peripheral competition by predatory pricing actions and by market strategies bearing no relationship to technological skill, industry, appropriate foresight or customer benefit."

Situations of monopoly may arise in various ways. They may result, on the one hand, innocently from the supremacy of the monopolist as victor in a race of competition, by reason of his technical superiority, or his ownership of an important patent. Monopoly may develop, on the other hand, from the absorption of competitors in an illegal merger. Or monopoly can emerge by driving competitors out of business, by putting deliberate business impediments in their path, or by combining or conspiring with competitors.

Clearly, an unlawful monopoly exists if monopoly power has been established or maintained by means of restraints of trade which would in themselves be illegal under the Sherman Act. Also, if there is proof that the defendant's business policy, his subjective intent, is to acquire or to keep a monopoly position, the law is violated. However, Judge Learned Hand has said that "... no monopolist monopolizes unconscious of what he is doing." Aluminum Co. of America v. United States, 148 F.2d 416, 432 (2d Cir. 1945). Therefore, some business practices will lead the courts to conclude that the company involved must necessarily have intended to acquire a monopoly.

In fact, it is very difficult for a company which possesses monopoly power to prove that it did not intend to monopolize. It is required

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to come forward with substantial evidence that the monopoly was "thrust upon" it. Alcoa raised this defense in 1945, but it was rejected by Judge Hand, who stated that:

"It was not inevitable that it (Alcoa) should always anticipate increases in the demand for ingot and be prepared to supply them. Nothing compelled it to keep doubling and redoubling its capacity before others entered the field."
(148 F.2d at 431.)

Very little indeed is required to show that the monopolist intended to obtain a monopoly.

In 1953 the United Shoe Machinery Corp. was held liable for illegal monopolization. United States v. United Shoe Machinery Corp., 110 F.Supp. 295 (D. Mass. 1953), aff'd per curiam, 347 U.S. 521 (1954). Its monopoly of machines used in manufacturing shoes was found to have been obtained in part through a system of leasing and not selling its machines. The District Court held that the lease-only and certain other practices

"... represent something more than the use of accessible resources, the process of invention and innovation, and the employment of those techniques of employment, financing, production, and distribution, which a competitive society must foster. They are contracts, arrangements, and policies which, instead of encouraging competition based upon pure merit, further the dominance of a particular firm. In this sense, they are unnatural barriers; they unnecessarily exclude actual and potential competition; they restrict a free market."
110 F. Supp. at 344-45.

Some of the cases referred to above have been misunderstood at times to suggest that a company which has monopoly power may become liable for unlawful monopolization merely by being active, enterprising and dynamic. Such a view implies that the safest course for large companies is passive stagnation, with a gradual loss of market share -- a business policy directly at odds with the aims of antitrust law. This, however, is not the teaching of the cases referred to. Enterprise alone is not penalized; the maintenance of monopoly power by policies intended to discourage, impede or even prevent the rise of new competitors is where the courts have drawn the line.

Returning to the recent judgment against I.B.M. for more than a third of a billion dollars, the court's opinion reveals that I.B.M. adopted certain practices which, according to the Judge, were "directed not at competition in an appropriate competitive sense, but at competitors and their viability as such." Among these were the bundling of prices of I.B.M.'s memories with its central processing units, that is, charging a single price for both items, and

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predatory pricing. Therefore, the District Court in the Telex case held the conviction that it was not penalizing excellence as such, or even bigness.

Although the standards governing the illegality of monopolies are, in my opinion, fair and economically beneficial, their application to any particular company is a mystery to all outside observers because of the factual complexity of such cases.

The number of dollars involved in the I.B.M. judgment is almost equaled by the number of documents, let alone testimony of witnesses, which are involved in this type of litigation. We all can take comfort in the fact that even though we do not have \$352-1/2 million to lose, neither must we endure a suit based on monopolization.

Thank you very much for your attention.

Eugene J. Leff, Attorney
CADWALADER, WICKERSHAM & TAFT

ABOUT THE SPEAKER

Alison D. McDonald, M.D., is Associate Professor, Department of Epidemiology and Health, McGill University - - and on a part-time basis is Consultant Epidemiologist, Hopital Riviere-des-Prairies.

British born and a citizen of Canada, Dr. McDonald studied at the Medical School of the Royal Free Hospital, University of London; the London School of Hygiene and Tropical Medicine; and the Harvard School of Public Health. Her academic qualifications are M.R.C.S., L.R.C.P., M.B., B.S., D.C.H., D.P.H., M.D. (Hygiene), and Certification in Public Health.

The latest responsibilities during her 23 years of experience prior to becoming associated with McGill, were: Industrial Medical Officer with the Navy, Army and Air Force Institutes; and Research Associate and Senior Lecturer, Paediatric Research Unit, Guy's Hospital Medical School, London Univ.

The author of no less than 26 papers, Dr. McDonald also has co-authored 19 publications, including:

- Epidemiology of primary malignant mesothelial tumours in Canada;

- Mortality in the chrysotile asbestos mines and mills of Quebec;

- Malignant mesothelial tumours: Histological type and asbestos exposure;

- Health of chrysotile asbestos mine and mill workers of Quebec;

- Epidemiologic surveillance of mesothelioma in Canada.

We are especially pleased to welcome Dr. Alison D. McDonald to the podium. The provocative title of her presentation is. . .

CHRYSOTILE - HOW REASSURING THE MINING EXPERIENCE?

CHRYSOTILE -- HOW REASSURING THE MINING EXPERIENCE?

By: Alison D. McDonald, M.D., D.P.H.
Department of Epidemiology and Health
McGill University, Montreal, Quebec

Presented to the Asbestos Textile Institute at its Annual Meeting held October 5, 1973, at Wychmere Harbor Club, Harwichport, Mass.

What are the health risks associated with working with asbestos? In quantitative and qualitative terms -- What is the relationship between amount and type of exposure and amount and type of disease? Although a great deal of research has been done on the subject, the picture is still fairly incomplete because the main evidence has to come from observations on man -- on people who are known to have been exposed to the mineral. Other investigations, such as animal experiments, do a lot to add to the picture but the evidence basically depends on what disease occurs in man and with what exposures. It is complicated, as you realize, by the different varieties of fibers, and because each fiber type may affect health differently. But I will try to give you some picture of the present state of knowledge, which is, on the one hand, complicated, and on the other, uncertain.

*Slide 1 shows the main types and quantities of asbestos produced and the time period over which they have been produced. It also shows the different uses for the mineral.

The first hazard to be observed was asbestosis. In quantitative terms -- What is the risk of contracting asbestosis? How much dust exposure, and over how long a period of time, is necessary before there is a risk of getting asbestosis?

The matter is still rather poorly assessed, except in the study we have been doing in Quebec where we do now have, for chrysotile mining, a fairly good picture of the amount of exposure which will give rise to asbestosis. It appears that all types of fibers and all types of processes (all industrial groups) are at risk of asbestosis.

The problem really lies in lung cancer. There are two main cancers that are associated with asbestos -- lung cancer, which is really indistinguishable from the lung cancer that smoking can give you; and mesothelioma, which is a very rare tumor that involves the surface of the lung and the lining of the abdominal cavity. A very definite connection has been observed between asbestos exposure and mesothelioma.

*The only slides available for reproducing in this written account are shown as Tables 2 through 9.

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Chrysotile -- How Reassuring the Mining Experience?

TABLE I
Main Industrial Groups and Fiber Exposure

	<u>Chrysotile</u>	<u>Crocidolite</u>	<u>Amosite</u>	<u>Antho- phyllite</u>	<u>Mixes</u>
Mining	±	++?	?	±	N/A
Manu- facture	++?	Not Known	++	Not Known	++
Insu- lation	Not Known	Not Known	Not Known		++

Table I. I'm proposing to look at this in three main industrial groups: mining, manufacture and insulation -- and at the fiber types concerned, i.e., chrysotile, the three main amphiboles, and mixed fiber exposures. Unfortunately, the latter group is the most common.

When we started our studies in Quebec; it was known that very substantial risks of lung cancer and mesothelioma were found in the manufacturing processes and in people working with insulation. This is particularly true for mesothelioma which is very rare and only occurs in one out of a million population -- and yet a substantial number of cases are found with certain asbestos exposures.

Substantial health risks in terms of mesothelioma and lung cancer have been well documented for mixed fiber exposures. When we began our studies in Quebec, there was little evidence of a serious problem in the Chrysotile mining industry.

It was, therefore, very important to look at groups of people who were exposed to only one type of fiber. So we started investigating all persons who had ever been employed in the Quebec chrysotile-producing industry. The main objective, apart from studying pure Chrysotile exposure, was to determine the dose response relationship; that is to say, to try to get some precise information about what exposures could be sustained without a significant risk to health, and at what level was there a significant amount of disease.

As you know, the two main asbestos mining areas in Quebec are Asbestos and Thetford Mines. Slide 2 is a photograph of Canadian Johns-Manville's Jeffrey Mine at Asbestos. Slide 3 is a picture of Smith Street, in Thetford, which is indicative of the extensive environmental exposure to people, locally.

Slide 4. In starting our survey, we obtained personnel records of all of the people who ever had worked in the mines and mills. We documented all of their jobs, recorded as well as possible the amount of dust to which they had been exposed, and allowed for the time during which they had been exposed to these levels. We then divided all of these people into groups, according to the amount of dust exposure.

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Chrysotile -- How Reassuring the Mining Experience?

TABLE II
Dust Exposure Levels and Numbers in each Analysis

Dust Exposure (mpcf - years)	-10	10-	100-	200-	400-	800+	
Number of Men in Each Analysis							<u>Total</u>
Mortality Study	2810	3329	1124	1007	837	585	9692
Radiographic Study	1537	1522	1133	912	718	707	6529
Lung Function and Respiratory Symptoms	91	455	159	134	109	67	1015
Smokers	69	381	144	117	96	59	866
Non-Smokers	22	74	15	17	13	8	149

The above Table II/Slide 5 shows the extent of the study. Looking at the top line, we have six groups, ranging from a total of less than 10 million particles per cubic foot x years through 800 plus. If you take a lifetime of 50 years of employment, the last group on the right would be equivalent to exposure to an average of at least 15 million particles per cubic foot. This is a very heavily exposed group and, of course, such exposures have only happened in the past and do not occur at the present time. Dr. Graham Gibbs, of the Department of Epidemiology and Health, has been studying the correlation between fiber counts and particle counts and we do not find sufficient correlation between the two to give our findings in terms of fiber counts. For this reason and because all epidemiological information is in terms of particle counts, we consider that these should continue to be used until fiber counts have been done for a long period of time. We do not have any direct information about fiber levels in terms of risks of disease.

One of the three major studies we undertook was of all men born between 1891 and 1920, to study causes of death and what their death rates were in various dust categories. We did an x-ray study in order to determine which dust groups showed an increased incidence of x-ray changes and at what level the increase started. This, of course, was important evidence of disease. Laboratory equipment was moved down to the mining areas and 1000 men were submitted to detailed lung function studies, again to see what the relationship was between the amount of chrysotile dust to which the men had been exposed and changes in their lung function. Slides 6 & 7 show the apparatus that was used to test their lung functions.

More.....

Chrysotile -- How Reassuring the Mining Experience?

TABLE III
Age-Corrected Mortality by Cause Per 1000 Men
Born 1891-1920 -- Deaths to December 1969
Dust Group

mpcf - years	-10	10-	100-	200-	400-	800+
All Causes	365	355	354	313	323	395
Respiratory Cancers, including malignant pleural mesothelioma	10.3	13.1	13.4	15.5	21.4	32.1
Abdominal Cancers	18.0	13.6	18.7	11.6	26.3	28.7
Pneumoconiosis	1.6	1.5	0.8	4.9	4.9	23.6

Table III/Slide 8 shows the main results of the mortality study. Of all causes of disease, it was only in the highest dust group (800+) that there was a considerable excess of deaths. For respiratory cancers, which includes malignant pleural mesothelioma of which there were very few cases in the industry, a rise is clearly present in the 400 to 800+ dust groups with an exposure (to an average concentration of 8 mpcf over 50 years). The rise probably does begin a little earlier. The highest dust group, which as we said was very heavily exposed, has about 3 times as much respiratory cancer as do the people with minimal exposure (the less than 10 group). The latter group includes people such as those working in clerical jobs and who have virtually no exposure to asbestos. But having information for both groups gave us a population with which to compare the people who were substantially exposed to dust.

There was also some indication that abdominal cancers were related to dust exposure. You will see a higher amount of abdominal cancers in the 400 to 800 and the 800+ groups. The same experience has been observed in other studies. It is by no means certain that this is directly due to asbestos since there are other possible explanations. You will see that the rise in asbestosis occurs at around the 200 dust level, indicating an equivalent of an average of 5 mpcf over 50 years.

Table IV/Slide 9. What is thought to be significant disease is irregular small opacities of grade 2/1. For those cases we observed that a significant increase occurred in the 100 to 200 dust group. We conclude, that for a lifetime exposure, an average of 2 mpcf gives rise to radiological change indicative of significant disease in 1% of persons.

Slide 10. In lung function tests in cigarette smokers and non-smokers, the first change occurred in the capacity to breath in and this started with low levels of dust exposure. But a 10% deficit in breathing capacity occurred at about the same level as the radiological changes that I just talked about -- at the level of about 2 mpcf on average over a lifetime.

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TABLE IV

Radiographic Changes - Prevalent Rates (%) Standardized for Age
and Years in Industry -- Males Aged 36-65 at time of Radiograph

mpcf - years	Dust Group						Average
	-10	10-	100-	200-	400-	800+	
Thetford Mines							
Irregular Small							
Opacities - - - 1/0	1.8	3.3	6.3	8.7	12.0	17.2	7.6
2/1	0.0	0.2	2.2	0.9	2.4	9.2	2.0
Pleural Thickening-							
Grade 1	2.4	4.6	6.5	5.8	8.3	10.5	6.4
Grade 2	1.3	0.7	0.8	1.2	1.3	2.0	1.1
Asbestos							
Irregular Small							
Opacities - - - 1/0	6.4	3.7	6.3	5.0	6.8	7.0	5.1
2/1	0.0	0.4	1.5	0.8	0.6	3.9	0.8
Pleural Thickening-							
Grade 1	2.9	2.6	3.0	3.0	4.7	5.8	3.2
Grade 2	0.0	0.6	1.0	0.5	1.4	0.7	0.7

TABLE V

Age-Corrected Prevalence Rates (%) for Bronchitis and
Breathlessness by Dust Exposure & Cumulative Smoking Habits

mpcf - years	Dust Index					
	-10	10-	100-	200-	400-	800+
Bronchitis						
Never Smoked	10	19	19	46	21	49
Up to 100 Cigar-						
ette Years	18	0	12	0	46	0
100-499	41	28	21	33	42	43
500-999	32	38	44	28	47	58
1000	100	47	45	55	54	35
Breathlessness						
Never Smoked	0	14	24	31	13	44
Up to 100 Cigar-						
ette Years	0	12	39	21	41	43
100-499	16	14	8	20	42	18
500-999	9	19	21	19	14	39
1000	0	23	27	31	34	46

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Chrysotile -- How Reassuring the Mining Experience?

Table V/Slide 11. Lastly, the workers were asked to fill in a questionnaire about smoking. From the answers, we found that there was a relationship between breathlessness and dust exposure not apparently affected by smoking. But if you look at bronchitis and along the line for the "never smoked" and the two groups of smokers, you will note there wasn't any change in bronchitis which increased asbestos dust exposure. Now, if you look at the columns vertically you will see that smoking does a lot of damage in terms of bronchitis

TABLE VI
Distribution of Cases of Mesothelioma by Year of Death and Province
(1960-1970)

	<u>Ontario</u>	<u>Quebec</u>	<u>Other Provinces</u>	<u>Canada</u>
1960	0	6	9	15
1961	1	6	3	10
1962	4	4	5	13
1963	9	3	7	19
1964	6	8	3	17
1965	7	7	5	19
1966	8	14	9	31
1967	6	13	6	25
1968	7	18	7	32
1969	12	7	6	25
1970	9	16	5	30
	<u>69</u>	<u>102</u>	<u>65</u>	<u>236</u>
Annual Incidence Per Million Popu- lation 1966-1970	1.2	2.3	0.9	1.4
Reviewed by Pathology Panel	57	80	47	194
Accepted as Mesothelioma	71%	42%	57%	55%

Table VI/Slide 12. The other study we did was to survey all mesotheliomas in Canada. At the outset, I should say we had just 5 mesotheliomas out of 3270 deaths in the mining industry. Although this may seem to you to be a small number, there should be no cases of mesothelioma in a general population. One of the problems about mesothelioma is the diagnosis. There is by no means agreement among pathologists about the diagnosis of mesothelioma; so our finding of 5, having searched pretty thoroughly for mesotheliomas, may well be an over-estimate, especially because they were particularly looked for in people with known asbestos dust exposure. Having found very few in the industry, we did a concurrent study -- locating all the mesotheliomas we could in Canada. We obtained from all pathologists reports about all known cases and feel we got fairly full ascertainment. The ascertainment wasn't done until 1967-68. If you look at the graph at the top (Table VI) you will see a gradual rise in the annual number of mesotheliomas across Canada up to 1966. This is

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Chrysotile -- How Reassuring the Mining Experience:

probably due to poor memory and lack of knowledge about mesotheliomas in these earlier years. We are continuing this surveillance, and between 1966 and 1970 there doesn't appear to have been any change. This is rather a short period of time and we obviously need to know whether this "no change" situation will continue. As you know, the big concern is the lengthy latent period for mesothelioma to develop and the widely expressed fear that we are now going to reap results from exposures which occurred 20-30 years ago and that the rate of mesotheliomas may rise.

We now feel quite happy that a fairly good base line has been established for this surveillance and we shall be able to know within the next few years what is happening in Canada. If you look at the bottom line (Table VI), we looked to see whether mesothelioma occurred more in one part of Canada than in other sections of the country. There was, in fact, more in Quebec -- over 2 per million population, compared with just over one in Ontario and slightly less than one in the rest of Canada. But we must revert to the question of the diagnosis. When the mesotheliomas were submitted to pathologists, a much lower proportion was accepted as mesothelioma by the pathologists' panel -- not only in Quebec but in all of Canada. It looks as though, for cases that are accepted by the panel as mesotheliomas, there is little or no difference in the various parts of Canada.

TABLE VII
Distribution by Age of Cases and Matched Controls
(The number in parentheses designates those
successfully investigated, epidemiologically)

Age (Years)	Men		Women	
	Cases	Controls	Cases	Controls
20-29	0 (-)	0 (-)	2 (2)	0 (-)
30-39	3 (2)	2 (2)	4 (4)	4 (4)
40-49	6 (5)	6 (6)	4 (4)	5 (5)
50-59	12 (12)	12 (11)	6 (6)	5 (5)
60-69	8 (8)	10 (10)	6 (6)	8 (8)
70-79	7 (7)	5 (5)	7 (7)	8 (8)
80-89	2 (2)	3 (3)	3 (3)	2 (2)
90-99	1 (1)	1 (1)		
Total	39 (37)	39 (38)	32 (32)	32 (32)
Mean	58.7	59.2	58.9	59.0
Standard Deviation	12.9	13.2	18.2	15.2

Table VII/Slide 13. There are two objectives in this mesothelioma study -- to continue to watch the incidence and to examine to what extent the mesotheliomas are caused by asbestos. Here you see that more than 2/3 of the cases are in males, as is expected, and

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Chrysotile -- How Reassuring the Mining Experience?

TABLE IX
Types of Occupation in which there was
Definite or Probable Asbestos Exposure

	Men		Woman	
	Occupational Cases	Occupational Controls	Domestic Cases	Domestic Controls
Mining & Milling	1	--	1 father	--
Asbestos Products Manufacture	4	--	--	--
Insulation Work	2	--	--	3 father
Other Occupations	4	4	--	2 husbands 1 husband

Table IX: If you will look at the top line, you will note that we did find some indication of domestic exposure. There were a few people who had been exposed to a father or a husband working with asbestos. The diagnosis of mesothelioma may be more likely to be made in such a situation, but nevertheless, this risk is probably real and, especially for children. But there is no indication that the general population is at any risk.

So we found that the mesothelioma study backed up what we found in the mining industry, namely that there is a small excess of mesotheliomas in mining but it was manufacture and insulation that were mainly associated with mesothelioma in Canada rather than the mining and milling of chrysotile.

This has been borne out in other studies of chrysotile mines in Cyprus, Northern Italy and the USSR. Although the information is somewhat incomplete, they indicate a similar experience to that found in Quebec with regard to lung cancer and, in fact, practically no mesotheliomas. The evidence, insofar as the chrysotile-producing industry goes, is good in that the risks are low, and probably controllable.

Now, referring back to Table I -- I'm going to put a + for chrysotile mining. For anthophyllite mining in Finland, the picture is similar in that they find no mesotheliomas in that country. There does appear to be some lung cancer associated with mining but it isn't the high rate that appears in manufacturing and in insulation work.

Our information about crocidolite and amosite mining is fragmentary because it doesn't depend on surveys of people working in the mines. It depends, rather, on a surveillance of all types of cases which come from the mines and surrounding areas.

It does appear, however, that there have been a substantial number of mesotheliomas around crocidolite mines in the Northwest Cape. So, I'll put a ? for crocidolite mining (Table I) because the evidence isn't too secure, especially in regards to rates; i.e., how many cases in relation to how many workers and residents.

Regarding the amosite mines in the Transvaal, there is a very minute + (Table I). There does appear to be some lung cancer but practically no mesothelioma -- which is very different from the Northwest Cape area.

The relationship between mesothelioma and chrysotile has been confirmed in studies by the electron microscope -- studies in which fiber types in the lungs of cases of mesothelioma have been identified by Dr. Fred Pooley, of Cardiff in South Wales. In these studies, practically all of the fibers detected were of the amphi-

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bole variety. So far it has not been possible to distinguish crocidolite from amosite fibers, but chrysotile can be detected. All the cases thus far examined have substantial amounts of amphibole fibers and relatively few chrysotile fibers.

There are reports that persons exposed to chrysotile only in the manufacture of asbestos, have had similar rates of mesothelioma and lung cancer to those found in persons exposed to a mixture of fibers. The evidence isn't any too sure, in fact it's pretty doubtful, that these men were exposed only to chrysotile. So, we must put a ? (Table I) against the risk of cancer in the manufacture of asbestos products using only chrysotile.

Some additional comments to the data in Table I: Dr. Selikoff reports a high rate of mesothelioma and lung cancer in persons exposed only to amosite. Information on the manufacture of anthophyllite is unknown because single types of fiber have not been used in the process. Mixed mining is not applicable. And, we lack satisfactory information about manufacturing with pure crocidolite or with pure anthophyllite.

As you know, there are differences in the nature of each fiber type but experimental work has produced some possible explanations of the varying effects. Chrysotile is a long, thin and curly fiber and there is some evidence that it easily gets held up in the larger airways and, therefore, does not penetrate so well as other fiber types which can enter the smaller airways and reach the pleural surface.

In comparing crocidolite and amosite fibers, both are straight, rather than curly. However, when mined they apparently have quite different diameters; crocidolite having the narrower diameter and amosite being much wider in diameter. This fits in quite well with the findings from studies in the Northwest Cape. There are a lot of mesotheliomas in the Northwest Cape where the diameter of the fibers is small; whereas in the Transvaal area, where amosite is mined, and the fibers are broad, there appear to be practically no mesotheliomas. This doesn't fit with the story of the manufacture of amosite, and, frankly, I really do not know the reason.

Fiber differences could be an explanation; but on the other hand, the big differences between chrysotile mining and the manufacture of asbestos products and insulation certainly cannot be laughed off. Some of the possibilities for the differences between chrysotile mining and manufacture and insulation are

- 1) It is possible that during manufacture the fibers may be broken up into much smaller pieces and, therefore, lose their capacity to be caught up in the bigger airways, thereby penetrating further into the lungs.

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Chrysotile -- How Reassuring the Mining Experience?

- 2) It is possible that the culprits are crocidolite and/or amosite.
- 3) It also is possible that in the process of manufacturing and insulation, that other carcinogens are involved.

Smoking has been raised as a possible additional factor in causing cancer of the lung; but for mesothelioma it has been pretty clearly shown that smoking is not an added factor. If there is something else that increases the risk of mesotheliomas, it is not smoking.

So I have to conclude that the chrysotile mining experience cannot really be said to be reassuring. It is certainly possible that if one were able to show that the manufacture of pure chrysotile gave cancer rates, similar to those in mining and milling, the picture would certainly be brighter.

But, it isn't brighter at the moment!

- end -

Minutes
GENERAL MEETING
Asbestos Textile Institute

FEB 8 - 1974

ASBESTOS TEXTILE INSTITUTE

General Meeting

February 8, 1974

The Mills Hyatt House, Charleston, South Carolina

In Attendance

AMATEX CORPORATION

W. Maeskant
J. L. Rainey
H. H. Walter

GARLOCK INC.

S. G. Dixit
A. Kuzmuk

JOHNS-MANVILLE CORPORATION

J. P. Power (C.J-M)
W. B. Reitze

NICOLET INDUSTRIES, INC.

A. M. Weisberg
J. K. Whittaker

H. K. PORTER COMPANY, INC.

E. C. Bratt
D. E. Childers
J. W. Echerd
L. E. Moody

RAYBESTOS-MANHATTAN, INC.

J. A. Bettles, Jr.
P. G. Dolan
J. W. Hawkins
R. T. Matthew
M. W. Oliver
F. J. Puckhaber
M. Q. Scowcroft
W. S. Simpson

UNIROYAL, INC.

D. T. Austin
C. S. Barnwell
B. D. Bittinger
B. E. Carden
L. F. Dieringer
E. A. Morris

ASBESTOS CORPORATION LTD.

P. E. Leclerc

BELL ASBESTOS MINES LTD.

W. H. Smith

CASSIAR ASBESTOS CORPORATION LTD.

R. A. Kuntze

LAKE ASBESTOS OF QUEFEC LTD.

E. A. Farrell
C. E. Stiefken (Asarco)

NIPPON ASBESTOS CO. LTD.

K. Mori
Y. Sato

TRA INDUSTRIAL PRODUCTS LTD.

H. J. Corson, Jr.

ASBESTOS INFORMATION ASSOCIATION /
NORTH AMERICA

Robert H. Mereness,
Executive Director

OCCUPATIONAL SAFETY AND HEALTH
ADMINISTRATION

Cois M. Brown, Associate Assistant Regional Director for
Technical Support, Region IV

ASBESTOS TEXTILE INSTITUTE

Doris M. Fagan,
Executive Secretary

CADWALADER, WICKERSHAM & TAFT

E. J. Leff

Total attendance during the two-day Winter Meeting was 45 people, including 37 members, 4 wives, 1 staff member, 1 Legal Counsel, and 2 guests; representing 16 companies or associations.

M I N U T E S

1. President M. Q. Scowcroft, of Raybestos-Manhattan, Inc., called the General Meeting of the Asbestos Textile Institute to order at 1:00 P.M. on February 8, 1974, following a luncheon of the general membership. The President welcomed those in attendance and asked each of them to rise and state their names and company affiliations.

2. President Scowcroft introduced the following special guests:

William S. Simpson, President, Raybestos-Manhattan, Inc., saying it was a genuine pleasure and a distinct honor to have him with us;

John A. Bettis, Jr., retired Manager of the Asbestos Textile Division, Raybestos-Manhattan, Inc., citing the many fine, productive contributions he had made to the ATI in the past;

Robert H. Mereness, Executive Director, Asbestos Information Association/North America, expressing how pleased we were to have the opportunity to meet him. Mr. Mereness' informal comments to the membership are attached to these Minutes.

3. Upon presentation, it was moved by E. A. Morris, Uniroyal, Inc., seconded by P. E. Leclerc, Asbestos Corporation Ltd., and so carried, to dispense with the reading of the Minutes of the last stated meeting.

4. Treasurer E. A. Morris presented the Financial Report (see attached) stating that total assets and net worth of the Institute as of December 31, 1973, were \$13,319.73. There being no questions, the Report was filed for audit.

5. The Legal Counsel address was given by E. J. Leff, of Cadwalader, Wickersham & Taft. His comments were concerned especially with the \$100-million class action filed by Herman Yandle, et al., against PPG Industries, Inc., et al. The text of his remarks is attached to these Minutes.

6. P. E. Leclerc, Regional Sales Manager for Asbestos Corporation Ltd., presented the Fiber Producers' Report. His complete comments are attached hereto. In brief, Mr. Leclerc stated that total shipments of asbestos by member companies of the Quebec Asbestos Mining Association in 1973 increased 10.5% over the previous year. Sales of Group 3 Spinning Fibers were 24,354 tons, or 14.4% over 1972. There is a short supply of all long spinning grades and medium length spinning grades are not too easily available.

7. Committee Reports were presented to the general membership, as listed below, and each of these reports is attached to these Minutes:
Air Hygiene & Manufacturing - B. E. Carden;
Technical - J. W. Hawkins;
Fiber Research & Testing - R. A. Kuntze;
Environmental Health - L. F. Dieringer.

more.....

8. J. W. (Bill) Echerd, H. K. Porter Company, Inc., received a much-deserved Certificate of Appreciation, proudly presented by President Scowcroft on behalf of the entire ATI membership, for his untiring efforts and excellent leadership over the last two years as Chairman of the Technical Committee.

9. President Scowcroft announced that the Institute had accepted an invitation from the Asbestos Information Association North America to become an Affiliated Association of AIA/NA. This decision was approved by the representatives of the Regular Members of the ATI.

10. It was announced to the membership by the President that Atlas Textile Company, North Wales, Pennsylvania, had been accepted as a new Class E Associate Member and that its President, William H. Johnston, was looking forward to attending future meetings and toward personally meeting the members.

11. The next two meetings of the Institute were confirmed by President Scowcroft as follows:

June 6 - 7, 1974 -- Twin Bridges Marriott, Washington, D.C.;
Sept 25-27, 1974 -- The Cloister, Sea Island, Georgia.

12. It was advised by President Scowcroft that Dr. R. A. Kuntze, Cassiar Asbestos Corporation Ltd., had graciously agreed to chair the Fiber Research & Testing Committee through the balance of this year. C. E. Stiefken, the former Chairman, will continue to be responsible for the 3rd Edition of the Chrysotile Asbestos Test Manual until its completion.

13. The Guest Speaker for the afternoon was introduced by President Scowcroft. Mr. Cois M. Brown, Associate Assistant Regional Director for Technical Support, Region IV, Occupational Safety and Health Administration, spoke about "The OSHA Act and How It Relates to Asbestos Textile Manufacture." He detailed the problems created at the factories by noise and dust and his entire presentation is attached to these Minutes. Subsequent to his excellent and comprehensive speech, President Scowcroft expressed appreciation to Mr. Brown for giving of his time to speak before the membership and said that his comments were well presented and well received by those in attendance.

14. There being no further business to be brought before the membership, a motion for adjournment was made by E. C. Bratt, seconded by E. A. Morris, and unanimously approved. The meeting was adjourned at 3:00 P.M.

Respectfully submitted,

Doris M. Fagan

Doris M. Fagan,
Executive Secretary

Report of Funds - Period from September 1, 1973 thru December 31, 1973

Balance on Hand September 1, 1973 --

General Fund	\$ 2,683.68
Reserve Fund	13,346.91
Petty Cash Fund	87.97

Total on Hand at 9/1/73 \$ 16,118.56

Receipts

General Fund - Dues for Year 1973	\$ 125.00
Book Sales	41.49
Reserve Fund - Dues for Year 1974	375.00
Interest to 12/31/73	793.27

Total Receipts + 1,334.76
\$ 17,453.32

Disbursements

Legal Retainer & Expenses (3rd Qtr 1973)	\$ 1,087.42
Secretary's Gross Wages	652.00
(Net Wages - \$508.00)	
(Fed Inc Tax 101.19)	
(FICA - 30.72)	
(Pa Inc Tax- 12.09)	
Taxes on Wages Paid by ATI	39.06
(FICA - \$ 30.71)	
(Pa Unem - 5.25)	
(NJ/Year 72- 3.10)	
ATI Meeting Expense (October 1973)	978.10
Secretary's Meeting & Travel Expense	272.07
(Oct 73 Mtg- \$230.99)	
(ASTM Mtg - 41.08)	
Telephone	125.60
Printing Supplies & Services	168.61
Postage	178.69
Office Supplies & Misc.	74.65
Revision of Test Manual	29.90
Rental of Office Space	135.00
Accountant (Caruso - FY 72/73)	300.00
ASTM Dues for Year 1974	25.00
Gifts/Flowers/Plaques, etc.	15.32
Insurance	60.00

Total Disbursements - 4,141.43

BALANCE ON HAND DECEMBER 31, 1973 . . \$ 13,311.89

Funds as of December 31, 1973 --

General Fund	\$ 2,751.91
Reserve Fund	10,515.18
Petty Cash Fund	44.80

TOTAL AVAILABLE FUNDS DEC. 31, 1973 . \$ 13,311.89

Assets as of December 31, 1973 --

Total Funds, as listed above	\$ 13,311.89
Accounts Receivable (Book Sales)	6.84
Furniture & Equipment (Nominal Value)	1.00

TOTAL ASSETS \$ 13,319.73

TOTAL LIABILITIES --

TOTAL NET WORTH \$ 13,319.73

COMMENTS TO THE GENERAL MEMBERSHIP

Robert H. Mereness, Executive Director
Asbestos Information Association/North America

(Presented at ATI General Meeting, February 8, 1974, The Mills Hyatt House, Charleston, South Carolina)

I'm new to the Asbestos Industry and I owe much of what I have learned to Doris Fagan, who has been very kind to me. I have read ASBESTOS Magazine backwards and forwards--going back 2 or 3 years.

Most of you are acquainted with the AIA/NA. You know what we are doing and I would like to say that we are doing our job, addressing ourselves to the problems that we have with regulatory agencies in Washington, D. C. As you know, the Association was located in New York City up until October of this year. It is now in Washington and we are trying to do a job for all of you in the Industry--to recognize what's going on and what we have to do to be vigorous in our approach to doing the best that we can do for you, under some rather difficult and trying times. I won't go into the public relations or governmental aspects, but they are all there and that's why we are in Washington and trying to do the job for you.

One final note. Early this week a group of 14 of your colleagues (our Technical Committee) met in Newark, New Jersey. Headed by Edmund M. Fenner, of Johns-Manville Corporation, we parceled out the jobs that have to be done with regard to helping OSHA in the rewrite of the Asbestos Standard. For me, as a neophyte to the group, to see the enthusiasm, experience and dedication of these men doing work on this very difficult task, was most rewarding.

You all have received a copy this afternoon of the little green booklet entitled "What Every Employee Should Know About Asbestos and What You Should Tell Others". It was prepared by J-M, with some input by us, and although similar to the OSHA booklet, we believe ours is perhaps a little more helpful. More copies are available for the asking, as is any service or information that we can give you on the work of AIA/NA and what we're trying to do for all of you.

-end-

FIBER PRODUCERS' REPORT

(Presented at ATI General Meeting, February 8, 1974, The Mills Hyatt House, Charleston, South Carolina)

Total shipments from the QAMA member companies in 1973 amounted to 1,516,340 tons, an increase in tonnage of 143,663 tons or 10.5% over 1972.

Total sales of group 3 or spinning fibres were 24,354 tons as compared to 21,293 tons for 1972 for an increase of 14.4%. The sales of spinning grades represent 1.6% of the total tonnage sold in 1973.

Although the final official year-end figures are not in yet, the total QAMA inventory is estimated at 120,000 tons as compared with 151,300 tons as of December 31, 1972, for a decrease of approximately 31,000 tons. Total inventory of all group 3 grades is estimated at about 10,000 tons at the end of 1973.

The outlook for 1974 at this early period of the year looks favorable to the asbestos mining industry. Export orders are in, in most cases releases are for months and months ahead. The big problem is to secure containers and bookings from the shipping lines. Some companies have stopped calling at the St. Lawrence ports during the coming season, other lines have cut off a number of ports around the world. Ocean rates are guaranteed for only short periods and surcharge costs can change daily.

Now a word on the asbestos supply situation. All long spinning grades are in short supply. The medium length spinning grades are not too easily available. William Smith told me that both Bell Asbestos & Cassiar Asbestos have a specific shortage of long spinning grades.

There is an acute shortage of group 4 grades, the supply of groups 5 and 6 is tight at this time and no doubt will get worse. Group 7 grades availability is better generally but not with all producers and especially in the more open or bulkier grades.

The Bureau of Mines of the U. S. Department of the Interior, reports that, in the first 8 months of this year, the Republic of South Africa exported to the United States 13,200 tons of crocidolite and 8,900 tons of amosite. This is better than 200% increase in crocidolite and 20% of amosite imports over 1972.

Paul E. Leclerc,
Regional Sales Manager
Asbestos Corporation Ltd.

MINUTES

AIR HYGIENE & MANUFACTURING COMMITTEE

Asbestos Textile Institute
February 8, 1974 -- The Mills Hyatt House, Charleston, South Carolina

The Committee met with fifteen members and guests and eleven companies represented. However, approximately ten "extra" guests, including Cois M. Brown, of the Atlanta, Georgia, office of the Occupational Safety and Health Administration, came in purposely for B. D. "Bill" Bittinger's special program. Members in attendance included:

Amatex Corporation
H. H. Walter

Canadian Johns-Manville Co. Ltd.
J. P. Power

Garlock Inc.
S. G. Dixit

Johns-Manville Corporation
W. B. Reitze

Lake Asbestos of Quebec Ltd.
E. A. Farrell

Nicolet Industries, Inc.
A. M. Weisberg

Nippon Asbestos Co. Ltd.
K. Mori
Y. Sato

H. K. Porter Company, Inc.
L. E. Moody

Raybestos-Manhattan, Inc.
C. A. Kennedy
R. T. Matthew

TBA Industrial Products Ltd.
H. J. Corson

Uniroval, Inc.
B. D. Bittinger
B. E. Carden
L. F. Dieringer

B. D. "Bill" Bittinger, a former member of the Committee, presented the following interesting report on his recent trip to Europe, which included visits to two textile asbestos plants in West Germany.

In addition to showing slides and photographs of processes and equipment, Mr. Bittinger answered many questions asked by various Committee members and visitors. Following is Mr. Bittinger's report on his visit to one of the German plants:

"This is one of the cleanest plants I have visited. The plant, grounds and offices were clean and neat. The mill buildings appeared to be old buildings that have been modernized. The plant floors are terrazzo in opening and blending, concrete in the carding area and maple in the spinning area.

"This plant has Hergeth opening, blending, and storage equipment and spinnbau cards and spinning frames.

"Asbestos in palletized bags is stored on hand-operated lift trucks at each hopper so that the bag to be used is always at the operator's waist level. They were using Asbestos Corporation's 3T fiber from Canada. The asbestos bag is placed into the covered conveyor tray before opening, and the empty bag is placed into an enclosed chute so that it falls into a plastic bag for later disposal.

more.....

"The blending conveyor behind the blenders is totally enclosed and has clear plastic windows to permit the operator to observe the blended fiber as it is conveyed to the transfer blower.

"The fiber is transferred by air up to the Hergeth blending silo. The silo is composed of 10 rectangular boxes about 72"x12"x15' tall. The fiber is fed into the silo bins from the top by a traveling condenser. The condenser can be programmed to fill the silo compartments one at a time or any of several other variations to enhance blending. The compartments feed a conveyor belt that transfers the fiber to a blower. The fiber is thus supplied to the card hoppers.

"The silo will hold about 2-1/2 shifts of fiber so the blending unit only has to be run one shift. The Hergeth feeder is equipped with a vibrating plate feeder.

"The totally-enclosed double cards are set over an opening in the floor that is about the same area as the card. All drops and the waste ends fall down into this hole or pit under the card and a conveyor/blower system automatically transfers all this material directly back to the card hopper. There are access doors in the basement into each of these pits for cleaning. Each door has a picture of a face with a dust mask affixed to it. This is the only warning sign noticed in the plant. Each card had 12 ducts coming from it where dust and lint were being removed. The Carding assignment was one card per operator; however, each card was equipped with a 128 end condenser. Leather aprons are used on the cards and the average life is one year. The cards were running roving weighing 630 grams per kilometer at 55 yards per minute. The cheeses doffed weighed 500 grams each.

"The air filter system has blowers ahead of the filter bags and four bags are attached to a manifold that has a plastic bag attached at floor level making changing a simple task. They "shake" the filter bags once per shift and the plastic bags are changed when they are full. The exhaust air from the filter bags is filtered again as it leaves the room through a traveling filter media unit and returned to the plant. They also have several small filter bag units around the plant to filter product transfer air. Changes air in plant 18 times per hour.

"The Spinnbau spinning frames have metal hinged (bifold) covers over the spindles and a suction system for each frame. The waste from each frame is accumulated in a plastic bag under the floor (in basement). They have two older spinning frames (using fly frames) that are simply enclosed in a plywood enclosure with counter-weighted access doors. These enclosures are exhausted to a waste collector in the basement.

"Their looms are totally enclosed with clear plastic windows in the counter-weighted doors. These enclosures reduce the sound level at the operator's level by as much as 4db (94 down to 90 db) when the doors are closed.

more.....

"Some additional facts concerning this plant:

1. Their reworkable fiber amounts to approximately 20%.
2. They state that their waste amounts to 3 to 5%. Their figure is hard to believe since asbestos as received from the mines contains 9 to 12% dust.
3. Their blending line with 7 feed hoppers occupies an area 40 feet x 100 feet. Their cards are 15 feet wide and 30 feet long.
4. The ring size on the Spinnbau spinning frames is 140 MM. These frames are equipped with individual brakes and Pneumafil. A full spinning bobbin weighs 1 kilogram. They do not doff in boxes but onto a pin truck. The Spinnbau spinning frames have 80 spindles per frame.
5. The average yarn size is about 1000 TEX. (Grams/1000 meters= 4.96 Cut) and they run from 630 TEX to 1800 TEX. The spinning doffs every 3 hours on 1000 TEX. A full spinning bobbin weighs 1 kilogram.
6. They have 4 new rapier looms manufactured by STAUBLI-TRUMPELT. Most of their fabric was about 7 picks per inch. The fabric is split in the middle on the loom. They are weaving from pin creels. Job assignment is 2 looms per weaver."

SPECIAL NOTE: Mr. Bittinger made several dust counts in this plant with results on the high side. This is disturbing when you consider the modern enclosed equipment and the cleanliness of the plant.

L. F. Moody discussed his recent appointment by AIA/NA as chairman of a special committee to describe and set up a set of work practices (Asbestos Mfg.) for presentation to OSHA. Mr. Moody suggested that each plant should get this information as it applies to their operations. On receipt of this information, Mr. Moody and his committee will attempt to come up with the final set-up, but will get in touch with each plant involved before the report is released.

Respectfully submitted,

Buel E. Carden, Chairman

M I N U T E S
TECHNICAL COMMITTEE

Asbestos Textile Institute
February 8, 1974 - The Mills Hyatt House, Charleston, South Carolina

IN ATTENDANCE

Amatex Corporation - W. Maaskant
H. K. Porter Company, Inc. - J. W. Echerd
Raybestos-Manhattan, Inc. - J. W. Hawkins
Uniroyal, Inc. - D. T. Austin and C. S. Barnwell

The Round Robin test on Asbestos Roving (D-375), Asbestos Yarn (D-299) and Asbestos Lap (D-1061) have been completed and data has been statistically analyzed by Johns-Manville Corporation. The results between the five laboratories involved were very good. This information will be sent to ASTM D-1314 for incorporation into the new ASTM Book of Standards.

A Round Robin test is currently underway on Tubular Sleeving (D-628). An attempt will be made to have this test completed prior to the March ASTM meeting.

Additional Round Robin tests are being started on Asbestos Tape (D-315) and Asbestos Cloth (D-1571).

Wm. Maaskant told the Committee that Paul O. Nicodemus would like to have an ASTM meeting in the near future and plans are being formulated. This would be either in Williamsburg, Virginia, or Philadelphia, Pa.

Recommended changes in MIL-I-3053-E Insulation, Electrical, Asbestos Fiber, Treated and Untreated have been submitted to the Naval Engineering Center at Hyattsville, Maryland.

J. W. "Bill" Echerd has been requested by the Committee to summarize the work that has been done on Military specifications over the last few years so that the Committee may know the status of the specifications and determine if additional work is necessary.

No progress was reported on the J-M Tumbler Test for the determination of asbestos dustiness. Some doubts have been expressed over the reproducibility of this test and its value, and an alternative will be explored. It was recommended that the \$500.00 allocated to this project be held pending a decision on the most useful test.

The Technical Committee acknowledges the services of Tex Austin over the last eight years. His assistance at future meetings will be greatly missed.

Respectfully submitted.

John W. Hawkins, Acting Chairman

MINUTES

FIBER RESEARCH & TESTING COMMITTEE

Asbestos Textile Institute
February 8, 1974 -- The Mills Hyatt House, Charleston, South Carolina

IN ATTENDANCE:

American Smelting & Refining Co. - C. E. Stiefken
Bell Asbestos Mines Ltd. - W. H. Smith
Cassiar Asbestos Corporation Ltd. - R. A. Kuntze
H. K. Porter Company, Inc. - D. E. Childers

The Fiber Research & Testing Committee considered three items at its meeting on February 8, 1974.

Firstly, Mr. Stiefken has completed his term as Chairman of the committee as of this meeting. Dr. Kuntze agreed to act as Interim Chairman until another Chairman could be found. The committee wishes to thank Mr. Stiefken for an excellent job which culminated in the new ATI Manual. The committee recognizes the extraordinary workload and the difficulties associated with the preparation of this Manual.

Secondly, Mr. Stiefken reported that the Manual is now ready for printing except for some editorial corrections. It is anticipated that the manuscript will be submitted to the printer by March. The book will have about 225 pages comprising 34 test methods of which 15 are in ASTM format. As mentioned previously, the book will be a green 5-ring binder with the title printed on both front and side. The price is estimated to be about \$9.50. Mrs. Fagan will verify the orders placed so far once the final cost of the book is known. Fortunately, Mr. Stiefken has agreed to continue looking after all technical details until the book is available for distribution.

Thirdly, the committee discussed at length its terms of reference, its future role or purpose, etc. It was decided to meet in the future together with other committees--primarily the Technical Committee--in order to establish better communication between committees. It is felt that without this communication and participation, the Fiber Research & Testing Committee will no longer serve a useful function.

Respectfully submitted,

R. A. Kuntze, Interim Chairman

M I N U T E S

ENVIRONMENTAL HEALTH COMMITTEE

Asbestos Textile Institute
February 8, 1974 -- The Mills Hyatt House, Charleston, South Carolina

The Environmental Health Committee met for a short time on Friday, February 8, 1974. In attendance were E. C. Bacon, E. S. Porter Company, Inc.; L. F. Dieringer, Uniroyal, Inc.; and W. B. Reitz, Johns-Manville Corporation. The members also met for a short time with the Air Hygiene & Manufacturing Committee to hear B. D. Bittinger's interesting presentation on his visit to various asbestos textile manufacturing plants in Europe.

As of meeting time, the following is the status of various proposed OSHA health standards of interest to member companies:

- 1) Asbestos - No Action.
- 2) Noise - The OSHA Noise Standards Advisory Committee sent a recommended standard to the Assistant Secretary of Labor on January 11, 1974. Recommendations included adoption of present 90 dBA limit, audiometric testing for employees whose exposure exceeds 85 dBA, and a slightly more liberal interpretation of feasible engineering controls.
- 3) Heat Stress - The OSHA Heat Stress Standards Advisory Committee recommended a standard for hot environments to the Assistant Secretary of Labor on January 11, 1974. Briefly, the recommended standard is based on work practices to minimize the effects of hot environmental conditions on working employees based on WBGT values calculated by two alternate methods set forth in the standard.

Recent articles of interest include:

- 1) The Health of Chrysotile Asbestos Mine and Mill Workers of Quebec. J. C. McDonald, et al. Arch Environmental Health 28:61, February 1974.
- 2) Dust Fiber Relationships in the Quebec Chrysotile Industry. G. W. Gibbs, et al. Arch Environmental Health 28:69, February 1974.

Respectfully submitted,
L. F. Dieringer, Chairman

REMARKS OF LEGAL COUNSEL

Asbestos Textile Institute General Meeting
The Mills Hyatt House, Charleston, South Carolina
February 8, 1974

As most of you may know, the Asbestos Textile Institute has been sued in Tyler, Texas, in the Federal District Court.

Two complaints were filed in January. In the first, Herman Yandle and six others have sued ATI and a number of other defendants on behalf of a class which consists of all employees of the former Pittsburgh Corning asbestos plant in Tyler, Texas, and on behalf of survivors of employees who allegedly died from exposure to asbestos. In addition, thirteen other individuals have tried to join after the suit was brought initially. Secondly, there is a suit brought by Lester Kay, which is not a class action.

A class action is a suit brought by one or more individuals which, if won, would benefit all other people who fall within the category described in the class allegations. If these individuals are successful, any of the employees of the Tyler plant would be able to claim damages, assuming the suit is permitted to proceed as a class action. The total claim for the class is \$100-million.

The basis of the claim is pulmonary diseases and deaths caused allegedly by exposure to asbestos. The charges have been brought against Pittsburgh Corning, which operated the plant, against PPG Industries, Corning Glass Works, Inc., Dr. Lee Grant, Industrial Health Foundation, certain amosite mining companies (North American Asbestos Corporation, E. G. N. E. P., Ltd., and The Cape Asbestos Co. Ltd.) and ATI.

I'd like to read to you the charges against PPG, Corning and Pittsburgh Corning. "Defendants PPG Industries, Inc., and Corning Glass Works, Incorporated, have been aware of the conditions existing at the Pittsburgh Corning plant at Tyler, Texas, which gave rise to the damages sustained by Plaintiffs. Said corporations, although knowing of the dangers and hazards, and being in a position to correct deficiencies at the said plant because of their beneficial ownership and right to control and manage Pittsburgh Corning Corporation have failed to correct such deficiencies or warn the employees thereof of the dangers of exposure to asbestos and the concentration present therein, such acts being of omission and commission and constituting negligence and gross negligence and the cause of the injuries and damages alleged herein." The key, then, is failure to correct alleged deficiencies or to warn of the existence of the alleged dangers.

The charges against ATI, are: "Asbestos Textile Institute...has carried on a practice of impeding the flow of information concerning the health hazards involved in asbestos manufacture and, as a result of such activities, has caused or contributed to the lack of information by employees of the said industry...", and that this caused the damage. The key, then is stopping others from warning the employees. These are the allegations.

more.....

A recent development in another case, entitled Borel vs. Fiberboard Paper Products Corporation, deserves mention in connection with the Tyler lawsuits. The charge against PPG, Corning, and Pittsburgh Corning in Tyler is primarily failure to warn, which is similar to the charges that were brought by Borel. In the Borel case the employee won a judgment in the Federal District Court against six manufacturers of asbestos insulation which this particular employee installed over a period of 30 years. He was dealing with the products of these various manufacturers--one after another--each for a period of a few years.

Borel claimed that he was a victim of asbestosis and mesothelioma as a result of his exposure to these products. The Federal District Court granted judgment in his favor, which was affirmed by the Court of Appeals for the Fifth Circuit in September of last year. A motion for rehearing in that case is still pending.

The courts held that the manufacturers of the asbestos products were liable for failing to warn users or ultimate consumers of their products. The theory was that the dangers associated with the products that these companies made were foreseeable. The courts held that there is a duty to warn users and consumers of the products. The courts' theory was based on strict liability, which means no showing of fault or negligence is required. The courts held that a failure to warn was all that had to be shown.

The Court of Appeals for the Fifth Circuit said that as a minimum, a manufacturer must keep abreast of scientific knowledge and discoveries and advances and is presumed to know what is imparted thereby. According to the findings made by the District Court, the dangers of inhaling asbestos were known to the medical community as early as 1924. The court found that the manufacturers did not issue warnings, recommend wearing respirators, or check to see if their products were being inhaled in levels that exceeded private health standards.

Those are the extent of my remarks. I would welcome questions but I have to qualify that invitation to this extent. Because of the nature of this gathering, I cannot discuss the evidence in the Tyler case or any opinions I might have about the merits of complaints or defenses in the case. Any information that is needed can be obtained through your representatives on the ATI Board of Governors or your house counsel.

Questions from the floor:

- 1) Are you getting any help from the other companies involved?
Answer: Yes, indeed. In fact, there were discussions regarding ways in which cooperation between the defendants could proceed. Naturally, that's a goal to be desired.

more.....

- 2) Could anyone be successful in obtaining suit against the source who supplied information for the complaints? Answer: I went into this in extensive detail at the Board of Governors' meeting, yesterday and again this morning, and I don't feel it would be proper for me to comment here.

(Interjection by President Scowcroft--Johns-Manville did not have a representative at the Board of Governors' meeting. I think that Gene Leff will take care of informing T. P. Jackson or someone at J-M and respond to that question.)

- 3) You use the term amosite but you do not use the terms crocidolite, tremolite or chrysotile. Is there any reason for that? Answer: The plaintiffs in the Tyler case have specified they are only going after amosite producers, in particular those who supplied asbestos to the Tyler plant.
- 4) Will you answer the question concerning liability at some future time, in your capacity as our attorney--or where will we get that information? Answer: I have already given it to the Board of Governors and, of course, will give further developments as each takes place. In addition, I welcome any inquiries, on an individual basis, by mail, phone or otherwise, from any of the companies represented in ATI.
- 5) As a member of ATI, I'm looking to ATI to tell me of my liabilities. We're in this together. Will ATI tell me my liability as a member? (President Scowcroft stated that this question was posed by an Associate Member, a category of membership that is not represented on the Board.) Answer: I prefer not to comment on the matter at this forum. May I be permitted to consider the appropriate way to handle the matter? I assure you of a response at a later time.
- 6) Will we get a copy of Legal Counsel's report (asked especially on behalf of an interested member who had to leave the meeting early)? Answer: The membership is assured that a complete copy of my remarks will be included with the Minutes of this meeting, which Minutes will be sent to the entire membership.

The OSHA Act and How It Relates
to Asbestos Textile Manufacture

Page 2

By: Cois M. Brown

bystander rather than a participant. We are most interested to hear what industry has to say about polyvinyl chloride exposure.

I might mention another thing in which you will be interested. Last May, we had two temporary emergency standards which lived the normal six months and then died a natural death. By artificial respiration, and heart massaging, the carcinogen standards have come back to life -- this time as 14 separate standards. This is something that you should look at because of the association of cancer with asbestos dust and these other cancer-producing materials. I recognize they are not one and the same, but still there is some relationship.

Now let us talk about the way we should operate -- you as an industry, and we as an enforcement agency dealing with you.

I'm not going to tell you any secrets, but I will tell you some ways I feel we can continue the good standing we have with one another, and yet get the job done.

First of all, the OSHA Act came into being because of a fragmented participation of 50 States in a safety program. This will assure us, I hope, of a uniform program that will be enforced nationwide, pretty much with the same standards and pressures that cause things to be done. We in Region IV have four of our eight states participating. We feel that the participating States will be looked at and will be expected to do exactly what the Act says -- and that is to carry out a program that is equally as effective as that which the Federal people were following at the time they took it over.

We will continue to monitor these people for some three years and if everything continues to go well, we will bid them adieu and let them deal with you. If things are not as we had hoped, then we will immediately re-engage ourselves into the program. So far, we have continually had good working relations with these people -- the same as we have had with you.

We just this week met with representatives of six of the eight States in Region IV (all eight were invited to participate in a meeting in Atlanta). We sat down around a table and discussed a subject in which you and I are interested, and that is a uniform standard interpretation. Right now, a standard interpretation is being made by three different groups of people -- by the National Office of OSHA, by the Regional Office of OSHA, and by the State OSHA program. All three should be saying the same thing if we all are "telling it like it is." We believe that some headway is being made in this endeavor.

Now I would like to relay how we feel we can enforce a program that will carry out the interest of the Act, which states that every working man and woman in the Country will have a safe and healthful

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By: Cois M. Brown

environment in which to work. That's the entire justification for the existence of our programs.

There are two aspects of our program that apply to you and they are not something that we can take care of as we can the lights in the room, by turning the switch on and off. The situation did not happen over night and we are not going to solve it over night, just because we have some Federal standards and regulations that address themselves to the problem.

We recognize this and try to set forth a program whereby we will be just as patient as you will allow. The only way that we can be patient is for you to continue to show sufficient progress in these fields so we can keep everybody on all sides happy. We feel if we approach the matter in this way, that everyone can live with it.

We must think, first of all, about asbestos. I think it would be somewhat redundant for me to talk to you about the 1910.93c paragraph of the OSHA Act. If I want to know something about asbestos, I would come to you for the information. If anybody knows that portion of the OSHA Act that addresses itself to asbestos, you do. Therefore, I'm not going to bore you by reading and discussing this standard with you. However, if you have a question about it at the end of this presentation, I'll try to answer it. If I cannot give you an answer, then leave your name and address with me and I will see that you receive an answer in writing.

When we are thinking about asbestos dust, especially in the textile aspect, we recognize that we have a problem to deal with. For instance, it is difficult to card asbestos fibers where the whole purpose of the carding is, first, to remove foreign material and, second, to remove short fibers or fine dust so a good quality product can be obtained. This, within itself, is a dusty operation. If we could just remove ourselves from having been involved with all of the machinery and facilities that we now have, and start over, I think that all of us would be interested in looking into some of the facilities like we saw from the slides this morning of a tour made by one of your members of a modern facility in Germany. The problem, of course, is that we are not starting at the beginning. We are working with some facilities that do not lend themselves very well to effective control methods. For about 40 years we have been concerned with one thing, primarily -- turning out a good product and at an economical price.

Since 1970 we have had to be concerned with producing a good product at an economical price and in a safe and healthful environment. Now that another rule has been added to the game, we must inject another facet to the program. I face the same situation when dealing with cotton textiles. The difference between a cotton and an asbestos textile operation is that perhaps you received some of

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your equipment from the cotton textile manufacturer and apparently this equipment never wears out. In 1968 I looked at some brand new cotton cards that were placed right beside some 1900 models and the basic difference was the color that the machines were painted. The later models operate a little faster -- raising more dust and generating a little more noise. Also, having worked as a young boy in the textile industry, I found the difference in the industry between the early 1940's and the 1970's is that we now have about one-third more machines operating but in the same amount of floor space. That, too, makes more dust and more noise. So you see that really for the last few years, you might say we have been working against ourselves in accomplishing that which we now desire.

Recognizing we must start from where we are, we are willing to work with you in trying to accomplish compliance with the OSHA Act as expeditiously as you can, as long as you can bear it economically, and so long as you can accomplish it with the technology available to you. All of that is some fancy language to tell you that if you believe you have a long-range abatement program that will take over 30 days to accomplish, then we would be willing to work out a plan with you so that you could program it over an extended period of time. What we ask of you is that you develop a plan whereby you will accomplish this compliance and every 30 days you apprise us of what you have thus far accomplished, or what has been tried and proven ineffective. We then would petition the Review Commission stating we think this is reasonable and that, at the same time, we feel we are getting compliance.

There is a third party that occasionally enters into the picture -- the employee representative, or the union. They also have to be satisfied. I am not aware of any major problems in Region IV in satisfying the unions that we have taken a reasonable approach. They do not agree with the practice of fitting a man with a respirator and then telling him he only has 20 more years to work, - "so wear the respirator for the next 20 years and then maybe 25 years from now we will have a solution to the problem". That may be how long he has to wear a respirator, but we call this an interim period. It might only be 20 months or 20 days that he will have to wear the protective device until we discover a solution. At any rate, as an interim measure we want this man protected.

To elaborate just a bit -- I will remove your appendix for \$30.00, but the local hospital charges \$300.00. Is there anyone here who would like me to remove his appendix? No, you all want the \$300.00 operation! Why? Because when somebody is to perform an operation on you, you want the best that money can buy. But when we begin to think about a respirator program, what do we do? We buy the cheapest respirator we can find. And when we buy that respirator, we then say we have a respirator program. But, that compares with a \$30.00 appendectomy, not a \$300.00 operation. What's the difference?

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The difference is the difference there is between major surgery and minor surgery. Think about it. If it's your life, you want the best that money will buy. But when we're dealing with that employee out there, we want the cheapest respirator that we can get away with. We feel that a respirator program involves more than just buying a respirator. This is all outlined in the Standard and there is no use elaborating here.

So many times we talk to people who are buying personal protective equipment, but we are not talking about buying personal protective equipment at all. We are talking about buying a program of personal protection. There's a big difference.

Sometimes when we become involved in (what we call) personal protective programs, we buy a respirator, hand it to the worker, and say that we "hate to hand this to you but the Federal Government is requiring me to make you wear it". Gentlemen, I believe you can buy a respirator that will protect a man eight hours a day against asbestos dust. I'm not convinced you can hire a supervisor who can make that man wear it eight hours a day. There is a limit to what a man will stand. I've worn respirators for six and eight hours a day and know just how uncomfortable they are. They weren't intended for wearing 6-8 hours a day. There are a few things that will take us a while to engineer out, and dust control is one of them. So, for the time being, we may have to resort not to buying a personal protective respirator but to buying a personal protection program, issuing it to the worker and seeing to it that it is carried out.

Remember that the initial investment may not be all there is to it. Therefore, the cheapest respirator, in the long run may not be the most economical one to buy. And I know it is not the best one to buy. I did a little mathematics for a company one time in this direction and showed them that what they were buying was costing about twice as much as that which would offer proper protection. So, even the dollar figure was on the wrong side of the ledger.

Now, back to engineering control. We know there are many things we can do to decrease the level of dustiness in the plants, maybe not as we see them today but as we look back on them as conditions were a few years ago. While we are getting these things done, we will have to resort to some interim measures. A personal protective program is one of the measures we believe in.

I recently received a call from a hygienist asking for some of my philosophies. He asked about a maintenance man involved in this type of thing. I responded they should face the facts. Obviously there is something wrong, or a maintenance man wouldn't be called in. If there ever was a man with respect to whom it would be satisfactory to supply him with personal protective equipment and tell him "this is your personal protective equipment for this operation",

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By: Cois M. Brown

it is a maintenance man. Maybe he will be working only one hour, or maybe 15 hours. You know when he is called in to fix a machine that has broken down during production, you don't want him to leave the job until everything is right again. We don't know how long that man is going to be in there, but he may need to use personal protective equipment. Not only that, you know it's awfully hard to develop an engineering control for a maintenance man because it takes about as long to install the engineering control as it would for the man to handle the required maintenance. So, we don't expect it in instances such as these.

But there are people working in the plants day in and day out, and we anticipate they should have engineering controls -- moving as fast as technology and economics will allow.

I don't want to spend the entire afternoon talking about dust, but let me just close by pointing out that between 1940 and 1960, our consumption of asbestos increased about twenty fold. It had reached the point where we had to have some asbestos in everything including the cereal we ate for breakfast. Then all at once we recognized that something may be a little bit wrong with this. So, we saw the start of a movement that received considerable publicity. It now has come to the point where we read that if I'm standing on the street corner and there is a big truck coming down the street, and the light turns red, that I must flee for my own protection, because that truck is going to be stopped by asbestos brake linings and I'm liable to develop asbestosis because of standing out there. That sounds a bit ridiculous, but then again, think about the policeman who stands on the street directing traffic for long periods and during rush hours--when lots of trucks are starting and stopping.

Now somewhere between eating it for breakfast and not even being able to stand on the street corner where trucks stop, there must be a happy medium with which we as an enforcement agency, and you as an industry, can live. I'm convinced there is much said about asbestos that would be better left unsaid, and that there are lots of things that ought to be said about asbestos that have not been said. There is room for improvement in our industry insofar as asbestos exposures are concerned and I feel that with time we will accomplish great progress.

Do you know what happened this morning? After 84 days, a crew of men has gone to the moon and come back. This is not the first time people have done this. Now you mean to tell me we have engineers who can develop a device that can go to the moon and stay that long a period of time and people can survive in a different atmosphere, and return to Earth, and everything still be all right? Just give us time and we, too, will effectively control asbestos dust. Believing this, we in this Region are going to be just as patient with you as you will let us be.

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We have many young lawyers on the staff who are anxious to earn a livelihood. When we get into the legal category, people play for keeps. Our attorneys are there to advise us as to what is and what is not legal. We want things to be done in a legal manner. (I've been told that I don't want justice, but that I just want to legalize everything--and that's partly right; I probably couldn't survive justice.) At any rate, let's keep this thing where you are making the progress that is required, expected and needed. As long as you are showing good faith, I think I would have to say that the lawyer representing the industry would have everything working in his favor when he went before a hearing judge.

Another problem that you have is noise. It is a problem typical in the entire textile industry and not just in asbestos textile manufacture. I remember going into a Ford Motor Company plant a few years back that had a long-range, long-term noise and hearing conservation program in operation. After we were briefed on what they were doing, someone asked how long the plant had had a noise problem. The answer was "May 20, 1969". That's when the first national noise standards were promulgated. A lot of us didn't have a problem until 1970 and then we found out we had a noise problem.

This is another problem that will require technological developments, and probably some that we do not have or that is not being used to best advantage at this point. This problem, too, will probably necessitate a long-range program. I guess it depends upon whether we're talking about control or reduction. (This would be the case for noise or dust.) So long as you are making a significant contribution to the reduction of noise, then we think you should proceed with your research.

So many times, what happens at informal hearings with industries such as textiles, woodworking and metal stamping, is that a man sits down and asks what we want him to do. We tell him to knock 5 decibels off the noise level. But, he says, "that's only 5 and is a long way from a 9-decibel reduction. Are you going to tell me I'm in compliance when I reach 100?" Well, you know, that's an interesting question. He isn't. But he may have done all he can do at the present time and perhaps he already has taken out about two-thirds of his noise, making a great contribution to noise reduction. Not only that, he probably has learned enough in accomplishing this 5 decibel reduction that if he's not careful he will discover he has reduced the noise level 8 decibels instead of 5. At any rate, we feel that that is what you should do. I am told that compliance is like pregnancy. There's no in-between -- you either are or you're not. But so far we have been able to get some of the "in-betweens." So long as a man can significantly reduce the noise level, we expect him to do it. If he has gone as far as he can, then he will have to resort to some interim measures such as personal protective devices.

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Again it is easy to buy a 16¢ pair of ear plugs; they come small, medium and large and can be available to the worker for a quarter via a vending machine. You know the small ones are not nearly as uncomfortable as the large ones. So, what's the man going to get? My doctor tells me that because I need a size 11 shoe for my right foot, that I also need a size 11 for my left foot. But this is not necessarily true with my ear canals and I might not need the same size ear plug in both ears. In some cases, a man might take a large ear plug in one ear and a small one in the other.

Ear protection is just like respirator protection. We need to establish a continuing and effective hearing conservation program. As you will recall, the man now playing 1st fiddle for OSHA made a statement a couple years ago that no citations would be issued for the lack of audiometric testing. He was speaking as Deputy Assistant Secretary of Labor. We believed him and have not issued any. That doesn't mean we haven't cited anybody who doesn't have an audiometric testing program. We use a little different wordage in our citation, saying "failure to have a continuing and effective hearing conservation program."

How do you have a "continuing and effective hearing conservation program," without a way to measure noise? What do you do about soil conservation? What is done about all the other conservation programs in existence? Those people or companies running these other programs have ways to measure the effectiveness of their programs. And, there is a way to measure the effectiveness of a hearing conservation program. It's called audiometric testing. If you know of another way to measure, we would be glad to hear about it and to consider it. If it is better than audiometric testing, we will give you credit for it. However, if audiometric testing is better than your method, then that's the method we want you to follow to evaluate your hearing conservation program.

We anticipate there soon will be some new noise standards published. I have with me a copy of working draft #4 and I can tell you that audiometric testing will be required.

Not only will this method be required, but you will be told where to take the tests, how to take them, and the person who gives them will have to meet certain requirements. As you can see, we will be removing a lot of the questions from our noise standards.

I think there are a couple of other items I should mention, hurriedly. Both the dust and the noise control programs are recognized as having to be long-range projects.

If you have good, fast-growing programs, don't relax. We want you to keep them moving. We also want you to know that we are aware that technology moves just so fast, and we do not want you to get

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into trouble by outrunning the speed of technological progress.

Another program that I should mention to you is machine guarding. This is a program that you should get into immediately. You know what the standard says about machine guarding. Many of the machines have to be considered individually, but basically we have a barrel from which we can take a cup of machine guarding and we can tell where we stand. This is not something that requires a long-range program.

Another item is our electrical program. We have adopted the new electrical code as our standard and that's what we are measuring by unless you have an old plant. It is up to you to look at the standard and determine whether or not you have to meet this electrical code.

These are four things that I believe we in OSHA would be looking at if we were in an asbestos textile operation today. These are four things in which I think you people can make much progress. In the last two, you can move rapidly toward compliance. With the first two, you can develop your plan and a program. We do not have any secrets. If you develop a research program, then be sure that you document it and get benefit from it.

Another problem is caused by a lack of communication between corporate management and plant supervision. If we go into an asbestos textile plant and determine it has excessive dust and excessive noise, we obviously ask what the company has done about it. Do you know what we hear too many times from the plant managers? "Not a thing that I know of!" Well, you know, that's not even showing good faith. We've had two years to get something started on these programs. So, we feel we should cite you, and sometimes should cite you for a serious violation. But then when we sit down with the company, we are told about a fantastic program it has going. The problem was that they forgot to tell that particular plant about it.

Be sure that you inform your plant managers that you do have these programs going and that you are planning to do something about it. I would even go beyond that. Be sure that the plant manager informs the first-line supervisors and that they pass it on down so that even the man who sweeps the floors knows about it. Doing this would reduce the amount of complaints we receive.

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(Prior to opening the meeting to answer questions from the floor, Mr. Brown distributed two pieces of literature to the membership. The Executive Secretary of ATI has a limited "surplus" supply on hand and will be glad to send a copy of each or both to any member who requests same. They are:

1) Target Health Hazards/Asbestos: Airborne Danger, reprinted from the May-June 1972 issue of Safety Standards.

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2) Card showing locations and telephone numbers of OSHA's Southeastern Area Offices together with toll-free numbers for those calling from outside the area. It is for use in contacting your nearest OSHA Office for information about OSHA '70, Standards, enforcement procedures, and the like. This is a 24-hour information service.

Mr. Brown advised that his Office is responsible for coordinating the small business activity. If you can show you are a small company and that to comply with OSHA Standard puts a financial hardship on you, you can borrow money at a low-interest rate and obtain what is called "disaster funds" to finance the programs required)

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QUESTIONS FROM THE FLOOR

Question 1) L. E. Moody, H. K. Porter Company, Inc.--Would you consider work going on within an organization such as the ATI, of which all of our companies are members, as part of all of the companies' plans?

Answer: Yes, so long as all of the companies are participating in the work and so long as the information is made available to all the members so that when information is developed it can be incorporated into programs at all of their plants. This certainly should be recorded and included in the compliance plan.

Question 2) J. W. Hawkins, Raybestos-Manhattan, Inc.--Do you have any immediate plans for the State of South Carolina?

Answer: South Carolina has been carrying out an asbestos dust program for about a year. The State can address any issue in the Standard, but it cannot take parts of an issue. The four of the eight States in Region IV that are carrying out OSHA programs are South Carolina, North Carolina, Kentucky and Tennessee. What we are doing is monitoring the programs to be sure they are at least as effective as OSHA programs.

Question 3) R. T. Matthew, Raybestos-Manhattan, Inc.--Is it correct that so long as we have open Federal citations, the State will not step in?

Answer: Yes. The State will wait until we have completed, after which we will turn it over to the State. The State may turn right around and decide to inspect that same company. On the other hand, the State may determine that since a Federal inspection had just been made, it will wait a year or more before scheduling a visit. That's their prerogative. On any

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open citations that we have, we like to stay with it and follow the matter until it is settled. That's the only enforcement activity, other than Maritime, that we will have in the State of South Carolina.

Question 4) E. A. Morris, Uniroyal, Inc.--Is that the relationship between the Federal and State inspections in Georgia?

Answer: Georgia went through its plan about a year ago. The Governor said he wanted nothing to do with it. The State of Georgia has been preempted. They have no inspectors any more. They could inspect elevators under some State regulation that OSHA does not address. We started the same thing in the State of Florida and in Mississippi. The latter learned the general rule that it was unconstitutional for a State employee to enforce a Federal Standard. As of January 31, 1974, the people in the State of Florida cancelled their contract with us.

Question 5) J. W. Hawkins, Raybestos-Manhattan, Inc.--Referring to South Carolina only, am I correct that you would like to see that the State issue additional citations, rather than from the Federal level?

Answer: Right, speaking strictly about South Carolina.

IN CONCLUSION:

Although OSHA is for real, at the same time it tries to be human and handle matters in a gentlemanly manner. Both the regional and area office people have been admonished to be sure that industry receives every possible benefit and still make industry aware of the fact that OSHA must fulfill its obligation to ensure a safe and healthful working environment. I would remind you that anyone from the industry level has the prerogative of an informal conference. We have had some industry people visit us who have been very upset about certain citations, but after an informal conference the matter was more clearly understood.

One more thing. Be careful who handles your asbestos sampling. A case in point is an informal conference held about 3 weeks ago in Atlanta. A man came in with his defense and he had a set of samples that had not been properly collected, weighed and calculated as to the number of fibers on the filter paper. His sampling resulted in a fantastically low count, about four decimal points over and then a one. Of course, we challenged his figures and the man agreed, saying he had just talked with his corporate headquarters and was advised that his samples were erroneous.

--End--

Minutes
GENERAL MEETING
Asbestos Textile Institute

JUN 7 - 1974

ASBESTOS TEXTILE INSTITUTE

General Meeting

June 7, 1974
Twin Bridges Marriott, Arlington, Virginia

In Attendance

AMATEX CORPORATION

J. L. Rainey
M. J. Scanlan

GARLOCK INC.

P. S. Hanke
A. Kuzmuk

NICOLET INDUSTRIES, INC.

G. G. Gabrielson, Jr.

RAYBESTOS-MANHATTAN, INC.

W. A. Guenther
M. Q. Scowcroft

SOUTHERN ASBESTOS COMPANY

E. C. Bratt

UNIROYAL, INC.

L. D. Lenihan (Arthur,
Dry & Kalish)
E. A. Morris

ASBESTOS CORPORATION LTD.

P. E. Leclerc

CANADIAN JOHNS-MANVILLE CO. LTD.

N. W. Hendry (J-M)
R. B. Von Wald (J-M)

CASSIAR ASBESTOS CORPORATION LTD.

D. B. MacDermott

LAKE ASBESTOS OF QUEBEC LTD.

E. A. Farrell
C. E. Stiefken (Asarco)

NIPPON ASBESTOS CO. LTD.

K. Mori
Y. Sato

TBA INDUSTRIAL PRODUCTS LTD.

H. J. Corson

HULL, TOWILL, NORMAN, BARRETT
& JOHNSON

W. B. Alcorn, Jr. (ATI Attorney)

ASBESTOS TEXTILE INSTITUTE

D. M. Fagan, Executive Secretary

Total attendance during the two-day 1974 Spring Meeting was 24 people including 19 members, 3 wives, 1 staff member and 1 Legal Counsel; representing 12 companies, plus 2 representatives of the ATI.

M I N U T E S

1. The Spring 1974 General Meeting of the Asbestos Textile Institute was called to order at 9:00 a.m., June 7, 1974, by President M. Q. Scowcroft, of Raybestos-Manhattan, Inc.

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ASBESTOS TEXTILE INSTITUTE

Fiscal Year ending August 31, 1974

Report of Funds

Period: September 1, 1973, thru May 15, 1974

Balance on Hand September 1, 1973 --

General Fund	\$ 2,683.68
Reserve Fund	13,346.91
Petty Cash Fund	<u>87.97</u>

Total on Hand at 9/1/73 \$ 16,118.56

Receipts

General Fund - Dues for Year 1973	\$ 125.00
Book Sales	86.71
Magnetite Samples	25.00

Reserve Fund - Dues for Year 1974	14,250.00
Interest to 12/31/73	<u>793.27</u>

Total Receipts + 15,279.98

\$ 31,398.54

Disbursements

Legal Retainer & Expenses (to 3/31/74)	\$ 4,805.98
Secretary's Gross Wages	1,448.00
Taxes on Wages Paid by ATI	123.16
ATI Meeting Expense (10/73 & 2/74)	1,444.85
Secretary's Meeting/Travel Expense	469.05
Telephone (8/73-4/74)	471.76
Printing Supplies/Services	406.81
Postage	394.84
Office Supplies & Miscellaneous	138.09
Revision of Test Manual (J.L.Tucker)	96.99
Rental of Office Space	405.00
Accountant (Caruso - F/Y 72-73)	300.00
ASTM Dues for Year 1974	25.00
Gifts/Flowers/Plaques, etc.	63.34
Insurance	125.00
Litigation: Office Expenses	189.05
Sec'y Travel Expenses (1/74)	149.39
ATI Meeting Expenses (4/74)	7.18
Legal Services (1st Qtr 74)	<u>9,965.09</u>

Total Disbursements - 21,028.58

BALANCE ON HAND MAY 15, 1974 \$ 10,369.96

Funds as of May 15, 1974 --

General Fund	\$ 1,473.55
Reserve Fund	8,890.18
Petty Cash Fund	<u>6.23</u>

TOTAL AVAILABLE FUNDS MAY 15, 1974 . \$ 10,369.96

Assets as of May 15, 1974 --

Total Funds, as listed above	\$ 10,369.96
Accounts Receivable - Book Sales	6.46
Magnetite Samples	5.00
1974 Dues	375.00
Furniture & Equipment (Nominal Value)	<u>1.00</u>

TOTAL ASSETS \$ 10,757.42

TOTAL LIABILITIES

TOTAL NET WORTH MAY 15, 1974 . . \$ 10,757.42

2. President Scowcroft officially welcomed the small but select group in attendance. He stated that the reason for the lesser amount of attendees was, of course, that the subject of the meeting was the Texas Litigation and that none of the usual committee activities had been scheduled. He then requested that each in attendance rise and give his name and business affiliation. The list is as per page 1 of these Minutes.

3. Upon calling for the reading of the Minutes of the last stated meeting, it was moved by E. A. Morris, seconded by G. G. Gabrielson, Jr., and so carried, to dispense with the reading of said minutes.

4. The President called for the Financial Report. Treasurer Morris gave the report, briefly as follows and in detail as per the attached Report of Funds as of May 15, 1974. Total on Hand as of September 1, 1973 (the beginning of the current Fiscal Year) was \$16,118.56; receipts from book sales, dues, etc., were \$15,279.98; disbursements amounted to \$21,028.58 (the bulk of which were for litigation costs and attorneys' fees); and the Balance on Hand as of May 15, 1974, amounted to \$10,369.96. This figure should further be reduced by some \$2000.00 for an unanticipated litigation expense which means as of today the net worth of the organization is approximately \$8000.00. It was moved by C. E. Stiefken, seconded by A. Kuzmuk, and so carried, to accept the Financial Report as presented. The report will be filed for audit.

5. It was reported by President Scowcroft that the 1974 Annual Meeting of the Institute will be held, as scheduled, at The Cloister, Sea Island, Georgia, Wednesday through Friday, September 25-27, 1974. The meeting will include regular committee meetings and reports and a Fibre Producers' Report. He further advised the Executive Secretary will mail the meeting notices to the general membership earlier than usual since The Cloister has recently established the policy of requiring a \$75.00 advance deposit for each room by mid-August.

6. The following matters concerning membership were announced by the President.

Johns-Manville Corporation has changed its status in the ATI in that it has dropped its Class A/Regular Member classification, but the membership has been picked up by Canadian Johns-Manville Co. Ltd. C.J-M is now the ATI member company as a Class C/Associate, which is the category for miners of asbestos spinning fibers.

The President expressed it was his pleasure, on behalf of the Institute, to welcome Asahi Asbestos Co. Ltd., Tokyo, Japan, as a new Class D/Associate Member.

7. C. E. Stiefken informed the President that the Chrysotile Asbestos Test Manual, 3rd edition, should be available in about six months' time. President Scowcroft said that further information will be at hand at the 1974 Annual Meeting on Sea Island.

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8. It was announced by the President that the Board of Governors had voted to form an ad hoc committee. It will operate within the present structure of the Institute and its function and sole purpose will be to provide a forum composed of representatives of both Regular and Associate Members, including the miners, to consider litigation matters and to make recommendations to the Board of Governors concerning the defense of the pending litigation. This will give the Board the benefit of the thinking of the Institute's total membership. The President emphasized that such representatives who sit on the ad hoc committee will have an equal vote on that committee and that the recommendations passed by that committee will be made to the Board of Governors. It is planned that a meeting of the ad hoc committee will take place prior to each ATI Board of Governors' meeting.

President Scowcroft advised he had appointed R. B. Von Wald, of Johns-Manville Corporation, as Chairman of the ad hoc committee, with E. C. Bratt, of Southern Asbestos Company, as Vice-Chairman. He then named the following member companies as having expressed the desire to have representation on the ad hoc committee: Amatex Corporation, Asbestos Corporation Ltd., Bell Asbestos Mines Ltd., Cassiar Asbestos Corporation Ltd., Lake Asbestos of Quebec Ltd., Nicolet Industries, Inc., Nippon Asbestos Co. Ltd., Garlock Inc., Raybestos-Manhattan, Inc., Southern Asbestos Company, TBA Industrial Products Ltd. and Uniroyal, Inc. He requested that each of these companies designate its representative to sit on the ad hoc committee and that other member companies who are interested in being represented on the ad hoc committee should so advise Mr. Von Wald, himself or the ATI Executive Secretary.

As Chairman of the ad hoc committee, Mr. Von Wald said that the committee is designed as a means by which Associate Members can obtain information about the Texas Litigation and can provide input into the Board of Governors of any thoughts concerning the defense and posture of the case and actions they think may be necessary with respect to the litigation. The committee is designed strictly for the litigation and not for any other purpose. He hopes initially to make contact with everyone who is interested--or they may write him at Johns-Manville Corporation, Greenwood Plaza, Denver, Colorado 80217. He said the litigation is important to each company, even though it may not have individual exposure, and that it is a critical litigation for industry in general, as well as for the asbestos industry in particular.

Following an inquiry from the floor, Mr. Von Wald concurred that the lawyers active on the ad hoc committee would represent ATI member companies and would consider positions that ATI should take.

In answer to another question, Mr. Von Wald stated it is not the intent of the ad hoc committee to supervise the litigation. The litigation is supervised by the ATI Board of Governors. The ad hoc committee is designed as a medium through which the Associate Members can have a voice in what goes on and can get specific information about the litigation. Under the present structure of the ATI, the primary responsibility for the Institute lies with the Board of Governors only.

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9. President Scowcroft confirmed the information that previously had been sent to the general membership in that ATI has redesignated its legal counsel from Cadwalader, Wickersham & Taft to Hull, Towill, Norman, Barrett and Johnson, or more specifically, to Wendel B. Alcorn, Jr. This change was made with the unreserved blessing of Cadwalader, the primary reason being that Cadwalader had recommended Wendell Alcorn as Trial Counsel for the Texas Litigation and that as that litigation proceeded it became clear both to ATI and to Cadwalader that the substantial function of ATI's counsel, at least for the short term, would be to defend these cases. It became obvious that the most efficient and economical method of conducting the defense was through the retention of one law firm to act both as Trial Counsel and as General Counsel. On behalf of the ATI, President Scowcroft expressed delight in having Wendell Alcorn again working with us.

10. President Scowcroft reiterated that the 1974 Annual Meeting of the Institute will be held as scheduled. It is the intent of the Board of Governors to keep the Institute going but it must marshal its resources in order to be able to afford the cost of the litigation.

11. The President then turned the meeting over to Trial Counsel for a briefing on the progress of the cases pending in Tyler, Texas. His remarks are recorded in a "Memorandum of Attorney-Client Conference, June 7, 1974" and which is available for inspection by members of ATI at the Office of the Executive Secretary.

12. There being no further business to be brought before the membership, a move for adjournment was made by A. Kuzmuk, seconded by C. E. Stiefken, and so carried. The meeting was adjourned at 11:30 a.m.

Respectfully submitted,

Doris M. Fagan
Executive Secretary

Minutes
GENERAL MEETING
Asbestos Textile Institute

SEP 27 1974

M I N U T E S

AIR HYGIENE & MANUFACTURING COMMITTEE

Asbestos Textile Institute
September 26, 1974 -- The Cloister, Sea Island, Georgia

The ATI Air Hygiene & Manufacturing Committee met on September 26, 1974, with sixteen members and guests present, representative of nine Institute member companies, i.e.:

Amatex Corporation
H. H. Walter

Atlas Textile Company
W. H. Johnston

Canadian Johns-Manville Co. Ltd.
A. C. F. Finkbinder, III (J-M)
J. P. Power

Garlock Inc.
A. Kuzmuk

Lake Asbestos of Quebec Ltd.
E. A. Farrell
R. Lefebvre
R. J. Muth (Asarco)

Raybestos-Manhattan, Inc.
M. N. Brooks
P. G. Dolan
R. T. Matthew
R. O. Moebius

Southern Asbestos Company
E. C. Bratt
L. E. Moody

TBA Industrial Products Ltd.
H. J. Corson

Uniroyal, Inc.
B. E. Carden

A report on a recent OSHA inspection at a member company's plant was discussed -- specifically concerning the weaving area where the dust level was measured by OSHA as being over "5", thus requiring the employees to wear respirators. Having received a request for their assistance and cooperation, the employees worked with management and were able to reduce the dust counts to a point low enough, for a period of three months, so that it was permissible for the workers to remove their respirators.

After due consideration and a full discussion, the Committee respectfully submits the following recommendations to the ATI Board of Governors for further action:

- 1) In order to improve the time-weighted average, it is the Committee's recommendation that a different method be used to obtain dust samples, i.e.--
 - a) In the taking of dust counts, the filter intake valve should be placed in the breathing zone area;

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- b) Dust-count checks on a time-weighted average should be based on a number of 1/2-hour checks over an 8-hour period;

2) Audiometric readings should be used to determine noise levels.

L. E. Moody, a member of the Committee, presented a comprehensive and informative report on the work of the Standards and Technical Committee of the Asbestos Information Association/North America. A written account of his presentation is affixed as Attachment I to this Report.

During the past two years it has been a real pleasure to serve as Chairman of the Air Hygiene & Manufacturing Committee. I had an outstanding group of people with which to work and my thanks go to the Committee and to the ATI for their fine interest, help and cooperation.

Respectfully submitted,

Buel E. Carden, Chairman

Attachment I

Minutes/Air Hygiene & Manufacturing Committee - 9/26/74

RE: STANDARDS AND TECHNICAL COMMITTEE,
ASBESTOS INFORMATION ASSOCIATION/NORTH AMERICA

Prepared and Presented by L. E. Moody, Southern Asbestos Company

Late in 1973, the Board of Directors of the Asbestos Information Association/North America decided to form a committee to assist them in matters concerning Standards and technical information. Accordingly, Edmund M. Fenner, of Johns-Manville Corporation, was assigned to chair the Committee and each AIA/NA member company designated a representative to serve as a Committee member.

A Committee Organization Meeting was called by Mr. Fenner for February 6, 1974, at Newark, New Jersey. At that gathering, the first major assignment was given to the Committee, i.e., working with the U.S. Occupational Safety and Health Administration; and more specifically, working directly with the Standards Division of OSHA concerning Standard 1910.93a -- the Asbestos Standard. The assignment was to include the preparation of "Work Practices" for the asbestos industry.

The responsibility of preparing "Work Practices" for the asbestos textile industry was assigned to Larry Moody, with assistance to be given by C. Kennedy, the representative on the Committee from Raybestos-Manhattan, Inc. At the February 1974 meeting of the Asbestos Textile Institute, held at Charleston, South Carolina, assistance was also solicited from Hans H. Walter, of Amatex Corporation, and from Buel E. Carden, of Uniroyal, Inc., to prepare information concerning asbestos textiles.

Since Mr. Kennedy and Mr. Moody were geographically located near each other (Charlotte and Monroe, North Carolina), they met briefly on two occasions before calling together the group of four at Charlotte on February 25, 1974. They soon learned that although they all had departments called Preparation, Carding, Spinning, Twisting and Weaving Departments, there were substantial differences in each area. They, therefore, prepared a "Recommended Work Practice," very general in nature but one that was adaptable to all methods known to be in use.

Mr. Fenner called a four-member Task Group meeting in the offices of AIA/NA, at Washington, D.C., on April 9-10, 1974. The four individuals concerned were Messrs. Fenner and Moody, John P. McGinley

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Minutes/Air Hygiene & Manufacturing Committee - 9/26/74

Re: Standards and Technical Committee, AIA/NA

of Certain-teed Products Corporation, and Frank H. Zimmerman of National Gypsum Company. The Task Group discussed progress to date concerning the preparation of the "Work Practices." On the next day (April 10th), the Task Group met with John P. O'Neill and Harry Gilbert at the OSHA Standard Office. (Mr. O'Neill is Chief of the Division of Health Standards. Mr. Gilbert is the Project Officer in charge of the Asbestos Standard.)

The purpose of the meeting was to review progress and to submit to Mr. O'Neill rough drafts of six typical "Work Practices" for his review and comment. It was understood that this was only rough material and was not to be considered as "submitted" work. Any work or material submitted formally would require the approval of the AIA/NA Board of Directors. Basically, the Task Group wanted to know if the material it was working on would be useful and was the type of information that could be incorporated into standards, if it were prepared in the proper manner. At the time, OSHA was contemplating a complete revision of the Asbestos Standard 1910.93a, or at least was gathering all available information to that end.

Another meeting was held April 24th in Washington, D.C., attended by the entire AIA/NA Standards and Technical Committee and by Mr. Gilbert. (Mr. O'Neill was ill at the time.) At the start of the meeting it was immediately apparent that a major change had taken place. On April 15th, the U.S. Court of Appeals had handed down a decision in favor of OSHA in the Industrial Union Department (AFL/CIO) suit. This court decision vastly decreased the emphasis on "Work Practices." The Asbestos Standard 1910.93a had been upheld.

Rewriting or revising the Asbestos Standard is not now deemed advisable. There may be amendments made to the Standard, such as a reference to "Work Practices," that would apply to all segments of the asbestos industry -- housekeeping, entering fiber to process, waste or scrap disposal, etc.

The AIA/NA Standards and Technical Committee will proceed with the preparation of "Work Practices" on a recommended basis. In all probability the writings will be recognized and/or recommended by OSHA, but will not be mandatory. It is possible that where a recognized "Work Practice" is in use, less monitoring would be required.

During the most recent meeting of the Committee, on September 10th, again held in Washington, D.C., a review was made of all written

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Minutes/Air Hygiene & Manufacturing Committee - 9/26/74

Re: Standards and Technical Committee, AIA/NA

material, recommendations, etc., that it had submitted to date. It was reaffirmed that the Committee would continue with "Work Practices," in line with procedures and methods of manufacturing asbestos-containing products and to provide information for customers or users of asbestos-containing products.

The Committee was invited to remain in D.C. to attend the Industry-Government Conference, sponsored by the AIA/NA and held at the Mayflower, September 11-12, 1974. The format of the Conference was a series of speakers, with question/answer periods following each presentation. The speakers included:

The Hon. John H. Stender, Assistant Secretary of Labor (OSHA);
Sheldon W. Samuels, Industrial Union Department (AFL/CIO);
Leo Teplow, Special Consultant, Organization Resources Counselors;
Paul Kotin, M.D., Johns-Manville Corporation;
Ian C. Campbell, Quebec Asbestos Mining Association (and Vice-President & Secretary-Treasurer, Asbestos Corporation Ltd.);
Michel Lesage, M.D., Medical Advisor, QAMA;
Maurice R. Eastin, Special Consultant to the Administrator (Industrial Affairs), U.S. Environmental Protection Agency;
Daniel P. Boyd, Ph.D., Director, Office of Standards, OSHA;
Lloyd B. Tepper, M.D., Associate Commissioner for Science, Food and Drug Administration (HEW);
Robert Join, Executive Director, Chambre Syndicale de l'Amiance (The French Asbestos Information Association);
Wilfred P. Howard, Asbestos Information Committee (U.K.) (and Group Public Relations Advisor, Turner & Newall Ltd.);
Noel W. Hendry, Vice President and General Sales Manager, Asbestos Fiber Division, Johns-Manville Corporation;
Richard B. Berman, Director of Labor Law, the Chamber of Commerce of the United States.

There were many interested persons in attendance at the Conference, representing other than the regular AIA/NA membership, i.e.:

A/C Pipe Producers Association
ASBESTOS Magazine
Asbestos Textile Institute
Cadwalader, Wickersham & Taft
Commerce Clearing House, Inc.
Frank C. Frantz & Company
Friction Materials Standards Institute
Government Research Corporation

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Attachment I - Page 4

Minutes/Air Hygiene & Manufacturing Committee - 9/26/74

Re: Standards and Technical Committee, AIA/NA

Hill and Knowlton, Inc.
Job Safety and Health Report
National Association of Filter Manufacturers, Inc.

Asbestos Information Committee (U.K.)
Chambre Syndicale de l'Amiante (France)
Department of the Environment (Canada)
Quebec Asbestos Mining Association

U.S. Bureau of Mines, Department of the Interior, Department of
Labor, Environmental Protection Agency, Food and Drug Adminis-
tration, Occupational Safety and Health Administration -- and
several members of the Press.

The Conference was the first of its kind. It was, beyond question,
a successful venture and it is hoped that meetings of this type
can form a common ground whereby Industry, Government and Labor
can define the problems they share and provide the possible means
toward establishing "working" answers.

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M I N U T E S

FIBER RESEARCH & TESTING COMMITTEE

Asbestos Textile Institute
September 26, 1974 -- The Cloister, Sea Island, Georgia

The Fiber Research & Testing Committee, ATI, met on Thursday, September 26, 1974, with the following members in attendance:

G. F. A. Brink, Asbestos Corporation Ltd.;
D. E. Childers, Southern Asbestos Company;
C. E. Stiefken, American Smelting and Refining Company;
W. H. Smith, Bell Asbestos Mines Ltd.;

R. A. Kuntze, Chairman -- Ontario Research Foundation
(Cassiar Asbestos Corporation Ltd.)

The main subject discussed was the impending merger with the ATI Technical Committee.

After considerable deliberation, it was agreed to join the Technical Committee in the form of a sub-committee. This would retain the identify of the Fiber Research & Testing group and would permit the formulation of a suitable and meaningful technical program. After the completion of the Chrysotile Asbestos Test Manual, 3rd edition, a new technical program must be established and in this respect, any input from other ATI members would be appreciated.

The first technical subject that has been submitted for consideration is the poor reproducibility of the fiber count procedure via the membrane filter method. The Fiber Research & Testing Subcommittee intends to concern itself with the development of better methods of identifying and counting asbestos fibers. However, the Subcommittee will not deal with hardware or with specification problems.

The above approach has been discussed with John W. Hawkins, of the Technical Committee, and with Larry E. Moody, of the Environmental Committee, and there seem to be no objections.

Respectfully submitted,

R. A. Kuntze, Chairman

M I N U T E S
TECHNICAL COMMITTEE

Asbestos Textile Institute
September 25 & 26, 1974 - The Cloister, Sea Island, Georgia

IN ATTENDANCE:

Amatex Corporation	- Wm. Maaskant
Southern Asbestos Company	- J. W. Scherd
R/M Industrial Products Co.	- J. W. Hawkins
Uniroyal, Inc.	- C. S. Parnwell

Comments have been received from the Editorial Committee of ASTM on the Asbestos Roving (D-375) and Asbestos Yarn (D-299). These will be reviewed at the October 16-17 meeting.

The sample of lap being used in the Round Robin test has been lost between Southern Asbestos and Amatex. If not found, this test will be restarted.

U. S. Coast Guard Specification Draft #164.009 on noncombustible material was reviewed. Wm. Maaskant will advise the Coast Guard of our comments. The only change noticed in this draft from the original version was the introduction of the metric system.

The major work during this meeting was the revision of D-628 (Tubular Sleaving). This specification was completed and will be forwarded to the Editorial Committee.

The Fall ASTM meeting will be held in New York, October 16-17. D-13.14 is scheduled to meet at that time. Special recognition will be paid to Paul Nicodemus, chairman.

It was announced that the Fiber Testing Committee will merge with the Technical Committee and an agenda of interest to all must be drawn up for future meetings.

Respectfully submitted,

John W. Hawkins, Acting Chairman

AD HOC COMMITTEE REPORT

Asbestos Textile Institute

Reported to the General Membership on September 27, 1974, by Alex Kuzmuk (Garlock Inc.) for the Chairman, Aaron C. F. Finkbiner, III, Esq. (Johns-Manville Corporation).

The Ad Hoc Committee for the Tyler, Texas, lawsuits convened on Wednesday afternoon, September 25, 1974. The meeting was chaired by Aaron Finkbiner and, of course, the status of the Tyler cases was the principal item on the agenda. A report from Wendell B. Alcorn, Jr., ATI's Trial Counsel in the Tyler cases, was submitted to the Committee and formed part of the basis of the discussion.

As you know, the Tyler cases are two lawsuits in which ATI is one of several defendants. Specifically, ATI is charged with "impeding the flow of information" about health hazards associated with the industrial use of asbestos. ATI has denied the claims of the plaintiffs and also has taken steps seeking to have ATI dismissed from the suits on the ground that the Institute is not subject to suit in Texas.

In July the Court in Tyler held oral arguments on several matters of court procedure. Attorney Alcorn attended the sessions. The Court recognized that the cases could become quite complicated and, therefore, will issue an order shortly concerning the procedure to be followed in the cases. In the meantime, the Court has entered a stay order, effectively halting all procedures in the cases. Once the Court has entered its order on procedure, there are two pending motions awaiting determination.

The first motion which will probably be decided is the motion by one of the plaintiffs to have the case proceed as a class action, with that plaintiff acting as the representative of all former workers at the Tyler plant.

The next motion for consideration is ATI's motion to dismiss because ATI is not subject to suit in Texas. We believe the Court will allow plaintiffs some discovery (that is, steps taken to learn facts held by different persons or organizations) on this question. It was the consensus of the Ad Hoc Committee members that if a deposition (oral questions and answers taken under oath) of ATI is sought, the Executive Secretary of the ATI would be an appropriate witness. A ruling on these motions may not be forthcoming until the end of 1974. Wendell Alcorn will keep the Ad Hoc Committee posted on all significant developments.

At the close of the meeting, the financing of the Tyler Litigation was discussed. The topic received further consideration by the ATI Board of Governors. It was decided that a second Special Assessment on the Regular Members of ATI would be appropriate and that Associate Members would be encouraged to contribute in a like manner.

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REMARKS OF LEGAL COUNSEL
Asbestos Textile Institute Annual Meeting
September 27, 1974; The Cloister, Sea Island, Georgia

This morning, I wish to call your attention to a recent change in the legal relationship among employers, employees and third parties.

In 1970, the Occupational Safety and Health Administration was created and you are familiar with the national legislation that created it. We have had many discussions in the past concerning the effects of OSHA regulations upon the activities and conduct of the business of your companies.

I. WORKMEN'S COMPENSATION

There is another aspect, however, of the OSHA legislation besides items such as inplant inspections, safety standards and asbestos dust exposure regulations. The 1970 federal legislation created a National Commission on State workmen's compensation laws. That Commission has made a study of workmen's compensation laws throughout the 50 States of the Union and has come up with a final report.

The Commission's report is not merely a piece of paper. Various State legislatures are changing their workmen's compensation laws on the basis of facts and recommendations contained in that report. One of the States that has acted is Texas. The reason I focus on Texas is because much of the asbestos-health-hazard litigation has been initiated in the State of Texas, has been decided by courts in Texas, and one of the landmark cases which was decided adversely to the Industry has been affirmed on appeal by the U.S. Court of Appeals for the Fifth Circuit, which sits in New Orleans.

The Texas law governing compensation of employees for injuries sustained on the job and for occupational diseases contracted in connection with their work was changed substantially for the first time since it was enacted in 1913. Many of these changes are irrelevant in the context of the Asbestos Textile Institute, but there are certain pertinent ones which we shall review this morning.

One major change was the broadening of the coverage of the Texas workmen's compensation statute. For example, under prior Texas law, companies having no more than three employees were not covered. Well, that is no longer so. Also, employees of State agencies and political entities were not covered. They now can be.

There also are substantially increased benefits under the workmen's compensation law. An example: The maximum weekly benefit has been

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raised to \$63.00 while the minimum weekly benefit has been increased to \$15.00. Of perhaps greater long-term significance is the fact that there has been built into the Texas workmen's compensation law an inflation factor which will result in higher maximum and minimum weekly benefits as the Cost of Living Index rises.

There is one very important change that is deserving of our special attention. Prior to September 1, 1973, the insurance carrier, (that is, the one with whom the individual manufacturer or other type of business has its workmen's compensation insurance), had the right to choose the doctor and the medical facilities which would treat an injured or diseased employee. There were certain limitations which affected the right of the insurance carrier to make this choice -- for example, the worker had the right to choose a doctor to render first-aid in an emergency situation. But, generally, the sole choice lay in the insurance carrier. Under the Texas workmen's compensation statute, as now amended, the employee has the "sole right" to choose the doctor and the medical facility.

That's all well and good. However, there has been much criticism raised in the halls of the Texas Legislature to the effect that the employee's new right to choose will encourage the proliferation of what are, perhaps unkindly, referred to as "plaintiffs' doctors".

The Texas Legislature also enacted significant changes in that State's compensation laws with regard to third-party actions. A third-party action is like the lawsuit in which ATI is involved in Tyler, Texas. It is an action not against the worker's employer but against a third-party entity -- such as a miner that supplies asbestos fibers to a production plant in Texas; such as a trade association like ATI which the worker claims impeded the dissemination of information about the health hazards of working with asbestos.

Before September 1, 1973, an employee who allegedly had been harmed by such a third party could not pursue simultaneously an action against his employer and the third party. Now he can do so. He can bring a workmen's compensation claim against his employer in Texas to be decided by the Industrial Accident Board and, at the same time, he can file a third-party suit in the Texas District Court or the Federal District Court if the jurisdiction is appropriate. The third-party action would probably seek damages far beyond the maximum recovery allowed by the Texas workmen's compensation statute.

This has affected the time when an aggrieved worker must bring a lawsuit. Under prior Texas law, the worker could file a workmen's compensation claim with the Industrial Accident Board, wait until

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that claim was adjudicated (that is, finally decided) and then, within two years, sue the third party -- the person who supplied the fiber, or the trade association, or whatever other entity might be connected with the particular industrial accident or occupational disease. The reason the employee had to sue within two years is that the general statute of limitations in Texas that governs the time in which one must bring suit after he has suffered a personal injury is two years. The effect of this on companies doing business in Texas is that a worker who now files a compensation claim in Texas and waits until that claim is finally adjudicated, which may take over two years, and then seeks to bring a third-party action against a supplier, for example, is subject to being barred from pursuing that case by the applicable statute of limitations.

It is possible under the new Texas law, which is not too dissimilar to compensation laws which have been adopted in other States, that the worker may sue a third party and choose not to claim against his employer. If the worker has already received compensation benefits from the employer's insurance carrier, the insurance company may be subrogated to the rights of the worker in the third-party action. Let us say, for example, worker John Doe had his arm severed in an industrial accident. He brings a claim for statutory workmen's compensation, which is allowed. He then sues the manufacturer of the machine that had the nerve to cut off his arm. He claims the machine was poorly manufactured and did not incorporate appropriate safety factors. The insurance company that paid the original compensation benefits can now intervene in the third-party lawsuit and take up the sword against the manufacturer of the machine.

There is also an obligation under the new Texas legislation for compensation insurance carriers to undertake "loss prevention services". I predict that anyone doing business in Texas, or in another State that has adopted a similar provision, will learn about this in the very near future (if they have not already done so).

The Texas Insurance Code, in conjunction with the Workmen's Compensation Act, has been amended to require carriers to provide accident prevention facilities as a prerequisite to writing insurance in the State of Texas. This includes educational programs which the insurance companies must offer to insured employers and present to employees through field safety representatives. The State Board of Insurance of Texas has authority to enforce this requirement against the insurance companies. I think particularly in industries such as those producing asbestos materials and asbestos products, insurance carriers are going to be very careful to present what they view as programs to help prevent occupational disease. The individual companies who operate in States

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that adopt this approach are possibly going to be at odds with some of the presentations which are prepared by insurance carriers.

The term "occupational disease" has been redefined in the Texas workmen's compensation statute, pursuant to recommendations by the previously mentioned OSHA Commission. Under the old Texas statute there were listed approximately 31 different occupational diseases (and, incidentally, asbestosis is one of them). The amended definition is open-ended and, therefore, is subject to broad interpretation.

No longer is there a list of specific occupational diseases to which an employee must refer in order to file a claim for workmen's compensation benefits. Occupational disease is now defined as including "damage or harm to the physical structure of the body occurring as a result of repetitious, physical, traumatic activities extending over a period of time." This means that anything which occurs in the workplace long enough that has any adverse, physical effect upon the body is compensable under the workmen's compensation statute. This, at least theoretically, does away with the requirement, which existed under the old law governing workmen's compensation cases, that the employee prove that the alleged occupational disease was the result of an "accident".

II. COMPARATIVE NEGLIGENCE

There is another subject I would like to address in addition to workmen's compensation. It is directly related to the cases pending in Tyler.

The date September 1, 1973, has a good deal of significance for Texas lawyers because many legislative changes became effective at that time. In addition to the changes in the workmen's compensation statute discussed previously, the State of Texas did away with the doctrine of contributory negligence.

In the area of tort law, the doctrine of contributory negligence was developed in England many years ago. Essentially, the doctrine says that if an injured person who comes to the court as plaintiff is found to have contributed to the harm of which he complains, he is guilty of contributory negligence. Under the old English common-law viewpoint, it is somewhat analogous to saying that the plaintiff has "unclean hands" with respect to the particular accident -- and therefore should not be able to recover any of his damages from the defendant. That remained the law in Texas until September 1, 1973, when Texas adopted the doctrine of comparative negligence.

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The practical application of comparative negligence, among those of the various States which adopted it, varies greatly. There are several versions of comparative negligence statutes. Texas enacted a modified comparative negligence statute and adopted a relatively conservative approach, compared to some other States.

Generally, the Texas Statute provides: The plaintiff, in order to recover any damages, must be found to have been no more negligent than the defendant. That is, if both the plaintiff and the defendant are guilty of 50% negligence, the plaintiff can still recover. If the plaintiff is 51% negligent (and bear in mind that this is usually a question for the jury) and the defendant is only 49% negligent, the plaintiff is barred from recovery. Remember the common-law doctrine of contributory negligence -- if the plaintiff was 1% negligent and the defendant 99% negligent, the plaintiff was barred from recovery. So the adoption of comparative negligence is a big change.

Where there are multiple defendants in a Texas case, such as the Tyler litigation, the plaintiff's negligence (for example, if he failed to wear a respirator after he had been instructed to do so), in order for him to recover, cannot exceed the combined negligence of all the defendants. If the plaintiff is awarded judgment against several defendants, each defendant must contribute toward satisfying the judgment in proportion to the percentage of his causal negligence.

For example, assume a plaintiff is found to have been 30% negligent in the cause of the subject accident; Defendant A was 15% negligent; Defendant B 15% negligent; and Defendant C 40% negligent. In this hypothetical situation, the plaintiff could recover and Defendant A would be required to contribute 15% of the actual damages suffered by plaintiff, Defendant B 15%, and Defendant C 40%. If actual damages to plaintiff were \$50,000, Defendant A would have to contribute \$7,500, Defendant B \$7,500, and Defendant C \$20,000 -- making a total of \$35,000. The plaintiff could not recover the remaining difference (\$15,000 between actual and awarded damages) due to his 30% causal negligence.

This does not mean, however, that a defendant's liability for damages to the plaintiff is necessarily limited to his percentage of total negligence. The Texas statute retains the common-law rule that defendants are jointly and severally liable for the entire amount of the judgment awarded. However, the statute contains an important exception: If a defendant is less negligent than the plaintiff, he is liable only to the extent of his individual negligence. This exception to the general rule of joint and several liability of multiple defendants does not apply in cases where the

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negligence on the plaintiff's side is less than that of each defendant.

Obviously, the recent adoption in Texas of comparative negligence may have important significance for ATI as a defendant in the Tyler cases. We shall continue to keep you advised as developments in those lawsuits occur.

Respectfully submitted,

Wendell B. Alcorn, Jr., Legal Counsel

ASBESTOS TEXTILE INSTITUTE

Annual Meeting

September 27, 1974
The Cloister, Sea Island, Georgia

IN ATTENDANCE

AMATEX CORPORATION

W. Maaskant
M. J. Scanlan
H. H. Walter

GARLOCK INC.

A. Kuzmuk

NICOLET INDUSTRIES, INC.

G. G. Gabrielson, Jr.

RAYBESTOS-MANHATTAN, INC.

M. N. Brooks
P. G. Dolan
J. W. Hawkins
R. T. Matthew
R. O. Moebius
M. Q. Scowcroft
W. S. Simpson

SOUTHERN ASBESTOS COMPANY

E. C. Bratt
D. E. Childers
J. W. Echerd
L. E. Moody

UNIROYAL, INC.

C. S. Barnwell
B. E. Carden
E. A. Morris

ASBESTOS CORPORATION LTD.

G. F. A. Brink
P. E. Leclerc

ATLAS TEXTILE COMPANY

W. H. Johnston

BELL ASBESTOS MINES LTD.

W. H. Smith

CANADIAN JOHNS-MANVILLE CO. LTD.

A. C. F. Finkbiner, III, Esq. (J-M)
J. P. Power

CASSIAR ASBESTOS CORPORATION LTD.

R. A. Kuntze (Ontario Research
Foundation)

LAKE ASBESTOS OF QUEBEC LTD.

E. A. Farrell
R. Lefebvre
R. J. Muth (Asarco)
C. E. Stiefken (Asarco)

TBA INDUSTRIAL PRODUCTS LTD.

H. J. Corson, Jr.

ASBESTOS TEXTILE INSTITUTE

W. B. Alcorn, Jr., Esq., Legal
Counsel (Hull, Towill, Nor-
man, Barrett & Johnson)

D. M. Fagan, Executive Secretary

Total attendance during the three-day 1974 Annual Meeting was 50 people: 31 members, 1 legal counsel, 1 secretary and 17 spouses; representative of 13 member companies plus the ATI.

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M I N U T E S

1. The 1974 Annual Meeting of the Asbestos Textile Institute was called to order by President Milton Q. Scowcroft at 8:30 a.m., September 27, 1974.
2. President Scowcroft welcomed the attendees to the 30th Annual Meeting of the Institute and following traditional procedure, asked each member to stand and state his name and company affiliation.
3. The following special delegates were welcomed by the President:
 - a) William S. Simpson, Chairman of the Board and Chief Executive Officer, Raybestos-Manhattan, Inc.;
 - b) Carroll S. Barnwell, a new representative of Uniroyal, Inc.;
 - c) Aaron C. F. Finkbinder, III, Esq., Johns-Manville Corporation; and new Chairman of the ATI Ad Hoc Committee;
 - d) Richard O. Moebius, Raybestos-Manhattan, Inc., Manheim, Pennsylvania;
 - e) Robert J. Muth, Esq., American Smelting and Refining Company, Inc., and its wholly-owned subsidiary, Lake Asbestos of Quebec;
 - f) William H. Johnston, President of ATI's newest member company -- Atlas Textile Company, North Wales, Pennsylvania;
 - g) Robert B. Pilmer (not in attendance) was welcomed as a new representative in the Institute; he is General Manager of Garlock of Canada Ltd.
4. Upon President Scowcroft's calling for the reading of the Minutes of the last General Meeting, it was moved by Lawrence E. Moody and seconded by Charles E. Stiefken, and so carried, to dispense with the reading of same.
5. Treasurer E. A. Morris presented the Report of Funds of the Institute for the Fiscal Year to August 31, 1974. On September 1, 1973, the ATI had a balance on hand of \$16,118.56. Taking into account receipts during the year of \$29,164.08, expenditures of \$31,231.20 and nominal amounts for accounts receivable and furniture and equipment, the total net worth of the organization at year-end was \$14,066.76.

The latter figure is somewhat misleading because included therein is a Special Assessment to cover the cost of the Tyler Litigation. The actual net worth of the Institute is \$5,977.78.

Looking at the projected budget for the new Fiscal Year, to August 31, 1975, the Institute can reasonably expect to generate an income of \$15,350.00 from annual dues, book sales, bank interest and other miscellaneous items. However, even with a realistic cutback in expenses, it appears the ATI will just about break even after necessary disbursements are made.

Combined with this are additional expenditures which must be made to cover the Tyler Litigation; estimated to cost in the neighborhood of \$12,000.00 through February 1975. This will necessitate

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a second Special Assessment on the Regular Members. The first such assessment on the six (6) Regular Members constituted 125% of each company's regular annual dues. In addition, Johns-Manville Corporation voluntarily contributed a like percentage of the dues it would have paid if it had been a Class A/Regular Member.

It must be obvious to all members that ATI will need all the financial help it can get toward proper handling of the Litigation. Within the next few weeks, all members of the ATI will be receiving a letter from the President of the Institute requesting contributions which will be applied against Litigation costs. It is hoped that each member will cooperate to the best of its ability.

The complete Report of Funds for the F/Y 1973-74 is attached to these Minutes. Alex Kuzmuk moved that the Report be accepted as presented. The motion was seconded by Guy G. Gabrielson, Jr., and so voted, unanimously.

6. The Fiber Producers Report was presented by Walter H. Smith, having been prepared by William J. W. Smith and approved by all member companies of the Committee. Mr. Smith reported that demand for all grades of asbestos fiber, with the possible exception of certain Group 7 fibers, remains extremely strong. Although news accounts report some new orebodies will be put into production in the next few years, there is no indication that any of the mines will be producing Group 3 Spinning Grade fibers. The entire Report is attached hereto.

7. The membership was afforded the opportunity to view the excellent film entitled "Asbestos At Work," produced by the British Asbestosis Research Council and on loan to the ATI via the Asbestos Information Association/North America. The film covers a variety of work practices and situations involving asbestos, some textile and some other, drilling and stripping of insulation, etc. It graphically describes the effective use of dust extraction equipment, vacuum cleaning, waste disposal, and so forth, and illustrates how proper housekeeping techniques ensure the safety and health of the worker who handles asbestos-containing materials.

8. Upon confirming that much of the vital work undertaken by the Institute is accomplished by the Committees, President Scowcroft asked for Committee Reports by the respective Chairmen (a copy of each Report is attached hereto):

Air Hygiene & Manufacturing -- Buel E. Carden, Chairman;
Fiber Research & Testing -- Richard A. Kuntze, Chairman;
Chrysotile Asbestos Test Manual -- Charles E. Stiefken;
Technical -- John W. Hawkins, Temporary Chairman.

Following Mr. Carden's report, President Scowcroft presented him with a plaque as an expression of ATI's appreciation for the fine job he did as Chairman of the Air Hygiene & Manufacturing

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Committee. Mr. Carden accepted the plaque, giving credit to the members of the Committee and stating it had been a pleasure and a privilege to serve as Chairman for the past two years.

After the report by Mr. Stiefken, President Scowcroft presented him with a plaque, publicly recognizing his service as Chairman of the Fiber Research & Testing Committee. Especially cited was Mr. Stiefken's outstanding work on the Test Manual, one of the most difficult and time-consuming chores of the ATI.

President Scowcroft acknowledged Mr. Hawkins' ably acting as Temporary Chairman of the Technical Committee over the last few months and thanked him for "pitching in" during the interim period until a new Chairman had been secured.

Due to illness, Lawrence F. Dieringer was not in attendance at the meeting. However, President Scowcroft stated that a plaque and letter of appreciation would be mailed to Mr. Dieringer for the excellent leadership he had performed as Chairman of the Environmental Health Committee during 1973 and 1974.

9. President Scowcroft reminded the membership that the Ad Hoc Committee had been established at the last meeting to permit and, in fact, encourage a flow of information between Associate Members and the Board of Governors. A report on the initial meeting of the Ad Hoc Committee was given by A. Kuzmuk in the absence of Aaron Finkbiner, who had to leave the meeting early. The Ad Hoc Committee report is attached to these Minutes.

10. Wendell B. Alcorn, Jr., Esq., presented Remarks of Legal Counsel. The full text of his remarks is attached hereto. In essence, Attorney Alcorn discussed one of the significant changes in the relationship between employers and employees, brought about by OSHA '70; namely, the creation by Federal legislation of a National Commission on State Workmen's Compensation Laws.

11. It was announced by President Scowcroft that the following Officers were elected by the Board of Governors to serve the Institute for the year 1974-75: President--Alex Kuzmuk, Garlock Inc.; Vice President--Edward A. Morris, Uniroyal, Inc.; and Treasurer--Michael J. Scanlan, Amatex Corporation.

12. Also, Chairman Scowcroft announced important committee changes. The Air Hygiene & Manufacturing Committee will be chaired by L. E. Moody and the new Chairman of the Technical Committee is Carroll S. Barnwell. It was further advised that following a long discussion by the Board of Governors concerning possible changes in ATI's committee structure to make it more meaningful and contributory, it was decided to combine the efforts of the Air Hygiene & Manufacturing Committee with those of the Environmental Health Committee. The resultant group will be known as the Environmental Committee. In addition, the Fiber Research & Testing Committee has become a part of the Technical Committee; however, further thought

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will be given to how the committee should be structured so that the Fiber Research & Testing group does not lose its identity.

13. President Scowcroft welcomed Atlas Textile Company, North Wales, Pennsylvania, as a new Class E/Associate Member. The official representative of the firm is its President, William H. Johnston.

14. President Scowcroft sadly advised the membership of the death of J. Carroll Johnston, Founder and Chairman of Atlas Textile Company. Mr. Johnston is well recognized as one of the pioneers and early leaders in the asbestos textile industry in the United States.

15. It was regrettably announced by the President that S.A. Francaise du Ferodo, Ferlam Division, Paris, France, had cancelled its Associate Membership in the ATI.

16. On behalf of the Board of Governors, President Scowcroft announced that ATI's Legal Counsel had been instructed to begin the necessary process toward incorporating the Asbestos Textile Institute.

17. In the interest of economy, President Scowcroft announced that the Board of Governors had determined that future meetings of the ATI should be held in large cities. The necessity for the decision, of course, is based on the serious financial condition of the Institute and especially on the extraordinary expenses that will be incurred as a result of the pending litigation in Tyler, Texas. The President expressed sincere regret that, consequently, the ATI must decline the kind offer of the mining member companies of the Institute to host the June 1975 Spring Meeting in Quebec City. That meeting will be held June 5-6, 1975, probably in Atlanta, Georgia. Other sites cancelled are the 1975 Annual Meeting in Ponte Vedra Club, Ponte Vedra Beach, Florida, and the 1976 Annual Meeting at Savannah Inn & Country Club, Savannah, Georgia.

18. At this point in the meeting the gavel was turned over to Alex Kuzmuk, the new Chairman of the Board of Governors and President of the Asbestos Textile Institute. Mr. Kuzmuk accepted the responsibility with a great amount of pleasure, expressing much awareness of the legal and financial problems which the ATI is currently facing.

19. As his first official duty, President Kuzmuk presented an Atmos Clock to Mr. Scowcroft, in acknowledgment of his two years of hard work and a job well done as Chairman of the Board and President of ATI for 1973 and 1974. Upon accepting ATI's token of esteem and appreciation, Mr. Scowcroft expressed pleasure in receiving such a beautiful gift, read the inscription to the members present, and thanked all the members for the great friendships he has established within the Institute. He said it had been a true pleasure to

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work on Institute matters and that he would continue to attend meetings and to support the ATI in any way that he could.

20. President Kuzmuk's second pleasant duty was to present a token of appreciation, in the form of a lovely terrarium, to "the strong woman behind a strong leader -- Carolyn Scowcroft." Mrs. Scowcroft read the note that accompanied the gift which expressed the sentiments of the members of the ATI and their wives. She accepted the gift with pleasure, stating it would be a beautiful addition to their new home in Charleston, South Carolina.

21. The final announcement made by President Kuzmuk was that the next Winter Meeting of the Institute will be held February 6-7, 1975, at Holiday Inn-Independence Mall, Philadelphia, Pennsylvania.

22. There being no further business to be brought before the membership, E. A. Morris moved for adjournment. The motion was seconded by M. J. Scanlan and unanimously approved by the attending members. The meeting was adjourned at 10:30 a.m.

Respectfully submitted,

Doris M. Fagan

Doris M. Fagan,
Executive Secretary

ACBESTOS TEXTILE INSTITUTE

Fiscal Year ending August 31, 1974

Report of Funds - (Period: September 1, 1973, thru August 31, 1974)

Balance on Hand September 1, 1973 --

General Fund	\$ 2,683.68
Reserve Fund	13,346.91
Petty Cash Fund	<u>87.97</u>

Total on Hand at 9/1/73 \$16,118.56

Receipts

General Fund - Dues for Year 1973	\$ 125.00
Book Sales	159.13
Magnetite Samples	25.00
Reserve Fund - Dues for Year 1974	14,250.00
Interest to 6/30/74	1,238.15
Special Litigation Fund	11,250.00
QAMA Test Manual Deposit	<u>2,116.80</u>

Total Receipts +29,164.08
\$45,282.64

Disbursements

Legal Retainer & Expenses (to 6/30/74)	\$ 5,755.98
Secretary's Gross Wages	2,100.00
Taxes on Wages Paid by ATI	159.12
ATI Meeting Expense (10/73, 2/74 & 6/74)	1,737.39
Secretary's Meeting/Travel Expense	619.85
Telephone (8/73 thru 7/74)	607.22
Printing Supplies/Services	484.61
Postage	547.51
Office Supplies & Miscellaneous	215.14
Revision of Test Manual (J.L.Tucker)	171.84
Test Manual/printing deposit	2,100.00
Rental of Office Space	540.00
Accountant (Caruso - F/Y 72-73)	300.00
ASTM Dues for Year 1974	25.00
Gifts/Flowers/Plaques, etc.	307.24
Insurance	125.00
Litigation: Office Expenses	215.13
Sec'y Travel Expenses (4/74)	149.39
ATI Meeting Expenses (4/74)	7.18
Legal Services (to 6/30/74)	<u>15,063.60</u>

Total Disbursements -31,231.20

BALANCE ON HAND AUGUST 31, 1974. . . \$14,051.44

Funds as of August 31, 1974 --

General Fund	\$ 1,416.83
Reserve Fund	12,601.86
Petty Cash Fund	<u>32.75</u>

TOTAL AVAILABLE FUNDS AUGUST 31, 1974. . \$14,051.44

Assets as of August 31, 1974--

Total Funds as listed above	\$14,051.44
Accounts Receivable - Book Sales	9.32
Magnetite Samples	5.00
Furniture & Equipment (Nominal Value)	<u>1.00</u>

TOTAL ASSETS \$14,066.76

TOTAL LIABILITIES --

TOTAL NET WORTH AUGUST 31, 1974 . . . \$14,066.76

Total Net Worth: \$14,066.76

Litigation Fund: - 8,088.98

Actual Net Worth: \$ 5,977.78

FIBER PRODUCERS' REPORT

(Presented by Walter H. Smith, of Bell Asbestos Mines Ltd., at the ATI Annual Meeting, September 27, 1974, The Cloister, Sea Island, Georgia)

Demand for all grades of asbestos fibres, possibly with the exception of certain 7 Group fibres, remains extremely strong. In groups 4, 5 and 6, producers are not able to fill all of the requirements. While the demand in Group 3 fibres is also strong, requirements seem to be being met except in the very long spinnings.

While the possibility of some recession in certain parts of the world has been mooted by some economists, fibre producers do not seem to have an indication as yet that this will have any marked effect on their shipments for the balance of 1974. By early 1975, this situation could change but here again there are no familiar indications that such will be the case.

While we have no private knowledge concerning new orebodies said to be coming into production in the next few years, newspaper accounts indicate that United Asbestos are anticipating first production from their Midlothian Township Mine after mid-year 1975. Quoted figures are in the order of 100,000 tons, but spinning fibres have not been mentioned as being part of this production.

Some newspaper accounts would indicate that the Brinco Organization are close to reaching a decision to proceed with the exploitation of the Abitibi Mine in Northern Quebec, with the production of at least 100,000 tons. First production is indicated for some time in 1976 or 1977. Here again, there has been no mention of spinning fibres.

The new Australian mine is currently said to be producing but under receivership conditions. No spinning fibres have been reported in this orebody.

We understand that Pacific Asbestos in California is currently not producing but, of course, this mine did not produce any spinning fibres.

In summary, then, it may be said that although new orebodies would appear to be going into production, so far we have not heard of any which would be producing Group 3 fibres.

W. J. Smith,
Vice President - Marketing
Bell Asbestos Mines, Ltd.

AD HOC COMMITTEE REPORT

ASBESTOS TEXTILE INSTITUTE

February 7, 1975

Presented by Chairman Aaron C. F. Finkbiner, III, Esq., Johns-Manville Corporation, at the ATI 1975 Winter Meeting held at Holiday Inn-Independence Mall, Philadelphia, Pennsylvania.

The court in Tyler, Texas, has before it motions filed on behalf of the Asbestos Textile Institute seeking to dismiss both lawsuits on the grounds that the court does not have jurisdiction over ATI because the Institute never was in Texas.

The motions have been sitting for more than nine months. The judge has not as yet taken action except to grant the opportunity to the plaintiff to take whatever discovery he wants. "Discovery" is a system whereby parties on both sides of the lawsuit can seek facts, identity of witnesses, documents, and other things from the opposing side.

The plaintiffs in the Yandle and Kay cases have not really directed any discovery efforts toward ATI with an eye to proving that the Institute had sufficient connection with Texas to give the court jurisdiction. We are perfectly content to let that situation remain as it is. Therefore, the ATI has not taken any affirmative steps of its own in the litigation.

Other defendants in the Yandle and Kay lawsuits have also sought to have the case dismissed at the outset. It is against those defendants that the plaintiffs have directed their discovery efforts to try to keep them in the suits.

It is expected the judge should rule on the motions on ATI sometime during the next three or four months — but we will just have to wait and see. We are, however, getting into a more favorable position to suggest to the judge that we have been in the case long enough, the plaintiffs have had ample time to develop whatever evidence they want on the jurisdiction question — and to get the judge to make a ruling promptly. We are still somewhat optimistic because of the plaintiffs' apparent disinclination to really pursue ATI on this question.

For those of you who may not be familiar with the Yandle and Kay lawsuits, in detail, they are cases which former employees of Pittsburgh Corning Corporation brought against that company, its medical director (Dr. Lee Grant), ATI, two owners of asbestos that sold fiber to Pittsburgh Corning, etc., alleging various theories of recovery which are different as to each defendant. However, basically the plaintiffs are saying they were injured at the Tyler plant and are entitled to money damages to compensate them for that injury. They are also asking punitive damages.

In the Yandle case there are now 77 individual plaintiffs. In the Kay case there are 46. That is a total of 123 out of a potential of 570 former employees of Pittsburgh Corning who worked at the plant at Tyler.

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Dr. Grant's deposition will be taken in Pittsburgh, Pennsylvania, on March 6-7, 1975. Certainly the court will wait until after that deposition to make a ruling on the pending motions. Quite possibly the deposition may open a whole new set of avenues that the plaintiff will try to pursue before he will agree that he has enough discovery. Then the judge can make an informed ruling on the jurisdictional question.

Basically that is the situation. ATI is simply in a "wait and see" position. It is hoped that by the June 1975 meeting of the ATI we will have a report on what the judge did with our motions.

The following question was asked by one of the attending members: Is there no limit the judge can set on the time allowed for a plaintiff to seek discovery -- or does the time just go on and on?

The judge can set a time limit. It is unlikely in a case of this magnitude that you will start to see the court pressing the attorneys for the different parties as to when they will be finished their discovery for a couple of years. Once the preliminary motions are set and decided, it would seem logical for the judge in this kind of case where there are so many plaintiffs and several defendants that he would try to set some sort of orderly framework for the case to proceed. He will probably gather the attorneys together in an endeavor to determine how long they will need for discovery. The plaintiffs' lawyers will probably say a year and the defense lawyers will probably say they need years and years because of the many different plaintiffs. Probably the judge will at that time set some preliminary guidelines. It is probable that it will be several years before this case is ready for trial. It would be unrealistic to expect the case will be ready for trial in less than three years. In short, the case is going to be around for a long time, and that is why we want the initial motion of ATI to be ruled upon before the case gets into the real merits.

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MINUTES

ENVIRONMENTAL COMMITTEE

Asbestos Textile Institute
Holiday Inn-Independence Mall, Philadelphia, Pennsylvania
February 7, 1975

The initial meeting of the ATI Environmental Committee was called to order by Chairman Moody, with representation from ten member companies present. The newly-formed Committee is a combination of the former Air Hygiene and Manufacturing Committee and the Environmental Health Committee. Members in attendance included:

Amatex Corporation
H. H. Walter

Nippon Asbestos Co. Ltd.
Y. Sato

Atlas Textile Company
W. H. Johnston

Raybestos-Manhattan, Inc.

R. M. Gordon

D. L. Juhl

Cassia Asbestos Corp. Ltd.
J. D. Christian

J. F. MacLachlan

R. T. Matthew

I. H. Weaver

Garlock Inc.
S. G. Dixit
A. Kuzmuk

Southern Asbestos Company

E. C. Bratt

L. E. Moody

Johns-Manville Corporation
W. B. Reitze

TBA Industrial Products Ltd.

H. J. Corson

Lake Asbestos of Quebec Ltd.
E. A. Farrell

ATI Legal Counsel

W. B. Alcorn, Jr., Esq.

At the request of the Committee, a review of the IUD/CIO case decision was presented by Wendell B. Alcorn, Jr., Esq., ATI Legal Counsel. The members of the Committee desired a legal opinion of the decision of the three-judge panel, of the importance of the two items remanded to OSHA for consideration, and of possible future moves or actions that might result from the decision.

As planned, the Committee spent the balance of the session reviewing OSHA 1418-92a. Each item or paragraph was discussed in an endeavor to determine interpretations among the Committee Members and to consider what possible interpretations might be presented by an Inspection Compliance Officer.

It was agreed that should an Inspection Compliance Officer arrive at a member-company plant to inspect that plant, the following "in-common" requests would be made:

- 1) that each sampling be an eight-hour sampling segmented by at least 16 filter changes of no more than 30 minutes per filter;

- 2) that the location of the sampler tube be in the area of the nose-mouth (breathing zone), preferably by "hard-hat-liver" mounting;
- 3) that a definition be given of an eight-hour, time-weighted average -- ceiling concentration and peak-reading duration.

In discussion each item and paragraph, questions were raised as to the meaning of parts, etc. In each area of questioning, each Member of the Committee was given opportunity to voice his individual views -- thereby enabling an agreeable summation to be formed.

The California OSHA law was briefly discussed. It was mutually agreed that this item should be investigated in greater detail as it will have some effect on all member companies of the ATI.

The EPA waste disposal regulation, as it is presently recommended, was discussed. If the Regulation becomes law, it will cause difficulty to all asbestos products manufacturers, especially in the area of scrap disposal.

Respectfully submitted,

L. E. Moody, Chairman

REMARKS OF LEGAL COUNSEL
ASBESTOS TEXTILE INSTITUTE

February 7, 1975

Presented by Wendell B. Alcorn, Jr., Esq., ATI Legal Counsel, at the 1975 Winter Meeting of the ATI held at Holiday Inn-Independence Mall, Philadelphia, Pennsylvania.

It is indeed a pleasure to be here. As I have said in the past, I enjoy the fellowship almost as much as giving my remarks of legal counsel.

We have had a lot of developments in the past few months since our last meeting which I do want to bring to your attention.

With respect to the Occupational Safety and Health Administration (OSHA), there are several points I want to make relating to compliance. There recently were a series of citations issued to the Old Ben Coal Corporation. OSHA has made an example of this company. It has levied a \$70,000 fine for 70 separate violations of the coal dust standard. This is the heaviest penalty that has been levied to date for any separate series of violations. The maximum serious violation penalty under OSHA is \$1000 per violation. Approximately 80% of the OSHA citations that have been issued to date are non-serious violations. The administrative law judge who handed down the penalty against "Old Ben" said the company had flaunted its obligation to observe safety standards. It was cited 50 times in the last two years for violating the same standard that it continued to violate -- and it showed no intention of correcting the situation. It had received a number of lesser fines in the years past. The moral of the story is pretty clear. If you get a minor or non-serious citation, at least show good faith with the OSHA people and make an effort to correct the situation. If the situation cannot be corrected completely, keep OSHA informed through periodic reporting; ask their advice and assistance; cooperate with them as much as you can consistent with your own individual interests; and, above all, be diplomatic.

THE OSHA GENERAL DUTY CLAUSE

We in the asbestos industry have been concerned for quite a few years with the OSHA Asbestos Standard. We tend to forget, however, that there is a general catch-all clause in the OSHA Act that places on the employer a very broad duty. It says that each employer "shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

I have reviewed the cases that have been decided to date under the general duty clause and have come up with several general rules I would like to discuss briefly with you. These rules are derived from the cases that have been handed

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down under this clause. I think, however, that the principles that have evolved can be applied to any type of OSHA compliance situation.

No. 1, if there is a specific standard in effect it preempts the general duty clause; so if you have an asbestos dust problem, the general duty clause is not the method by which OSHA would proceed. It would proceed under the Asbestos Standard.

The second thing is that the clause covers contractors and subcontractors. If you have someone who is contracting for you, his employees are covered under the general duty clause. If you are in a joint venture with another company, be careful because you may well be held liable for something the other firm is doing without your knowledge.

Separate workplaces lead to separate violations. If you have a spinning room, and another room at your plant, and you are doing the same thing in both rooms, it might lead to two citations for violations under the general duty clause.

You are responsible for the safety of non-owned equipment. If you have leased or rented equipment, you must make certain it is safe.

The mere occurrence of an accident does not prove a violation. Suppose a worker gets hurt at a plant and OSHA comes in and gives you a citation. If the facts indicate that you did everything within reason to prevent that accident and you had no cause to know the accident would occur before it did, then you can probably defeat the citation if it were given under the general duty clause. The standard of your conduct is "reasonableness." What would a reasonable man do in your situation.

Foolhardy acts of employees do not lead to a violation. There was one case that was decided where an employee walked under a crane and pulled out the pins that held up the crane. The crane crashed down and killed him. The employer was cited under the general duty clause as not having provided a safe workplace -- and the U.S. Department of Labor lost the case.

There may be a violation if the thing that you are doing is recognized as a hazard in your industry. A company can take certain actions and perhaps not recognize that a condition at its plant is hazardous, but if it is recognized in the industry by your fellow companies as generally being hazardous then this is something that does come under the general duty clause.

Of course, some hazards are necessarily attendant to any work. For example, there was a case that was brought where some garbage men were picking up the garbage cans and the hydraulic tailgate fell on one of the workers, injuring him. OSHA cited the company that owned the garbage truck for violation of the general duty clause. It was ruled to not be a violation because it was something that was necessary to the collection of garbage. People have to work under hydraulic tailgates.

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Most companies have their own internal safety rules. The simple promulgation or announcement of a safety rule to your employees does not mean that the thing you are endeavoring to prevent by establishing that rule is recognized by you to be a hazard. However, it is of some evidentiary importance. For example, if you issue a rule in your company that there is not to be smoking within 50 feet of a certain area, then if you are brought in under the general duty clause OSHA (or the Department of Labor) can cite your company's rule as having some evidentiary weight on whether that area was considered to be hazardous, in your thinking.

The hazard that is covered under the general duty clause must be one that will probably occur unless corrective action or proper warnings are undertaken. A mere possibility does not suffice. There was a case decided where an OSHA inspector saw that some foundation work had been removed from bricks that covered an archway. The bricks were not loose and the mortar was sound; but the OSHA inspector said there was a possibility that the bricks would fall and hurt somebody. So he issued a citation -- but the company won. There was no probability of a hazard.

Many of us deal with equipment that has rated capacity. We ride on elevators in hotels that are capable of handling a certain number of pounds or tons. This is of some evidentiary value. For example, if you are operating a crane that has a certain capacity limitation or specification and a cable breaks or something happens where the crane swings around, hits somebody and injures him -- then you could well be held in violation of the general duty clause; and the specification on the crane could be introduced as evidence. But it is a fact question as to whether heed was paid to the specification on the crane; if a maximum load was intended; or if it was being used just for your own convenience in operating your business.

There are some conclusions to be drawn from these cases. You do have a duty to warn of unusual or dangerous conditions at your plant. You must warn your employees of these. You have a duty to supervise inexperienced workers or workers whose duties are necessarily involved with hazardous activities. You have a duty to not be negligent. You must act as a reasonable person in the conduct of your business.

There is a factual presumption before administrative law judges in favor of the injured worker, unless he acted in a gross or wanton manner in disregard of his own safety. There are many cases on the books where the supervisor advised a worker of a hazard and the worker did not pay heed. This is a defense to a citation given under the general duty clause.

A case has been decided that was brought against American Smelting and Refining Company which is of particular interest. In essence, the case stands for the proposition that an employer must use sophisticated testing devices and methods to detect unseen hazards in the workplace. For example, in this particular instance the company undertook some casual monitoring to measure airborne lead from a smelter. By the same token, the employer had a duty to make his employees wear respirators within a certain area. The employer undertook to

monitor the air and if the air was allright, it would not make the employees wear the respirators. OSHA came in and issued a citation for violation of the general duty clause for failing to make the employees wear the respirators -- and the citation was upheld. OSHA said the casual monitoring program was not sufficient. Even if the company had undertaken to monitor the level content of the air on a regular basis, OSHA would still have based the citation on the company for its failure to make the employees wear respirators.

Even though the situation is not recognized as a hazard in the industry, actual knowledge that a part of your plant or an activity in your plant constitutes a hazard to the workers is sufficient to raise a duty under this particular clause in the OSHA Act. You must warn and take corrective measures.

The Secretary of Labor in an OSHA case under the general duty clause must show the following things -- and it would be well to bear these in mind. First, he must show that your company is in interstate commerce or have substantial effect upon interstate commerce. All U.S. member companies of the ATI fall in this category and, therefore, OSHA does have jurisdiction. Second, he has to show that a hazard existed -- a hazardous condition was, in fact, there. This can be a hazard recognized in your industry or one of which the employer has actual knowledge. Thirdly, the Secretary of Labor or his representative must show that the condition was likely to cause death or serious bodily harm to your employee. Fourth, the burden is on the respondent in a case like this to show there was a specific standard that governed the case and that the general duty clause should not be invoked.

THE TELEX-IBM CASE

In November 1973 an Oklahoma federal district court judge had the bright idea to issue against IBM a damage assessment which was the largest in the entire history of American jurisprudence. It was in a private, treble damage antitrust action under the Sherman Act.

Telex was a competitor of IBM and accused IBM of attempting to monopolize and actually monopolizing the market for electronic data-processing products.

The amount of the damage award against IBM was \$259.5-million. In the course of the litigation, IBM had counterclaimed against Telex and said they were pirates: "They stole some of our business secrets and used them for their own advantage." The judge found against Telex on the counterclaim and awarded a substantial damage claim against Telex.

The case was appealed to the Tenth Circuit Court of Appeals and just recently, January 24, 1975, the Circuit Court overturned the lower court's holding against IBM and affirmed its holding against Telex.

More.....

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The Tenth Circuit Court of Appeals reversed the lower court's decision on two technical antitrust grounds. One was that the lower court had too narrowly defined the product market under the Sherman Act. Under the Sherman Act a relevant product market must be defined in order to judge the competitive effects that the conduct being challenged has had, to judge and identify the competitors in that market and to evaluate the market shares held by competitors. The lower court had defined the relevant product market as constituting electronic data-processing products which were "plug compatible" with IBM central-processing units.

As of now the Circuit Court has issued a brief written opinion on this, although a fully-detailed writing is expected shortly. But from the arguments made by IBM's counsel before the court, we must assume that the higher court wanted the product market drawn either along the lines of all electronic data-processing equipment or something between that which is "plug compatible" with IBM and the entire electronic data-processing field.

Also the upper court said something that is most important, in my view, if it prevails, and that is that the practices of IBM that were challenged by Telex constituted valid, competitive practices and were neither predatory nor otherwise violative of the antitrust acts.

IBM now sits in the position of having no damage assessment against it. Telex, which is a much smaller company, has a total damage assessment against it of \$18.5-million.

The conclusion is pretty obvious. Telex will appeal to the U.S. Supreme Court and try to get that body to hear the case. In view of the large damage award that is still prevailing against Telex and the loss of its damage award against IBM, it is likely that the U.S. Supreme Court will take the case. There also is a chance the case will be settled before the final outcome is rendered by the Supreme Court.

CRIMINAL SANCTIONS, PRICE FIXING & WARRANTIES

The criminal sanctions under the Sherman Act have been increased. They had been \$50,000 -- now we are talking about \$1-million for corporations and several hundred thousand dollars in the case of individuals.

The U.S. Department of Justice has undertaken a much stronger and more vigorous regional price fixing attack. It has put 40 additional staff attorneys on the antitrust division price fixing task force. They are going out in the field and are looking at economic data rather than listening on the telephone and picking up correspondence relating to price fixing. They are looking at economic data in industries as an early warning device against price fixing -- to see if the prices charged by different companies have moved together, etc.

More.....

Att. VI/Page 5 of 6

They have been authorized to use the FBI to a much greater extent than in the past. In a word, the antitrust division is moving very vigorously against regional and local price fixing arrangements.

Another matter I would like to call to your attention, particularly for the benefit of your house counsel, is: If you sell consumer products that have any kind of warranties, written warranties or implied warranties, I would be happy to send your house counsel a copy of a recent Bill that was enacted and passed December 19, 1974. It is Senate Bill 356 and is called "The Magnuson-Moss Warranty and Federal Trade Commission Improvement Act." If your house counsel receives the CCH Trade Regulation Reports, it is a special print-out numbered 156156 that came out in December. The Federal Government, in a word, has laid down specific requirements that any written warranty on consumer product has to meet. If they do not meet them, they will be in violation of Federal law. Even if you do not have a written warranty, look at the Bill because it also has serious implications for implied warranties. It does not preempt in its entirety the warranty provisions of the Uniform Commercial Code, but it does have an effect on all warranties of that nature.

-end-

Minutes
GENERAL MEETING
Asbestos Textile Institute

FEB 7 - 1975

ASBESTOS TEXTILE INSTITUTE

1975 WINTER MEETING

February 7, 1975
Holiday Inn-Independence Mall, Philadelphia, Pennsylvania

LIST OF DELEGATES

AMATEX CORPORATION

W. Maaskant
J. L. Rainey
H. H. Walter
J. W. Weber, Jr.

ASBESTOS CORPORATION LTD.

P. E. Leclerc

BELL ASBESTOS MINES LTD.

W. H. Smith

ATLAS TEXTILE COMPANY

W. H. Johnston

CASSIAR ASBESTOS CORPORATION LTD.

J. D. Christian
R. A. Kuntze

GARLOCK INC.

S. G. Dixit
A. Kuzmuk

JOHNS-MANVILLE CORPORATION

A. C. F. Finkbiner, III, Esq.
W. B. Reitze

LAKE ASBESTOS OF QUEBEC LTD.

E. A. Farrell
J. Gifford (Asarco)

NICOLET INDUSTRIES, INC.

G. G. Gabrielson, Jr.

NIPPON ASBESTOS COMPANY LTD.

Y. Sato

RAYBESTOS-MANHATTAN, INC.

R. M. Gordon
J. W. Hawkins
D. L. Juhl
J. F. MacLachlan
R. T. Matthew
M. Q. Scowcroft
I. H. Weaver

SOUTHERN ASBESTOS COMPANY

E. C. Bratt
D. E. Childers
J. W. Echerd
L. E. Moody

TBA INDUSTRIAL PRODUCTS LTD.

H. J. Corson

UNIROYAL, INC.

E. A. Morris

AMERICAN SOCIETY FOR TESTING
AND MATERIALS

N. McGrath
P. O. Nicodemus (General Electric)
P. Shenker

ASBESTOS TEXTILE INSTITUTE

W. B. Alcorn, Jr., Esq.
Legal Counsel
D. M. Fagan, Executive Secretary

Total attendance during the two-day 1975 Winter Meeting was 39 people:
30 members, 1 legal counsel, 1 secretary, 3 from ASTM and 4 spouses;
representative of 14 member companies plus ASTM and ATI.

M I N U T E S

1. The 1975 Winter Meeting of the Asbestos Textile Institute was called to order by President Alex. Kuzmuk at 1:00 p.m., February 7, 1975.

2. The following special members and guests were welcomed by the President:

- a) Robert H. Gordon, President, Raybestos-Manhattan, Inc.;
- b) J. F. MacLachlan, President-Industrial and Consumer Products and Vice-President, Raybestos-Manhattan, Inc.;
- c) D. L. Juhl, General Manager, RM Friction Materials Company, Raybestos-Manhattan, Inc.;
- d) J. L. Christian, Chairman, Cassiar Asbestos Corporation Ltd.;
- e) J. Gifford, American Smelting and Refining Company;
- f) J. W. Weber, Jr., Amatex Corporation;
- g) Nancy McGrath, American Society for Testing and Materials;
- h) Pamela Shenker, American Society for Testing and Materials.

3. President Kuzmuk welcomed all delegates and following traditional procedure, asked each attendee to stand and state his or her name and company affiliation.

4. Upon President Kuzmuk's calling for the reading of the Minutes of the 1974 Annual Meeting, it was moved by S. G. Dixit, seconded by E. A. Morris, and so carried, to dispense with the reading thereof.

5. In the absence of Treasurer M. J. Scanlan, the Report of Funds of the Institute as of December 31, 1974, was presented by President Kuzmuk.

As of September 1, 1974, the ATI had a cash balance on hand of \$14,051.44. During the period September 1 thru December 31, 1974, total receipts amounted to \$25,691.18, including two extraordinary items of \$19,328.22 from sales of the Chrysotile Asbestos Test Manual, 3rd Edition, and \$8,908.13 for the Litigation Defense Fund. Disbursements during the same four-month period totaled \$15,332.21 for general purposes (including \$12,000.00 for partial payment of the Test Manual printing bill) and \$3,068.57 for expenses incurred as a result of the Tyler Litigation. This left a cash balance on hand at December 31, 1974, of \$24,341.84 (\$10,164.78 for general purposes, plus \$14,177.06 for the Litigation Defense Fund). Adding assets of cash on hand together with accounts receivable and the nominal \$1.00 value for furniture and equipment, the total net worth of the Institute at year-end 1974 was \$30,001.74.

For a breakdown of the Litigation Defense Fund which was established April 1, 1974, the cash balance on hand as of June 17, 1974, was \$11,250.00. Following disbursements for legal fees of \$5,981.19 and \$3,480.16, receipts from Special Assessment #2 of \$11,250.00, and receipts from Voluntary Contributions of \$4,221.88, the cash balance to date (February 5, 1975) is \$17,260.53. (The complete Report of Funds is appended to these Minutes as Attachment I and will be filed for audit.)

6. The Fiber Producers' Report was presented by E. A. Farrell, Sales Manager, Lake Asbestos of Quebec, Ltd. In discussing the period January-October 1974, Mr. Farrell gave a breakdown of the 28,611 metric tons of spinning-grade fiber exported from Canada -- by quantities and by countries of destination. He also

more.....

referred to the many difficulties currently besetting the Canadian Asbestos Industry such as the fire that occurred in December at the King-Beaver Mill of Asbestos Corporation Ltd.; the landslide at the Jeffrey Mine Pit of Canadian Johns-Manville Co. Ltd.; the pit problems of Cassiar Asbestos Corporation Ltd.; and a possible labor strike at the Quebec mines. As a result of these many problems, Mr. Farrell reported that Group 3 fibers are in short supply. Also, Group 7 is available but Groups 4, 5 and 6 continue in short supply. (See Attachment II for a copy of the entire Fiber Producers' Report.)

7. In the absence of C. S. Barnwell, Chairman of the Technical Committee, the report on the activities of that working group was given by Committee Member John W. Hawkins. Mr. Hawkins advised of the completion of the Round Robin tests on tubular sleeving, tape, cloth and lap and that reviews of and modifications to the following ASTM Specifications were made: D-315 on Woven Asbestos Tape, D1061 on Asbestos Lap and D1571 on Woven Asbestos Cloth. (See Attachment III for the complete Technical Committee Report.)

8. A report on the Environmental Committee's activities was presented by Chairman L. E. Moody. Mr. Moody advised he was reporting on the first meeting of the Committee, newly-formed by combining the former Air Hygiene and Manufacturing Committee and the Environmental Health Committee. He advised that W. B. Ilcorn, J. , Esq., ATI Legal Counsel, reviewed for the Committee the decision handed down in the IUD/CIO case. The group then proceeded to review OSHA Standard 1910-93a. (See Attachment IV for the entire Environmental Committee report.)

9. President Kuznuk addressed the membership-at-large stating he had a pleasant duty to perform -- and it was indeed a privilege to present an engraved, walnut plaque to a well-respected friend of long-standing of the ATI: Paul O. Nicodemus.

Mr. Nicodemus has impressive technical qualifications -- a B.S. in Chemistry from Penn State University and an M.S. from the University of Pennsylvania. He has had 33 years of service with General Electric Company during which time he has been most helpful to the Asbestos Textile Industry. Perhaps his greatest contribution is his many years of dedicated work with ASTM in setting standards for practically all of the asbestos commodities -- and most recently in working with the ATI Technical Committee in keeping all pertinent standards up-to-date.

Mr. Nicodemus has not only made a technical contribution but he has also found time to work with various charities and social groups such as the Retarded Children's Instructional Bowling League; a Member of the Board of Camp Paul, which provides summer vacations for retarded children; and a former Grand Knight of the Knights of Columbus.

In asking Mr. Nicodemus to come forward to receive his plaque, President Kuznuk stated it was with the greatest of pleasure, on behalf of the ATI, to present him with this token of the Industry's appreciation for his many contributions over the years. Mr. Nicodemus was completely overwhelmed by the unexpected event -- but was most pleased and sincerely thanked the Institute for the plaque.

More.....

10. The report of the Ad Hoc Committee was given by Chairman A. C. F. Finkbinder, III, Esq. Attorney Finkbinder discussed the current status of the Yandle and Kay cases insofar as ATI's involvement in the Tyler Litigation is concerned. He advised that a deposition of Dr. Lee Grant, Medical Adviser with Pittsburgh Corning Corporation, is scheduled for March 6-7, 1975, in Pittsburgh, Pennsylvania, and that hopefully the ATI, by its next meeting, will know what decision has been handed down by the judge on its motion to dismiss on jurisdictional grounds. (See Attachment V for the full report.)

11. Remarks of Legal Counsel were presented by Attorney Alcorn. In essence he discussed several points relating to compliance with OSHA regulations. Additionally, he reviewed a recent development in the Telex-IBM litigation; the increase in the criminal sanctions under the Sherman Act; the stronger, more vigorous regional price-fixing attack by the U.S. Department of Justice; and, for the benefit of house counsel, he mentioned Senate Bill #356, enacted December 19, 1974, titled the Magnuson-Moss Warranty and Federal Trade Commission Improvement Act (of interest to those companies that sell consumer products that have any kind of warranties, written or implied.) (The full text of Legal Counsel's Remarks are appended to these Minutes as Attachment VI.)

12. President Kuzmuk reported that the ATI Board of Governors had unanimously agreed that future Annual Meetings would be held as per usual and that the Executive Secretary was looking into suitable sites for the Institute's 1975 and 1976 Annual Meetings. When firmed, the membership will be so advised.

13. It was reported by President Kuzmuk that Nicolet Industries, Inc., has gone out of the asbestos yarn business and, therefore, no longer qualifies for membership in the Institute. As a result, Nicolet has tendered its resignation from the ATI as of December 31, 1974; but President G. G. Gabrielson, Jr., has advised of Nicolet's intent to continue to support the Institute in its defense efforts in the Tyler Litigation -- including active participation in the affairs and activities of the Ad Hoc Committee.

14. President Kuzmuk stated that a new Membership Directory would be issued within the next two months, as soon as all necessary information is received, compiled and printed.

15. Following the announcement that the 1975 Spring Meeting of the ATI would be held June 5-6, 1975, at Stouffer's Atlanta Inn, Atlanta, Georgia, President Kuzmuk entertained a motion for adjournment. It was so moved by L. E. Moody, seconded by P. E. Leclerc, and unanimously approved by the attending members -- and the meeting was adjourned at 3:00 p.m.

Respectfully submitted,

Doris M. Fagan
Doris M. Fagan,
Executive Secretary

A BESTOC TEXTILE INSTITUTE Fiscal Year ending August 31, 1975
 Report of Funds Period. September 1, 1974, thru December 31, 1974

Balance on Hand September 1, 1974 --			
General Fund		\$ 1,416.83	
Reserve Fund		12,601.86	
Petty Cash Fund		<u>32.75</u>	
Total on Hand at 9/1/74			\$14,051.44
Receipts			
General Fund - Book Sales		\$ 19.73	
Magnetite Samples		5.00	
Reserve Fund - Test Manual Sales		19,328.22	
Interest to 12/31/74		430.10	
Litigation Defense Fund		<u>8,908.13</u>	
Total Receipts			<u>+28,691.18</u>
			\$42,742.62
Disbursements			
Legal Services/Expenses	\$ 821.20		
Secretary's Gross Wages	652.00		
Taxes on Wages Paid by ATI	35.96		
ATI Meeting Expense	394.57		
Secretary's Travel Expense	217.00		
Telephone	120.97		
Printing/Office Supplies	235.74		
Postage	172.91		
Revision of Test Manual	133.80		
Test Manual/Partial Printing Cost	12,000.00		
Rental of Office Space	135.00		
Accountant/Caruso/1973-74	300.00		
ASTM Dues for Year 1975	25.00		
Gifts/Flowers/Plaques, etc.	<u>88.06</u>		
		\$15,332.21	
Litigation: Legal Services/Expenses	\$ 2,820.17		
ATI Meeting Expense	30.60		
Telephone	73.93		
Printing/Office Supplies	90.42		
Postage	<u>53.40</u>		
		+ 3,068.57	
Total Disbursements			<u>-18,400.73</u>
BALANCE ON HAND DECEMBER 31, 1974			\$24,341.84
Funds as of December 31, 1974 --			
General Fund		\$ 556.80	
Reserve Fund		23,768.31	
Petty Cash Fund		<u>16.73</u>	
*TOTAL AVAILABLE FUNDS DECEMBER 31, 1974 . .			\$24,341.84
Assets as of December 31, 1974 --			
Total Funds as listed above		\$24,341.84	
Accounts Receivable - Litigation Assessment #2		5,625.00	
Test Manual Orders		33.90	
Furniture & Equipment/Nominal Value		<u>1.00</u>	
TOTAL ASSETS			\$30,001.74
TOTAL LIABILITIES			<u>..</u>
TOTAL NET WORTH DECEMBER 31, 1974			\$30,001.74
*Total Available Funds 12/31/74: \$24,341.81			
Litigation Defense Fund: -14,177.06			
Actual Net Worth: \$10,164.78			

Att. I

ASBESTOS TEXTILE INSTITUTE

1976 WINTER MEETING

February 6, 1976

Sheraton National Motor Hotel, Arlington, Virginia

LIST OF DELEGATES

AMTEK CORPORATION

W. Bhaskant
J. L. Rainey
H. J. Scanlan
H. K. Walter

ASBESTOS CORPORATION LTD.

W. B. R. Callan
P. B. Leclerc

ATLAS TEXTILE COMPANY

W. H. Johnston

BELL ASBESTOS MINES LTD.

J. H. Leblond
W. H. Smith

CANADIAN JOHNS-MANVILLE CO. LTD.

H. H. Hay
J. P. Power

CARLOCK INC.

S. G. Dixie
A. Ruzicki

HIPPOC ASBESTOS CO. LTD.

Y. Gato
S. Shima

RAYBESTOS-MANHATTAN, INC.

C. D. Colson
J. W. Hawkins
C. A. Kennedy
H. Krueger
R. O. Moebius
M. Q. Scowcroft

SOUTHERN ASBESTOS COMPANY

E. C. Bratt
D. E. Childers
J. W. Richard
L. E. Moody

TEA INDUSTRIAL PRODUCTS LTD.

H. J. Corson

ASBESTOS TEXTILE INSTITUTE

W. B. Alcorn, Jr., Esq.,
ATI Legal Counsel,
Cadwalader, Wickersham & Taft

D. M. Wagan,
ATI Executive Secretary

Total attendance during the two-day 1976 Winter Meeting was 26 people: 25 members, 1 legal counsel, and 1 secretary -- representative of 10 member companies, plus ATI.

more.....

M I N U T E S

1. The 1976 Winter General Meeting of the Asbestos Textile Institute was called to order by President A. Kuzmuk at 1:00 p.m., February 6, 1976, at the Sheraton National Motor Hotel, Arlington, Virginia.

2. Upon the calling for a reading of the Minutes of the last stated meeting, it was moved by G. G. Dixit, seconded by L. E. Brady, and unanimously approved, to dispense with the reading thereof.

3. In the absence of Treasurer M. J. Scanlan, President Kuzmuk presented the Financial Report of the Litigation Defense Fund as of December 31, 1975. The balance on hand at September 1, 1975, was \$10,000.90, receipts to date totaled \$150.01 and disbursements amounted to \$8,877.70 -- leaving a cash balance at December 31, 1975, of \$8,364.96. It was noted the funds available are expected to be sufficient to cover anticipated expenses between now and the Spring Meeting in June of this year. The entire Report is attached hereto as Attachment I.

4. President Kuzmuk announced that insofar as ATI was concerned, the only activities that have been occurring in the Tyler Litigation were the intervention of additional plaintiffs. Consequently, the responsibilities of Attorneys Alcorn and Hathaway are presently limited to answering the complaints. This situation is not expected to change during the coming four months.

5. As advised by President Kuzmuk, the next General Meeting of the Asbestos Textile Institute will be held June 3-4, 1976, at Stouffer's National Center Inn, Arlington, Virginia.

6. There being no further business to be brought before the general membership, a motion to adjourn was made by P. E. Leclerc, seconded by C. A. Kennedy, and so moved. The meeting was adjourned at 1:15 p.m.

Respectfully submitted,

Doris M. Fagan

Doris M. Fagan,
Executive Secretary

February 6, 1976

ASBESTOS TEXTILE INSTITUTE, INC.

1976 WINTER MEETING

February 6, 1976

Sheraton National Motor Hotel, Arlington, Virginia

LIST OF DELEGATES

AIATEX CORPORATION

W. Maaskant
J. L. Rainey
M. J. Scanlan
H. E. Walter

ASBESTOS CORPORATION LTD.

W. B. R. Callan
P. E. Leclerc

ATLAS TEXTILE COMPANY

W. H. Johnston

BELL ASBESTOS MINES LTD.

J. M. Leblond
W. H. Smith

CANADIAN JOHNS-MANVILLE CO. LTD.

H. M. Hay
J. P. Power

GARLOCK INC.

S. G. Dixit
A. Kuzmuk

NIPPON ASBESTOS CO. LTD.

Y. Sato
S. Shima

RAYBESTOS-MANHATTAN, INC.

C. D. Colson
J. W. Hawkins
C. A. Kennedy
W. Krucke
R. O. Moebius
M. Q. Scowcroft

SOUTHERN ASBESTOS COMPANY

E. C. Dratt
D. E. Childers
J. W. Echerd
L. E. Moody

TBA INDUSTRIAL PRODUCTS LTD.

H. J. Corson

ASBESTOS TEXTILE INSTITUTE, INC.

W. D. Alcorn, Jr., Esq.,
ATI Legal Counsel,
Cadwalader, Wickersham & Taft

D. M. Fagan,
ATI Executive Secretary

Total attendance during the two-day 1976 Winter Meeting was 28 people: 26 members, 1 legal counsel, and 1 secretary -- representative of 10 member companies, plus ATI.

M I N U T E S

1. The 1976 Winter General Meeting of the Asbestos Textile Institute, Inc., was called to order by President A. Kuzmuk at 1:15 p.m., February 6, 1976, at the Sheraton National Motor Hotel, Arlington, Virginia.

MORE.....

2. President Kuzmuk welcomed all members to the meeting and asked each member to rise and give his name and company affiliation. The complete list of delegates appears on page 1 of these Minutes.

3. Upon a call for the reading of the Minutes of the last meeting, it was moved by S. G. Dixit, seconded by L. E. Moody, and unanimously approved, to dispense with the reading of same.

4. In the absence of Treasurer Scanlan, a report on the financial status of the Corporation was presented by President Kuzmuk. On September 1, 1975, the balance on hand was \$8,599.21. Added to this figure were total receipts of \$11,024.49, the most notable being \$9,750.00 from Members' dues and \$748.90 from sales of the Chrysotile Asbestos Test Manual, 3rd edition. Total expenditures were \$6,031.09, leaving a cash balance at the end of December of \$13,651.71. Taking into account known assets and liabilities, the total net worth of the Corporation at December 31, 1975, amounted to \$15,256.32. The entire Report of Funds, which will be filed for audit, is attached to these Minutes as Attachment I.

5. The Fiber Producers' Report was presented by P. E. Leclerc. Total shipments for 1975 of asbestos by member companies of the Quebec Asbestos Mining Association show a decline of 42.5% from 1974. For Group 3 grades, the decline was 59%. At year-end, inventories of Group 3 grades were 65% lower than a year ago. The 7-month strike at the Quebec asbestos mines is partially responsible for the decrease. The supply situation of the longer spinning grades is tight. Demand and supply of the regular spinning grades appear to be in balance. See Attachment II for the Fiber Producers' Report in its entirety.

6. Technical Committee Member J. W. Hawkins reported that his group met February 5 and 6 to review several ASTM Standards and a Military Specification. . . . Mr. Hawkins announced that the Technical Committee, which had 3 members about 5 years ago, has been reduced to 3 members. Additional members are needed in order to have an active, on-going group. The Committee is suggesting that representatives be sent from Johns-Manville Corporation and Garlock Inc. Others that can give technical assistance are requested to volunteer. . . . It was advised that the ATI Technical Committee and ASTM Sub-Committee D13.14 were one in the same with the exception of P. O. Nicodemus who serves as Chairman of D13.14 and as liaison between ASTM and ATI. Mr. Nicodemus is in ill health and is not in position to travel, but he has agreed to continue with these responsibilities for the time being. When the time comes that he becomes unable to be active, the ATI Technical Committee has decided that the Chairman of both the ASTM and the ATI Committees should be the same person -- rotating at two-year intervals. See Attachment III for the complete Technical Committee Report.

NOTE.....

7. In the absence of Chairman R. A. Kuntze, a report on the activities of the Fiber Research & Testing Subcommittee was given by D. E. Childers. A comparison test is underway on dust counting, using the membrane filter method. Test results thus far indicate the laboratories involved did not use the same counting procedure. Therefore, a second Round-Robin test will be run and it will be emphasized that all those participating should use the OSHA method of counting. See Attachment IV for the entire Fiber Research & Testing Subcommittee Report.

8. Chairman L. E. Moody advised that the special Environmental Task Group met on February 4-5 to carry out the project assigned to it by the ATI Board of Governors -- which was to define each piece of asbestos textile manufacturing equipment; to determine how an asbestos fiber becomes airborne at each location; to describe the current means to capture and control airborne asbestos fiber; and to report on the effectiveness of the present controls. Chairman Moody will shortly issue a report to the Secretary on the findings of the Task Group. The Report, in turn, will be submitted to the Board of Governors. Ultimately, the information will become a part of the ATI Position Paper which will serve as the Institute's comments to the U.S. Occupational Safety and Health Administration on the proposal to revise the "Asbestos Standard."

9. As reported by Chairman Moody, the Environmental Committee met on February 6 during which it received a presentation and demonstration by Mr. Robert S. Magdelain on Nilfish vacuum cleaning equipment. Secondly, a discussion was held on the events of the meeting held on February 4 by the Asbestos Information Association/North America re the Industry Response it is preparing to the proposed revision of the "Asbestos Standard." Lastly, the Committee reviewed several sections of the afore-mentioned Standard, specifically those relating to recordkeeping, facility requirements such as showers, regulated areas, and mechanical ventilation systems. See Attachment V for the entire Environmental Committee Report.

10. President Kuzmuk advised that the Secretary would soon be sending response forms to all member companies, requesting them to indicate their acceptance or non-acceptance of the new membership structure which becomes effective September 1, 1976, and which was fully defined in the Minutes of the 1975 Annual General Meeting of ATI, Inc., in paragraphs 11 and 12 on page 4. It was reiterated that the Institute is opening its membership to a greater number of companies so they may become Regular Members and serve on the Board of Governors. The purpose of the mailing piece is to enable the Board to determine who will become Regular Members at the start of the next fiscal year. President Kuzmuk requested all member companies to

MORE.....

respond promptly so all of the data will be available to the Board at its Meeting on June 3, 1976.

11. It was regrettably announced by President Kuzmuk that as a result of a corporate decision, Uniroyal, Inc., had resigned as a Member of the ATI. He stated the Board had accepted the resignation with a great deal of regret as the various representatives of Uniroyal had been a great asset to the Institute over the years, having performed effectively in its many activities, both administratively and at Committee level.

12. Because of Uniroyal's resignation from the Institute, vacancies were created in the Office of Vice-President and in the Chairmanship of the Technical Committee. President Kuzmuk announced that through the remainder of this fiscal year and until the 1976 Annual Meeting, Treasurer Scanlan will take on the additional duties of Vice-President of the Institute. W. Maashant will serve as Acting Chairman of the ATI Technical Committee.

13. President Kuzmuk informed the membership that the dates of the next General Meeting of ATI, Inc., remained at June 3-4, 1976, although the site had been changed to Stouffer's National Center Inn, Arlington, Virginia. The move was made in the interest of economy when it was learned that Twin Bridges Marriott in Arlington (the previously-scheduled site) had established new prices for meeting space that seemed exorbitant and an unnecessary expense.

14. It was reported by President Kuzmuk that the ATI Position Paper had been reviewed at this meeting. It is about ready for final draft form and should be completed and approved by the Board for submission to OSHA by the deadline which presently is April 9, 1976.

The ATI Position Paper will incorporate the outcome of discussions at the special meeting held by the Institute on November 13, 1975; data received and compiled following that meeting; and the findings of the Environmental Task Group (referred to in paragraph 8 of these Minutes). It will be concerned specifically with the position of the asbestos textile manufacturing industry in the U.S. In addition, ATI is coordinating with AIA/IA in its project toward preparing and submitting a total Asbestos Industry Response to OSHA.

15. There being no further business to be brought before the membership, it was moved by P. E. Leclerc and seconded by C. A. Kennedy that the meeting be adjourned. The motion was carried and the meeting adjourned at 2:00 p.m.

Respectfully submitted,

Doris M. Fagan
Doris M. Fagan,
Executive Secretary

ASBESTOS TEXTILE INSTITUTE, INC.
Report of Funds

Fiscal Year ending August 31, 1976
Period: September 1, 1975, thru December 31, 1976

BALANCE ON HAND - September 1, 1975:

Checking Account	\$ 700.48
Savings Account	20,936.45
Petty Cash Account	46.21
	<u>\$ 21,683.14</u>
Less Litigation Defense Fund	<u>- 13,083.93</u>

TOTAL ON HAND - September 1, 1975 \$ 8,599.21

RECEIPTS:

Booklet Sales	\$ 46.65
Test Manual Sales	748.90
Members' Dues	9,750.00
Interest on Savings	388.93
ATI Meeting Expense Reimbursement	112.00
Reimbursement from Litigation Defense Fund/Supplies	<u>38.01</u>

TOTAL RECEIPTS + 11,084.49
\$ 19,683.70

DISBURSEMENTS:

Legal Services & Expenses	\$ 1,154.01
Incorporation Expenses	356.35
Secretary's Gross Wages	871.00
Taxes on Wages Paid by ATI, Inc.	46.49
ATI Meeting Expense	2,016.65
Secretary's Travel Expense	267.79
Telephone	234.65
Printing/Office Supplies	391.26
Postage	139.50
Postage--Test Manual	80.04
Rental of Office Space	165.00
Accountant/Caruso/1974-75	300.00
Booklet Sale Refunds	<u>9.25</u>

TOTAL DISBURSEMENTS - 6,031.99

BALANCE ON HAND - December 31, 1975 \$ 13,651.71

BALANCE ON HAND - December 31, 1975:

Checking Account	\$ 1,583.08
Savings Account	12,068.30
Petty Cash Account	<u>.33</u>

TOTAL AVAILABLE FUNDS - December 31, 1975 \$ 13,651.71

ASSETS AS OF December 31, 1975:

Total Funds As Listed Above	\$ 13,651.71
Accounts Receivable -- Members' Dues	1,875.00
Charged Expenses	24.72
Furniture & Equipment/Nominal Value	<u>1.00</u>

TOTAL ASSETS \$ 15,552.43

LIABILITIES AS OF December 31, 1975:

Accrued Taxes	\$ 296.11
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TOTAL LIABILITIES - 296.11

TOTAL NET WORTH AS OF DECEMBER 31, 1975 \$ 15,256.32

Attachment I

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FIBER PRODUCERS' REPORT

Presented by Paul E. Leclerc, Sales Director, Asbestos Corporation Ltd., at the 1976 Winter General Meeting of the Asbestos Textile Institute, Inc., Sheraton National Motor Hotel, Arlington, Virginia -- February 6, 1976

Total shipments of the Quebec Asbestos Mining Association member companies for 1975 show a decline of 42.5% from 1974. For group 3, the decline was 69%. The seven-months' strike in the Thetford-Black Lake-East Broughton area is partially responsible for this drop.

At the end of 1975 the combined inventory of the QAMA members was the lowest ever; the stocks on hand of group 3 grades were 65% lower than they were the previous year; total stocks were 59% lower as well -- and I should add that 50% of the inventory was made up of group 7 grades.

The supply situation of the longer spinning grades such as 3F, Cassiar AAA and Cassiar AA is rather tight. The demand and supply of the regular spinning grades appear to be in balance at this time.

Grades in groups 4, 5 and 6 are very much in demand, and definitely in short supply. The demand for grades in group 7 continues to be good, particularly in the "open type" grades.

Attachment II

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TECHNICAL COMMITTEE REPORT

ASBESTOS TEXTILE INSTITUTE, INC.

February 5-6, 1976

Sheraton National Motor Hotel, Arlington, Virginia

IN ATTENDANCE: Ametex Corporation -- W. Maaskant, Acting Chairman
Raybestos-Manhattan, Inc. -- J. W. Hawkins
Southern Asbestos Company -- D. E. Childers;
J. W. Echerd

1. ASTM D-1113--Magnetic Rating -- Editorial changes approved by letter of ballot and will be incorporated in next annual issue.
2. ASTM D-315--Asbestos Tape, Woven and ASTM D-1571--Asbestos Cloth, Woven -- Proposed statement on precision and accuracy being sent out for review; upon return, comments will be analyzed and proposed statements will be submitted for letter of ballot.
3. ASTM D-1912-72--Asbestos Content -- This method is next on the agenda for revision. At this time, no editorial changes are suggested.
4. ASTM/ATI relationship was discussed and, in view of the retirement from General Electric of Mr. P. O. Nicodamus, Chairman of ASTM Sub-Committee D13.14 on Asbestos, it was decided to await the outcome of the June 1976 ATI meeting as to what steps to take in the future. Since Mr. Barnwell of Uniroyal, Inc., no longer is active due to the resignation of Uniroyal from ATI, Mr. W. Maaskant will act as Chairman of the ATI Committee until the June meeting. . . . It was unanimously agreed to request Mr. Nicodamus to stay on as Chairman of ASTM D13.14.
5. Specification MIL-I-15349c--Thermal Insulation Tape -- The contents of Table II were questioned. The nominal weight in the Table was recommended to be changed to minimum weight. Raybestos-Manhattan and Southern Asbestos will consult with each other and, if needed, will propose the change as follows:

3.6.3 - Change 55% to 70% and also, as stated above, the weight in Table II from nominal to minimum;

In the event Raybestos-Manhattan and Southern Asbestos decide that a change is definitely necessary, either Mr. Hawkins or Mr. Echerd will write to NAVSEC in Hyattsville, Maryland.

more.....

Attachment III/page 1 of 2

6. Technical Committee Membership -- Due to the low participation in this Committee, it was requested while the President of ATI, Mr. A. Kuzmuk, and the Secretary, Ms. D. M. Fagan, were present, to extend the Committee by adding at least one permanent member from Garlock Inc. and from Canadian Johns-Manville Co. Ltd. Mr. Kuzmuk promised to look into the matter concerning Garlock and Mr. J. P. Power will check with C.J-M. Ms. Fagan will follow through.
7. Specification HE-T-1702--Asbestos Tape -- This Specification is superseding the former Standard MIL-T-4117A. Members of the Committee found that Government Procurement Agencies are still making reference to the old Specification. Due to the uncertainty as to whether or not the Government will discontinue the use of asbestos products, it was suggested to not recommend changes in either Specification.
8. ASTM D-299--Yarn -- When next up for revision by ASTM Subcommittee D13.14, it should be determined what type of change is advisable to Section 10--Yarn Number. The weight of plied yarn calculation is not clear. Also, a plied yarn tolerance for weight should be added under paragraph 7.1.1.
9. The next meeting will be held June 3-4, 1976, at Stouffer's National Center Inn, Arlington, Virginia.

Respectfully submitted,
W. Macskant,
Acting Chairman

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FIBER RESEARCH & TESTING SUBCOMMITTEE REPORT

ASBESTOS TEXTILE INSTITUTE, INC.

February 5-6, 1976

Sheraton National Motor Hotel, Arlington, Virginia

IN ATTENDANCE: Asbestos Corporation Ltd. -- W. E. R. Callan
Dell Asbestos Mines Ltd. -- W. E. Smith
Southern Asbestos Company -- D. E. Childers

1. The Chairman, Dr. R. A. Kuntze, could not be present, thus he asked D. E. Childers to report on the activities of the group.
2. At the last meeting, it was decided to run a comparison test on dust counting using the Membrane Filter Method. The participants were instructed to use the same counting procedure. However, test results received from three laboratories indicated the same counting procedure was not used. In one instance, the fiber count between laboratories ranged from 5.3 to 2.5 fibers/cc, and in another instance the counts ranged from 16.7 to 4.8 fibers/cc.
3. It was decided to begin another Round-Robin test. In the test, it will be emphasized that everyone use the OSHA method (NIOSH, August 1972). Mr. Childers will prepare new samples for the new test. A copy of the OSHA procedure will be sent to all participants. Each laboratory should count the same slides and send them to the next person in the same order as listed below.* Please send all test results to Dr. R. A. Kuntze.

Respectfully submitted,

D. E. Childers,
Acting Chairman

* D. E. Childers
R. A. Kuntze
G. F. A. Drink
W. H. Smith
J. P. Wronski
C. E. Stiefken
D. Lincoln

Attachment IV

ENVIRONMENTAL COMMITTEE REPORT
ASBESTOS TEXTILE INSTITUTE, INC.

February 4-5, 1976

Sheraton National Motor Hotel, Arlington, Virginia

IN ATTENDANCE:

Anatex Corporation — W. Maasland; H. H. Walter
Atlas Textile Company — W. H. Johnston
Canadian Johns-Manville Co. Ltd. — H. M. Hay; J. P. Power
Garlock Inc. — S. G. Dixit; A. Kuzmak
Nippon Asbestos Co. Ltd. — Y. Sato; S. Shima
Raybestos-Manhattan, Inc. — J. W. Hawkins; C. A. Kennedy;
W. Krucke; R. O. Moebius; M. Q. Scowcroft
Southern Asbestos Company — J. W. Scherd; L. E. Moody

Wednesday, February 4, 1976 —

A short evening session was held to describe the project assigned to a Task Group of the Committee — "to define, by each piece of manufacturing equipment used in the processing of asbestos textiles, how asbestos fibers become airborne, how airborne fiber is captured or controlled to dust collection and how effectively presently controlled."

Attended by S. G. Dixit, D. M. Fagan, H. M. Hay, C. A. Kennedy, W. Krucke, A. Kuzmak, L. E. Moody, J. P. Power and H. H. Walter.

Thursday, February 5, 1976 —

The Task Group met from 8:30 a.m. through 2:00 p.m. A discussion of machinery used and means of airborne asbestos fiber capture and control utilized the entire period. A separate report will be submitted.

Friday, February 5, 1976 —

A meeting of the full Environmental Committee was held. The following items made up the meeting agenda.

- a) Presentation and demonstration of Hilfisk vacuum cleaning equipment was given by R. S. Magdalaia of Hilfisk of America, Inc. The program included new, more-efficient air-filtering means, and ways of attaining larger quantities or volume per dump cycle.

MORE.....

Attachment V/page 1 of 2

b) Discussion of the ATE/NI meeting held on February 4 concerning the proposed "Asbestos Standard."

c) Brief review of parts of the proposed Standard (other than the 0.5-fiber portion) such as recordkeeping, sanitary facilities requirements, regulated areas and mechanical ventilation systems.

Respectfully submitted,

L. E. Ibody, Chairman

June 3, 1976

U
Copy to Richard
Glosser

cc: ^{due} ALL ASBESTOS ATTORNEYS

AMONG THE DOCUMENTS
PRODUCED BY H.K. Parker
in Charlotte were many
concerning legal advice
These had previously
been
edited by ATI.

ASBESTOS TEXTILE INSTITUTE

AD HOC COMMITTEE MEETING

JUNE 3, 1976

The enclosed is
an interesting
discussion of
the Asbestos
litigation in
1976.

Ton
10-14-82

DEIG TO
H.K. Parker
file.



ASBESTOS TEXTILE INSTITUTE

AD HOC COMMITTEE MEETING

June 3, 1976

Stouffer's National Center Inn, Arlington, Virginia

Chairman: D. H. Markusson, Esq., Johns-Manville Corporation

Vice Chairman: E. C. Bratt, Southern Asbestos Company

IN ATTENDANCE: Aratex Corporation -- M. J. Scanlan
Asarco Inc. -- R. J. Muth, Esq.
Garlock Inc. -- A. Kuzmuk
Nippon Asbestos Co. Ltd. -- S. Shima
Raybestos-Manhattan, Inc. -- C. D. Colson;
P. G. Dolan, W. A. Guenther, Esq.;
C. A. Kennedy; M. Q. Scowcroft
Southern Asbestos Company -- E. C. Bratt
TBA Industrial Products Ltd. -- H. J. Corson
W. B. Alcorn, Jr., Esq., ATI Trial Counsel,
-- Cadwalader, Wickersham & Taft
D. H. Markusson, Esq. -- Johns-Manville Corporation
D. M. Fagan, ATI Executive Secretary

M I N U T E S

1. TYLER LITIGATION: No remarkable change in the Tyler Litigation is anticipated during the next 3-5 months and very little has happened with the case. ATI's posture remains unchanged. Basically the situation can be summed up by saying that the court is remaining open for additional plaintiffs to join the lawsuit. Plaintiffs are still coming in and are being given a reasonable time for discovery. The court will not address the jurisdictional issues, including ATI's motion to dismiss, until all discovery is completed. As far as our request for a voluntary dismissal is concerned, plaintiffs' counsel will not decide until discovery is completed.

2. SHOUP LITIGATION: A complaint was filed in March in Detroit, Michigan, by William Carl Shoup against Johns-Manville Products Corporation, et al., including The Asbestos Textile Institute, a Pennsylvania corporation.

more.....

a) Of special interest is that this is the first time ATI has been made a party in a litigation involving an insulation worker, as opposed to factory workers as is the case in the Tyler Litigation. The Shoup action represents the first attempt to draw ATI, as a trade association, rather than a product manufacturer into user-type litigation. Mr. Alcorn was quite correct in filing a motion to dismiss -- and before the motion was heard he was able to successfully negotiate a voluntary dismissal. The voluntary dismissal is "without prejudice," which means that at any time until the Statute of Limitations runs out, ATI can be rejoined as a party defendant. However, the likelihood of that happening is remote. The plaintiff has a number of good, solid, viable defendants who did supply insulation products and there is no question Mr. Shoup was exposed to those products. There is very little involvement that would warrant the rejoinder of ATI or of any of the trade associations.

b) Of interest are the allegations as to trade associations in a "user" case. The plaintiff acknowledges that:

The organizations are trade associations:

Each is engaged in research and development and in the collection, promulgation and dissemination of information to its members, to users of its products and to the public-at-large and ultimate consumers;

The defendants are involved in the trade associations that, collectively, had knowledge for many years as to the hazards of the inhalation of asbestos dust and there was a suppression or misrepresentation of that knowledge.

The above is alternatively pleaded that either the trade associations engaged in a suppression of the knowledge of the hazard or they misrepresented the nature of the hazard. The other allegation is that they did suppress or misrepresent the knowledge but they did so in the form of a civil conspiracy with the other defendants. The civil conspiracy aspect is not too alarming because it is a difficult thing to prove. However, a charge of suppression or misrepresentation of knowledge is one of which trade associations must be cognizant and on guard. The reasoning behind this statement is that since the companies are the source of the information for the trade associations, the associations become operational arms of the companies. This might be construed that the members of the associations are liable in that they were negligent in not doing enough investigation and in not pursuing the leads indicated by medical literature.

MORE.....

As a practical matter, however, the likelihood of that happening in the Sheup case is somewhat remote. It is difficult for the plaintiff to prove and there is little pragmatic reason for him to attempt to do so. He already has plenty of defendants; why worry about the trade associations.

c) It is becoming increasingly clear how people are thinking in "user-type" cases -- and that is a collective organization of defendants suppressing or misrepresenting information and the duly-elected representatives in the trade associations being negligent in their duties of pursuing the information and of investigating it -- and that leads to such questions as: After a certain committee is formed and active, what did it do with the information it gathered? Why did it take or not take a particular course of action? It seems evident there will be more attempts to join trade associations with "user-type" litigations.

2. A PRODUCT EXPOSURE LITIGATION: A case that went to trial in Louisville, Kentucky, is of interest in that it is the type of litigation that could more directly involve, if not a trade association such as ATI, at least its member companies. It is quite unlike the usual insulation case because it involves the use of a finished product that someone other than the original manufacturer (in this case, Johns-Manville) had further fabricated or processed. The plaintiff had worked in a factory for some years, was exposed to the product, contracted mesothelioma and, subsequently, died.

a) The case was tried by a jury. Counsel for the defendants proceeded with a state-of-the-art defense to indicate what knowledge was held by the companies at what point in time. The defendant lost the case but the verdict was very "small" -- \$10,000 for a 51-year-old man for lost wages during time of illness and for pain and suffering and medical expenses; and \$80,000 to the widow for what should have been the remainder of the plaintiff's lifetime. Workmen's Compensation totaled about \$22,000. The outcome reflects a minimal liability on the part of the primary manufacturer.

b) In analyzing the case, two points become clear. It is extremely difficult to sell jurors on a state-of-the-art defense since they are not familiar with the situation nor with the literature. The problem is translating to the year 1976 that working with asbestos was a hazard in factories in the United Kingdom in the 1920's. All the literature tends to be effectively lumped together by the plaintiffs and there is little

END.....

segregation of points in time when the data became meaningful in the insulation trade -- when there began to be an awareness of bronchogenic cancer or mesothelioma.

c) A surprising fact was the sophisticated reasoning of the jury. They seemed to ask was it really reasonable to expect companies in the past to be concerned with the health hazard -- nobody was!

d) Another interesting reaction on the part of the jurors was that, although they were aware of workman's compensation, they did feel strongly that the employer should be held liable. They did not feel the employer should be totally absolved, but there was no way to hold him liable because of the structure of the complaint. They felt there was something inherently unfair about an employee spending his entire working life in a factory, becoming ill and dying as a result of conditions at the factory -- and then a third party who did nothing but supply raw materials was charged with the whole burden, especially when the case boiled down to whether or not the manufacturer knew of a hazard and labeled his products accordingly. The jury was fairly well convinced that proper labeling would have had little consequence.

Sophisticated
Employer

e) Factually the case shaped up rather well. Unfortunately, the jury had difficulty working with the instructions given it by the court. The instructions did not deal with labeling but with whether or not there was knowledge and if so there was an accompanying duty -- and there was failure to satisfy the duty.

f) The decision is being appealed on the grounds that the manufacturer defendant was successful in getting the court to submit an interrogatory to the jury which asked: Do you find from the evidence that the defendant gave adequate warning to the defendant's employer? The jury's answer was "yes." To clarify, there is a series of cases under Kentucky law, primarily in the mining industry involving dynamite, that says: Warning to the employer is warning to the employee. This is not the rule in all jurisdictions but there is a growing body of law leaning this way. If this is so in the Kentucky courts, it will set up, based on the evidence that there was an intervening cause by another party, to wit, the employer. This would absolve the manufacturer from liability.

g) The results of the case have a bright side. The asbestos industry has a story to tell. It is a story that, when told,

more.....

doesn't come out sounding half bad. It is doubtful that anyone, absent a runaway jury, will be able to show willful or wanton misconduct on the part of the asbestos industry. When the information was put together and presented to the jury, no one on the jury said the asbestos industry had gone out of its way to hurt people. On the contrary, they felt there had been a responsible effort by the industry. Unfortunately, much of what was decided was based on wrong information. The asbestos industry can prepare a responsible, honest defense, one that should not lead to horrendous financial repercussions.

4. A CLASS ACTION CASE: Also of interest is the class action case in New Jersey involving Raybestos-Manhattan, Inc., and its former employees at Pascatauck. A motion is pending to have the case certified as a class action and briefs have been filed in opposition. It is expected the class action will be denied and the case will proceed as a multiple plaintiff litigation. Informal meetings with the court indicate the defendant Canadian companies will be held in the case. Discovery is continuing and depositions of some of the plaintiffs have been taken. The injuries thus far appear to be minimal and the case seems to be diminishing in proportion.
5. COMPANY DOCTORS: In the news recently have been reports of several cases in California involving company doctors. They involve Johns-Manville plant contract physicians, i.e., private practitioners in the local community who have contracts with the company to provide limited time for pre-employment physicals, annual check-ups and minor medical problems. The situation arose from a case about two years ago where an employee sued the company doctor on a straight malpractice complaint for failure on the part of the doctor to disclose to the patient the nature of his pulmonary illness. The jury imposed about \$385,000 on the doctor and the case was closed. Subsequently, six other employees have filed similar cases against the doctor who, in turn, has impleaded Johns-Manville on the grounds it was not his responsibility to disclose the information to the employee.

a) There is another group of cases in California involving large punitive damage claims, where the employees have brought actions directly against Johns-Manville and the doctor -- J-M on the theory of gross, willful and wanton negligence; the doctor on the theory of malpractice. The effort is to try to get the cases out of the purview of workmen's compensation; the general rule being that workmen's compensation is a complete bar on negligence but is not a complete bar if it is a willful action on the part of the employer.

more.....

b) There has been a great deal of union involvement in the cases and more of these types of occupational disease lawsuits are anticipated -- at least 20 or 30 in California alone. It would behoove employers to review with house counsel and the doctor exactly what are the ground rules in getting medical data from the doctor's office either to the employee or to his family physician. What makes the situation awkward is the peculiarities of a doctor-patient relationship. One way or another, the problems all filter through to the doctor. CSEA and several representatives are well aware of the problems and realize if the situation continues it will become increasingly difficult to find good physicians willing to enter the field of occupational medicine. It is indeed a serious problem. Already industry is finding physicians reluctant to become company doctors and if a company is successful in securing one, the doctor wants full insurance coverage from the first dollar. To make it even more difficult, first dollar coverage is not available in the marketplace; it cannot be bought.

5. FINANCIAL REPORT: As of April 30, 1976, the cash balance on hand in the Litigation Defense Fund totaled \$8,757.91. From that total, the following bills will be paid by the end of June 1976:

Tyler -- Hathaway; 10/15/75 thru 4/30/76	= \$1,599.00
Tyler -- Cadwalader; First Quarter 1976	= 570.23
Sheup -- Kerr, Whittles and Russell	= 1,649.09
Sheup -- Cadwalader, Wickersham & Taft	= 927.59
	<u>\$4,745.95</u>

Based on the above known disbursements, the expected cash balance at June 30, 1976, will be \$4,011.95, deemed by the Committee to be sufficient through the end of this Fiscal Year. The Financial Report as of April 30, 1976, is attached to these Minutes as Attachment I.

7. FUTURE MEETINGS: It was agreed that although a low profile is being maintained in the Tyler Litigation, it would be helpful to all Committee members to continue to meet at least twice a year. Doing so would enable all members to keep abreast of other litigations that are concerned with asbestos. It was decided that when there are sufficient data of interest to ATI member companies, the Chairman of the Ad Hoc Committee will call a meeting.

8. AIA/NA LEGAL ADVISORY COMMITTEE: The Board of Directors of the Asbestos Information Association/North America has approved the

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establishment of a Legal Advisory Committee that will employ counsel to address the broad spectrum of the various types of current asbestos litigation. This will place AIA/IA in position to furnish valuable data to its member companies and their managements and to serve as an "information" liaison with local counsel in an effort to provide some legal assistance. The Legal Advisory Committee will offer some degree of collaboration in the pulling together of medical information and of analyses of pertinent legal precedents in the field of product liability.

a) The Committee will be chaired by G. G. Gabrielson, Jr., Chairman of Nicoret, Inc. Committee members will include P. H. Marzess, Executive Director of AIA/IA; D. A. Robinson, Esq., of Jones-Manville Corporation; W. A. Searles, Esq., Secretary of Raybestos-Manhattan, Inc.; Kurt Pontz, Esq., of Carlinsted Corporation; G. Wilson, Esq., of Jim Walter Corporation; and a representative of the small member companies.

b) Part of the scope of the Committee's initial discussions will be the area of cooperation, primarily agreement amongst insurance carriers as to who will handle a given segment of a product liability lawsuit.

c) Via a comment from the floor, the hope was expressed that the Committee could help toward forming a positive approach that would assist in avoiding the kind of devisive battling that is going on in the machine tool industry -- where machine tool manufacturers are being pitted against their customers. Perhaps the problem could be resolved by making workmen's compensation the principal avenue of recourse and having seller and user cooperate in limiting common law liability of all kinds outside workmen's compensation.

d) There is activity afoot as to suggesting some alternative remedies for third party lawsuits -- a legislative solution. If that germinates, it is something to which the AIA/IA Committee could address itself. It is a matter that cannot be resolved in the courts but must be settled in Congress.

9. **ADJOURNMENT:** There being no further items to be discussed by the ATI Ad Hoc Committee, the meeting was adjourned at 3:15 p.m.

Respectfully submitted,

Doris M. Zagan

Doris M. Zagan,
Executive Secretary

ASBESTOS TEXTILE INSTITUTE
LITIGATION DEFENSE FUND

ESTABLISHED: APRIL 1, 1974

PERIOD: JANUARY 1, 1976, THRU APRIL 30, 1976 -- FISCAL YEAR 1975-76

BALANCE ON HAND - January 1, 1976 \$ 9,364.96

RECEIPTS:

2/13/76 - Bank Service Charge/Waived . . . \$.96

3/25/76 - Bank Service Charge/Waived46

3/31/76 - Interest on Savings 116.02

TOTAL RECEIPTS + 117.44
\$ 9,482.40

DISBURSEMENTS:

1/30/76 - Bank Service Charge \$.96

2/23/76 - Cadwalader, Wickersham & Taft
-- 4th Quarter 1975 646.56

2/ 2/76 - Bank Service Charge46

4/ 6/76 - C. P. Stober/Sundry Services re
DMF Affidavit in Shoup Case . . . 15.18

4/30/76 - Office Expenses - 12/75-4/76 . . 61.33

TOTAL DISBURSEMENTS - \$ 724.49

BALANCE ON HAND - APRIL 30, 1976 \$ 8,757.91*

*Checking Account: \$ 300.47

Savings Account: +8,457.44

\$8,757.91*

Signed: M. J. Seanlan
M. J. Seanlan, ATI Treasurer

Prepared as of 4/30/76 by D. M. Fagan, Assistant Treasurer.
Subject to Audit.

Doris M. Fagan

Minutes
GENERAL MEETING
Asbestos Textile Institute

JAN 1976

ASBESTOS TEXTILE INSTITUTE

1976 SPRING MEETING

June 4, 1976

Stouffer's National Center Inn, Arlington, Virginia

LIST OF DELEGATES

AMATEX CORPORATION

W. Maaskant
J. L. Rainey
H. J. Scanlan
H. H. Walter

GARLOCK INC.

G. G. Dixit
A. Ruzmuk
R. D. Pilmer (Garlock
of Canada Ltd.)

AMYBESTOS-MANHATTAN, INC.

C. D. Colson
P. G. Dolan
J. W. Hawkins
C. A. Kennedy
E. Krucke
R. C. Meebius
H. Q. Scovcroft

SOUTHERN ASBESTOS COMPANY

B. C. Pratt
D. B. Childers
J. L. Scherd

ASBESTOS TEXTILE, S.A.

D. A. Carois

ALL ASBESTOS FIBERS LTD.

A. Smith

CANADIAN JONES-MANVILLE CO. LTD.

H. M. Hay
D. H. Markusson, Esq. (J.M.)
A. R. Morrill

CASSIAN ASBESTOS CORPORATION LTD.

R. A. Kuntze (CAF)

LAKE ASBESTOS OF QUEBEC LTD.

E. A. Farrell
R. J. Ruth, Esq. (Lacaze)
C. E. Stieffon (Asarco)

NIPPON ASBESTOS CO. LTD.

S. Shima

TEA INDUSTRIAL PRODUCTS LTD.

H. J. Corcoran

ASBESTOS INFORMATION ASSOCIATION/NA

R. M. Mereness, Exec. Director

ASBESTOS TEXTILE INSTITUTE

H. D. Alcorn, Jr., Esq.,
ATI Legal Counsel
(Cadwalader, Wickersham & Taft)

D. H. Fagan, ATI Exec. Secretary

Total attendance during the two-day 1976 Spring Meeting was 31 people: 23 members, 1 guest, 1 legal counsel and 1 secretary; representative of 11 member companies, AIA/NA and ATI.

NOTE

M I N U T E S

1. CALL TO ORDER: The 1976 Spring General Meeting of the Asbestos Textile Institute was called to order by President Kuzmuk at 1:00 p.m., June 4, 1976, at Stouffer's National Center Inn, Arlington, Virginia.

2. READING OF MINUTES: Upon the calling for a reading of the Minutes of the last stated meeting, it was moved by Mr. Dixit, seconded by Mr. Stieffen, and unanimously approved, to dispense with the reading thereof.

3. FINANCIAL REPORT: Treasurer Scanlan presented the Financial Report on the Litigation Defense Fund as of April 30, 1976. The balance on hand at January 1, 1976 was \$9,364.96, receipts for the four months to April 30, 1976, totaled \$117.44 and disbursements amounted to \$724.49 -- leaving a cash balance at April 30, 1976, of \$8,757.91. Additional expenses of \$4,745.96 to be paid in June indicate an anticipated cash balance at the end of June 1976 of \$4,011.95. It was noted the funds available are expected to be sufficient to cover known expenses to the end of this Fiscal Year. The entire Report as of April 30, 1976, which is subject to audit, is appended hereto as Attachment I.

4. TYLER LITIGATION: Mr. Markusson announced that insofar as ATI was concerned, nothing had happened in the Tyler Litigation except the continuing intervention of additional plaintiffs. No action is expected on ATI's motions until after all discovery is in.

5. NEXT MEETING: President Kuzmuk advised the membership that the 1976 Annual Meeting of the Institute will be held October 6-8, 1976, at Savannah Inn and Country Club, Savannah, Georgia.

6. ADJOURNMENT: There being no further business to be brought before the general membership, a motion to adjourn was made by Mr. Farrell, seconded by Mr. Dixit, and so carried. The meeting was adjourned at 1:15 p.m.

Respectfully submitted,

Doris M. Fagan
Doris M. Fagan,
Executive Secretary

LITIGATION DEFENSE FUND

ESTABLISHED: APRIL 1, 1974

PERIOD: JANUARY 1, 1975, THRU APRIL 30, 1976 -- FISCAL YEAR 1975-76

BALANCE ON HAND - January 1, 1975 \$ 2,364.96

RECEIPTS:

2/13/76 - Bank Service Charge/Waived . . . \$.35

3/23/76 - Bank Service Charge/Waived46

3/31/76 - Interest on Savings 116.02

TOTAL RECEIPTS + 117.44

\$ 2,482.40

DISBURSEMENTS:

1/30/76 - Bank Service Charge \$.95

2/23/76 - Cadwalader, Wickersham & Taft
-- 4th Quarter 1975 646.56

2/ 2/76 - Bank Service Charge46

4/ 6/76 - C. P. Stober/Sundry Services re
DIF Affidavit in Shoup Case . . . 15.18

4/30/76 - Office Expenses - 12/75-4/76 . . 61.33

TOTAL DISBURSEMENTS - 724.49

BALANCE ON HAND - APRIL 30, 1976 \$ 2,757.91*

*Checking Account: \$ 300.47
Savings Account: +3,457.44
\$3,757.91*

Signed: _____
M. J. Scanlan, ATI Treasurer

Prepared as of 4/30/76 by D. M. Fagan, Assistant Treasurer.
Subject to Audit

Attachment I

Minutes
GENERAL MEETING
Asbestos Textile Institute

1946

ASBESTOS TEXTILE INSTITUTE

1976 SPRING MEETING

June 4, 1976

Stouffer's National Center Inn, Arlington, Virginia

LIST OF DELEGATES

AMATEX CORPORATION

W. Maaskant
J. L. Rainey
M. J. Scanlan
H. H. Walter

BARLOCK INC.

C. G. Dixit
A. Imzouk
R. D. Pilmer (Barlock
of Canada Ltd.)

AMBESTOS-MANHATTAN, INC.

C. D. Colson
P. G. Dolan
J. J. Hawkins
C. A. Kennedy
L. Krucke
R. C. Meebius
H. Q. Scovcroft

SOUTHERN ASBESTOS COMPANY

B. G. Pratt
D. E. Childers
J. L. Tcherd

AMBESTOS TEXTILE, S.A.

D. A. Barois

ALL ASBESTOS LINES, LTD.

A. Smith

CANADIAN JONES-MAITLAND CO. LTD.

H. M. Hay
D. H. Markusson, Esq. (J.M.)
A. R. Morrill

CASSIAN ASBESTOS CORPORATION LTD.

R. A. Muntze (CCE)

LAKE ASBESTOS OF QUEBEC LTD.

E. A. Farrell
R. J. Ruth, Esq. (Asarco)
C. E. Stiefman (Asarco)

NIPPON ASBESTOS CO. LTD.

S. Shima

TEA INDUSTRIAL PRODUCTS LTD.

H. J. Coreen

ASBESTOS INFORMATION ASSOCIATION/NA

R. H. Mereness, Exec. Director

ASBESTOS TEXTILE INSTITUTE

H. B. Alcorn, Jr., Esq.,
ATI Legal Counsel
(Chadvalader, Wickersham & Haft)

D. H. Fagan, ATI Exec. Secretary

Total attendance during the two-day 1976 Spring Meeting was 31 people: 28 members, 1 guest, 1 legal counsel and 1 secretary; representative of 11 member companies, AIA/NA and ATI.

NOTE

M I N U T E S

1. CALL TO ORDER: The 1976 Spring General Meeting of the Asbestos Textile Institute was called to order by President Kuzmuk at 1:00 p.m., June 4, 1976, at Stouffer's National Center Inn, Arlington, Virginia.

2. READING OF MINUTES: Upon the calling for a reading of the Minutes of the last stated meeting, it was moved by Mr. Dixit, seconded by Mr. Stieffen, and unanimously approved, to dispense with the reading thereof.

3. FINANCIAL REPORT: Treasurer Scanlan presented the Financial Report on the Litigation Defense Fund as of April 30, 1976. The balance on hand at January 1, 1976 was \$9,364.96, receipts for the four months to April 30, 1976, totaled \$117.44 and disbursements amounted to \$724.43 -- leaving a cash balance at April 30, 1976, of \$8,757.97. Additional expenses of \$4,745.36 to be paid in June indicate an anticipated cash balance at the end of June 1976 of \$4,011.96. It was noted the funds available are expected to be sufficient to cover known expenses to the end of this Fiscal Year. The entire Report as of April 30, 1976, which is subject to audit, is appended hereto as Attachment I.

4. TYLER LITIGATION: Mr. Eriksson announced that insofar as ATI was concerned, nothing had happened in the Tyler Litigation except the continuing intervention of additional plaintiffs. No action is expected on ATI's motions until after all discovery is in.

5. NEXT MEETING: President Kuzmuk advised the membership that the 1976 Annual Meeting of the Institute will be held October 6-8, 1976, at Savannah Inn and Country Club, Savannah, Georgia.

6. ADJOURNMENT: There being no further business to be brought before the general membership, a motion to adjourn was made by Mr. Farrell, seconded by Mr. Dixit, and so carried. The meeting was adjourned at 1:15 p.m.

Respectfully submitted,

Doris M. Fagan
Doris M. Fagan,
Executive Secretary

LITIGATION DEFENSE FUND

ESTABLISHED: APRIL 1, 1974

PERIOD: JANUARY 1, 1975, THRU APRIL 30, 1975 -- FISCAL YEAR 1975-76

BALANCE ON HAND - January 1, 1975 \$ 2,364.96

RECEIPTS:

2/13/75 - Bank Service Charge/Waived . . . \$.35

3/25/75 - Bank Service Charge/Waived46

3/31/75 - Interest on Savings 116.02

TOTAL RECEIPTS + 117.14

\$ 2,482.40

DISBURSEMENTS:

1/30/75 - Bank Service Charge \$.95

2/23/75 - Cadwalader, Wickersham & Taft
-- 4th Quarter 1975 646.56

2/ 2/75 - Bank Service Charge46

4/ 5/75 - C. P. Stober/Sundry Services re
DIF Affidavit in Shoup Case . . . 15.18

4/30/75 - Office Expenses - 12/75-4/76 . . . 61.33

TOTAL DISBURSEMENTS - 724.49

BALANCE ON HAND - APRIL 30, 1975 \$ 2,757.91*

*Checking Account: \$ 300.47

Savings Account: +8,457.44

\$8,757.91*

Signed: _____
M. J. Scanlan, ATI Treasurer

Prepared as of 4/30/75 by D. M. Fagan, Assistant Treasurer.
Subject to Audit

Attachment I

Minutes
GENERAL MEETING
Asbestos Textile Institute

1972-1973

ASBESTOS TEXTILE INSTITUTE

1976 ANNUAL MEETING

October 8, 1976

Savannah Inn and Country Club, Savannah, Georgia

LIST OF DELEGATES

AMATEX CORPORATION

W. Maaskant
M. J. Scanlan
J. L. Rainey
H. H. Walter

GARLOCK INC.

P. S. Hanks, Esq.
A. Kuzmuk
R. B. Pilmer (Garlock
of Canada Ltd.)

RAYBESTOS-MANHATTAN, INC.

M. N. Brooks
P. G. Dolan
G. Ferrucci
R. M. Gordon
J. J. Hawkins
C. A. Kennedy
H. Krucke
R. O. Moebius
M. Q. Scowcroft
J. P. Wronski

SOUTHERN ASBESTOS COMPANY

E. C. Bratt
D. E. Childers
J. W. Echerd

ASBESTOS CORPORATION LTD.

G. F. A. Brink
H. Devriese
P. E. Leclerc

BELL ASBESTOS MINES LTD.

W. H. Smith

CANADIAN JOHNS-MANVILLE CO. LTD.

H. M. Hay
A. R. Morrill

CASSIAR ASBESTOS CORPORATION LTD.

N. Gritzuk
R. A. Kuntze (ORF)
P. Steen

LAKE ASBESTOS OF QUEBEC LTD.

E. A. Farrell
C. E. Stiefken (ASARCO)

NIPPON ASBESTOS CO. LTD.

K. Mori
S. Shima

TEA INDUSTRIAL PRODUCTS LTD.

H. J. Corson

FRL/AN ALBANY INTERNATIONAL CO.

S. Golub

ASBESTOS TEXTILE INSTITUTE

J. D. Officer, Esq.,
Legal Counsel
Cadwalader, Wickersham & Taft

D. M. Fagan, Executive Secretary

Total attendance during the three-day 1976 Annual Meeting was 57 people: 34 members, 20 spouses, 1 guest, 1 legal counsel and 1 secretary; representative of 11 member companies, FRL and ATI,

more.....

MINUTES

1. CALL TO ORDER: The 1976 Annual General Meeting of the Asbestos Textile Institute was called to order by President Kuzmuk at 9:00 a.m., October 8, 1976, at the Savannah Inn and Country Club, Savannah, Georgia.
2. READING OF MINUTES: Upon the calling for a reading of the Minutes of the last stated meeting, it was moved by Mr. Scanlan, seconded by Mr. Bratt, and unanimously approved, to dispense with the reading thereof.
3. FINANCIAL REPORT: Treasurer Scanlan presented the Financial Report of the Litigation Defense Fund as of August 31, 1976. After receipts, expenditures and liabilities, the actual net worth of the Fund at the end of the Fiscal Year was \$3,735.80. The financial records were audited by Dreslin and Company, Certified Public Accountants, and were found to be in order. The Treasurer's Report is appended hereto as Attachment I.
4. SPECIAL ASSESSMENT #3: President Kuzmuk advised the members that the Ad Hoc Committee had recommended to the Board of Governors that a third Special Assessment was in order for the Litigation Defense Fund to cover anticipated near-future costs of the Tyler Litigation. After due consideration, however, the Board decided there should be sufficient money in the Fund for the time being and that the matter would be reviewed again at the next meeting in February 1977.
5. COMPANY LIABILITY: President Kuzmuk reported that Cadwalader, Wickersham & Taft will prepare a memorandum dealing with the extent of liability of member companies in the Tyler Litigation or in any future lawsuits in which ATI is named as a defendant.
6. TYLER LITIGATION: Attorney Officer reported that nothing much has happened in the Tyler Litigation insofar as ATI is concerned. The judge still has not ruled on ATI's motion for dismissal issued about two years ago and Cadwalader, Wickersham & Taft is about to make another attempt to have the Institute dismissed from the lawsuits.
7. MULTIDISTRICT LITIGATION: Upon noting a large number of pending lawsuits involving claims of personal injuries resulting from exposure to asbestos, the Judicial Panel on Multidistrict Litigation issued a show-cause order listing 40-50 cases (including the Tyler Litigation) and calling for a response by September 1, 1976, as to why the cases should not be consolidated for pretrial proceedings. The responses were overwhelmingly opposed to consolidation of the cases. The Panel decided to take no action at the time and the

more.....

scheduled hearing was suspended until further notice. It is quite possible, however, that a similar attempt toward consolidation will be made again in the near future.

8. ADJOURNMENT: There being no further business to be brought before the general membership, a motion to adjourn at 9:15 a.m. was made by Mr. Leclerc, seconded by Mr. Stiefken, and so carried.

Respectfully submitted,

Doris M. Fagan

Doris M. Fagan,
Executive Secretary

Attachment I: Litigation Defense Fund as of 8/31/76

ASBESTOS TEXTILE INSTITUTE
LITIGATION DEFENSE FUND

FISCAL YEAR 1975-76

ESTABLISHED: APRIL 1, 1974

REPORT OF FUNDS FOR PERIOD MAY 1, 1976 THRU AUGUST 31, 1976

BALANCE ON HAND - MAY 1, 1976 \$ 8,757.91

RECEIPTS:

6/30/76 - Interest on Savings \$ 90.67
8/31/76 - Interest on Savings 33.70

TOTAL RECEIPTS + 124.37
\$ 8,882.28

DISBURSEMENTS:

6/11/76 - To ATI Inc for Cadwalader,
Wickersham & Taft -
Shoup Litigation. 927.59

6/11/76 - To ATI Inc for Kerr, Wattles
& P. S. M. - Shoup Litigation 1,649.09

6/28/76 - Cadwalader, Wickersham & Taft
- Tyler Litigation - 1st Qtr 76 570.28

6/28/76 - Hathaway & Jackson - Tyler
Litigation - 10/15/75-4/30/76 1,599.00

8/31/76 - Cadwalader, Wickersham & Taft -
Tyler Litigation - 2nd Qtr 76 293.06

TOTAL DISBURSEMENTS \$ 5,039.02

CASH BALANCE ON HAND - AUGUST 31, 1976 \$ 3,843.26*

Accounts Payable - To ATI Inc for Office
Expenses 5/1-8/31/76 . - 107.46

ACTUAL NET WORTH - AUGUST 31, 1976 \$ 3,735.80

*Checking Account: \$ 89.04
Savings Account: +3,734.22
\$3,823.26

Attachment I

FIBER PRODUCERS' REPORT
First Ten Months 1974

Presented by E. A. Farrell, Sales Manager, Lake Asbestos of Quebec, Ltd., at the Winter Meeting of the Asbestos Textile Institute, held at Holiday Inn-Independence Mall, Philadelphia, Pennsylvania — February 7, 1975.

The Canadian Asbestos Industry has suddenly become burdened with great difficulties.

The first disaster was the fire in December that destroyed the Asbestos Corporation King Beaver Mill. This will result in a loss of 150,000 short tons of fiber in 1975, including a large tonnage of spinning fiber.

This was followed in January by a serious slide at the Johns-Manville Jeffrey pit at Asbestos, Quebec. It appears that it will have some effect on the supply of their fiber since it will take six months to a year to clear up the matter. I understand that two large shovels were covered in the slide.

Also, Cassiar Asbestos Corporation is having pit problems.

We then have over-hanging these industry problems a possible labor strike at all of the Quebec mines. Negotiations are currently in a critical stage and the industry requests your cooperation and understanding during this difficult period.

As a result of the afore-mentioned problems, Group 3 fiber is in short supply and Groups 4, 5 and 6 continue in short supply. Group 7 is available.

Canadian spinning fiber exports from January through October 1974 were as follows:

<u>Country of Destination</u>	<u>Metric Tons</u>	<u>Country of Destination</u>	<u>Metric Tons</u>
United Kingdom	4,356	Israel	129
Austria	11	Turkey	220
Belgium-Luxembourg	202	India	213
France	861	Pakistan	330
Germany, West	1,879	Japan	3,877
Italy	836	Korea, South	138
Netherlands	626	Australia	75
Portugal	60	Argentina	256
Spain	989	Brazil	283
Sweden	21	Colombia	50
Czechoslovakia	74	Mexico	2,363
Hungary	120	<u>United States</u>	<u>10,132</u>
Yugoslavia	510	<u>TOTAL</u>	<u>28,611</u>
			<u>Metric Tons</u>

MINUTES

TECHNICAL COMMITTEE

Asbestos Textile Institute
Holiday Inn-Independence Mall, Philadelphia, Pennsylvania
February 6 & 7, 1975

IN ATTENDANCE:

Amatex Corporation -- W. Maaskant
American Smelting and Refining Company -- J. Gifford
Bell Asbestos Mines Ltd. -- W. H. Smith
Cassiar Asbestos Corporation Ltd. -- R. A. Kuntze
Garlock Inc. -- S. G. Dixit
Raybestos Manhattan Industrial Products Company -- J. W. Hawkins
Southern Asbestos Company -- D. E. Childers; J. W. Echerd

American Society for Testing and Materials -- Ms. N. McGrath;
Ms. P. Shenker

General Electric Company -- P. O. Nicodemus

In the absence of Chairman C. S. Barnwell, of Uniroyal, Inc., Mr. Hawkins served as Acting Chairman of the ATI Technical Committee. Mr. Nicodemus, Chairman of ASTM Subcommittee D13.14, was asked to chair the committee during this meeting due to the fact that ASTM Specifications would be under consideration.

Round Robin tests have been completed on tubular sleeving, tape, cloth and lap. It was acknowledged that assistance was necessary from ASTM to compile statistical data from the results of the tests. Although the sleeving data diameter measurements were very variable, it was decided that they should remain because in test the variations do exist.

Based upon discrepancies and lack of clarity evident from the Round Robin tests, test procedures involved were reviewed.

In Specification D-315 on Asbestos Tape the method of breaking was modified to insure the correct jaws are being used. The format for conformance, reports and precision also were modified.

In Specification 1571 on Asbestos Cloth the weight section was rewritten so that the result of the weighing would be reported in the same unit measurement as that used in industry standards.

It was agreed that Specification 1061 on Asbestos Lap should include precision and accuracy based on the original Round Robin test, even though wide variations were obtained.

No work was done at the meeting on Military or Federal specifications.

Respectfully submitted,

John W. Hawkins, Acting Chairman

Att III

Minutes
GENERAL MEETING
Asbestos Textile Institute
JUN 6 1975

MEMO FROM THE DESK OF

Doris M. Fagan

Dear ATI Member:

Legal Counsel's Address, as presented
by Mr. Wendell B. Alcorn to the
general membership on June 6, 1975,
will be sent you shortly. When it
arrives, please attach it to the back
of your General Meeting minutes.

Thank you.



ASBESTOS TEXTILE INSTITUTE

ASBESTOS TEXTILE INSTITUTE

1975 SPRING MEETING

June 6, 1975
Stouffer's Atlanta Inn, Atlanta, Georgia

LIST OF DELEGATES

AMATEX CORPORATION

W. Maaskant
M. J. Scanlan
H. H. Walter

ASBERIT S/A

M. Cattaneo

ASBESTOS CORPORATION LTD.

P. E. Leclerc

ASBESTOS TEXTIL S.A.

D. Barois
F. Ize

ATLAS TEXTILE COMPANY

W. H. Johnston

BELL ASBESTOS MINES LTD.

W. H. Smith

CASSIAR ASBESTOS CORPORATION LTD.

R. A. Kuntze
(Ontario Research Foundation)

GARLOCK INC.

A. Kuzmuk

JOHNS-MANVILLE CORPORATION

D. H. Markusson, Esq.

LAKE ASBESTOS OF QUEBEC LTD.

E. A. Farrell
C. E. Stiefken

NIPPON ASBESTOS CO. LTD.

Y. Sato

RAYBESTOS-MANHATTAN, INC.

C. D. Colson
J. W. Hawkins
J. F. MacLachlan
R. T. Matthew
R. O. Moebius
M. W. Oliver
M. Q. Scowcroft

SOUTHERN ASBESTOS COMPANY

E. C. Bratt
D. E. Childers
J. W. Echerd

TBA INDUSTRIAL PRODUCTS LTD.

H. J. Corson

UNIROYAL, INC.

D. T. Austin (Retired)
C. S. Barnwell
B. E. Carden
A. C. Link (Retired)
E. A. Morris

ASBESTOS TEXTILE INSTITUTE

W. B. Alcorn, Jr., Esq.
Legal Counsel
D. M. Fagan
Executive Secretary

Total attendance during the two-day 1975 Spring Meeting was 39 people: 31 members, 6 wives, 1 legal counsel and 1 secretary; representative of 15 member companies plus ATI.

M I N U T E S

ENVIRONMENTAL COMMITTEE

Asbestos Textile Institute
Stouffer's Atlanta Inn, Atlanta, Georgia
June 6, 1975

The regular spring meeting of the ATI Environmental Committee was called to order by Acting Chairman R. T. Matthew, with representation from ten (10) member companies present. Those in attendance included:

Amatex Corporation -- H. H. Walter
Asberit S/A -- M. Cattaneo
Asbestos Textil S.A. -- F. Ize
Atlas Textile Company -- W. H. Johnston
Lake Asbestos of Quebec Ltd. -- E. A. Farrell
Nippon Asbestos Co. Ltd. -- Y. Sato
Raybestos-Manhattan, Inc. -- J. F. MacLachlan, R. T. Matthew,
R. O. Moebius, M. W. Oliver, M. Q. Scowcroft
Southern Asbestos Company -- E. C. Bratt
TEA Industrial Products Ltd. -- H. J. Corson
Uniroyal, Inc. -- B. E. Carden

Mr. Matthew explained that for this meeting he was acting as chairman for L. E. Moody who is recovering from a recent heart attack.

The film, "Living With Dust" -- produced by 3M Company -- was shown and several members of other ATI committees sat in with the Environmental group for the showing of the film.

The Committee then discussed respirators for asbestos dust -- who was using what type and where and why. Some companies are using approved "single-use" respirators for up to one week while others are using "reusable" permanent-type respirators with the cleaning and sanitizing program required by the OSHA Asbestos Standard. No one indicated that they had had experience with approved "powered-air-purifying respirators" required for the higher dust concentrations.

The proposed new noise standard was discussed briefly because there appeared to be no new factual information as to when the "final" revision of the proposed standard will be published or what it will contain.

The proposed new asbestos standard was discussed but again no factual information was available. However, two opinions obtained from a Washington source were: (1) that the proposed standard would not be published in the Federal Register until late summer; and (2) that the format will be like the recent arsenic and ketone standards with an "action level" (where certain requirements become mandatory) at about one half the allowable time-weighted average.

Members were asked about recent OSHA activity-plant visits, etc. The only activities reported were a visit to one plant and a telephone call to another -- both to obtain information about their work practices and dust control procedures for receiving, storing and handling asbestos before processing.

After discussion, the Committee approved the following resolutions to the ATI Board of Governors:

- (1a) That the ATI advise OSHA through appropriate channels that, in the opinion of the membership of the Institute, an accurate 8-hour, time-weighted average of fiber concentration can be obtained only by the method detailed in (1) and (2) of the Minutes of this Committee's February 7, 1975, meeting.
- (1b) That OSHA Compliance Officers be instructed to follow this procedure when sampling for a time-weighted average.
- (1c) That a better definition, including a uniform practical sampling time, be obtained from OSHA for ceiling concentration.
- (2) That the ATI, through its Technical Committee or the Fiber Research & Testing Subcommittee, make every effort to find a better method than the "membrane filter" method for measuring airborne concentrations of asbestos fiber.

The Committee discussed briefly the "special clothing," "change rooms" and "clothes lockers" section of 1910.93a (now 1910.1001). This discussion will be continued at the next meeting of the Committee.

Members desiring discussion, interpretation or clarification of other sections of the Asbestos Standard should notify the Chairman, preferably in writing, well before the next meeting.

Respectfully submitted,

R. T. Matthew, Acting Chairman

AD HOC COMMITTEE REPORT
ASBESTOS TEXTILE INSTITUTE

June 6, 1975

Presented by Chairman Dennis H. Markusson, Esq., Johns-Manville Corporation; at the ATI 1975 Spring Meeting held at Stouffer's Atlanta Inn, Atlanta, Georgia.

As reported at earlier meetings, the Asbestos Textile Institute has filed motions in the United States District Court in Tyler, Texas, in the Yandle and Kay cases seeking to be dismissed from such law suits on the grounds that the court does not have any jurisdiction over ATI. The court has still not ruled on such motions.

The court has established a schedule for discovery whereby the parties by means of interrogatories and depositions can seek facts and documents relevant to the law suit. At the present time some of this discovery is being directed to jurisdictional questions as there are other defendants who, as ATI, feel they are not proper parties to the law suit. There is no particular timetable on this discovery and it is our present judgment that the court will not rule on any jurisdictional questions, including ATI's motion to dismiss, until all jurisdictional discovery is completed.

We remain confident that our contention that there is no jurisdiction over ATI in these cases is well taken and will be favorably acted upon by the court when it is finally considered. From a procedural standpoint there is nothing more to be done on our motion to dismiss except wait for the court's ruling.

Separate and apart from the formal motion to be dismissed as a party to the law suit the Institute through its Trial Counsel, Wendell B. Alcorn, Jr., has undertaken negotiations with plaintiff's counsel to be voluntarily dismissed as a party defendant in the pending law suits. Through Mr. Alcorn's efforts, there appears a strong likelihood that plaintiffs will consent to dismiss ATI as a party defendant. If this happens our formal motion to be dismissed becomes moot.

In the area of discovery on matters other than jurisdictional questions, depositions have been taken of Dr. Lee Grant, defendant Pittsburgh Corning Corporation's Medical Director, and Dr. William Johnson, formerly with the United States Public Health Service, who inspected the Tyler plant. These depositions are helpful to ATI as they indicate Pittsburgh Corning had full knowledge of the conditions prevailing at the Tyler plant and was fully aware of the state of the medical art relative to exposure to asbestos fibers. Therefore, anything ATI did or failed to do would become immaterial and not causally connected to any of the alleged injuries suffered by

more.....

Attachment V/page 1 of 2

ATI Ad Hoc Committee Report - 6 '6 '75

the plaintiffs. In other words, these depositions help establish that if there be any negligence on the part of ATI, which we deny, that there was intervening negligence by other defendants which exonerates ATI.

At this point in time ATI has effectively established its jurisdictional arguments and developed evidence favorable to it on the merits by means of the Grant and Johnson depositions. Accordingly, there is little need for any formal activity in these cases by ATI at the present time. We will continue to maintain a low profile and monitor all activities. Mr. Alcorn will continue his negotiations with plaintiff's counsel and his efforts to have ATI voluntarily dismissed as a party defendant.

Your Ad Hoc Committee will continue to supervise and monitor this litigation and report to you any significant developments. At the present time I feel it is fair to report that everything is as well under control as can be expected, and Mr. Alcorn is to be commended on his efforts on the Institute's behalf.

- end -

Prior to the meeting the members were given the opportunity to view the 30-minute British television film "Killer Dust--A Standard Mistake?" It discusses asbestos dust concentrations at the asbestos textile plant at Rochdale, England, operated by TBA Industrial Products Ltd., a member of Turner & Newall Ltd., and challenges the validity of the "2-fiber" asbestos standard which is associated with the British Asbestos Regulations of 1969. Subsequent to the showing of the film, distribution was made among the membership of "AIC Newsletter No. 5," a publication of the U.K. Asbestos Information Committee, which comments on the film. Further comments as stated by TBA Joint Managing Director R. A. Wells, were reviewed by A. Kuzmuk, President of the ATI.

M I N U T E S

1. The 1975 Spring Meeting of the Asbestos Textile Institute was called to order by President A. Kuzmuk at 1:00 p.m., June 6, 1975.
2. President Kuzmuk welcomed all delegates and guests and made special note of the following esteemed attendees:
 - a) D. T. (Tex) Austin, Uniroyal, Inc., Retired;
 - b) A. C. (Mike) Link, Uniroyal, Inc., Retired;
 - c) Marcello Cattaneo, Asberit S/A, Rio de Janeiro, Brazil;
 - d) Denis Barois, Asbestos Textil S.A., Naucalpan, Mexico;
 - e) Francisco Ize, Asbestos Textil S.A., Naucalpan, Mexico.
3. President Kuzmuk announced, with deep sadness, the passing on May 26, 1975, of Dr. Tsunemasa Watanabe, President of Nippon Asbestos Co. Ltd., Tokyo, Japan. The genuine condolences of the entire membership are extended to Dr. Watanabe's many friends and associates.
4. Upon the calling for a reading of the Minutes of the 1975 Winter Meeting, it was moved by E. A. Morris, seconded by E. A. Farrell, and so carried, to dispense with the reading thereof.
5. The Financial Report of the Institute as of April 30, 1975, was presented by M. J. Scanlan, Treasurer.

As of September 1, 1974, the balance on hand was \$14,051.44. Added to that figure are receipts of \$50,865.52 (\$20,787.63 for Test Manual sales and \$16,878.13 for the Litigation Defense Fund). Disbursements totaled \$38,623.35, leaving a cash balance on hand at April 30, 1975, of \$26,293.61.

It was moved by P. E. Leclerc, seconded by E. C. Bratt, and unanimously approved, that the Financial Report be accepted as presented.

The complete Report of Funds as of April 30, 1975, is appended to these Minutes as Attachment I and will be filed for audit.

more.....

6. The Fiber Producers' Report was presented by P. E. Leclerc, Sales Director, Asbestos Corporation Ltd. For the four months from January through April 1975, overall tonnage was down 37.7%. Group 3 fiber production was down 44.4%. The decrease, of course, reflects the situation caused by the strike of Quebec asbestos mine workers, leaving Canadian Johns-Manville Co. Ltd. as the only company operating in the Province at the present time. See Attachment II for the Fiber Producers' Report in its entirety.

7. Technical Committee Chairman C. S. Barnwell reported on the activities of his working group. He discussed various ASTM Standards and Military Specifications; a joint meeting with the Fiber Research & Testing Subcommittee; and a proposal by P. O. Nicodemus concerning dielectric properties. See Attachment III for the complete Technical Committee Report.

8. Fiber Research & Testing Subcommittee Chairman R. A. Kuntze reiterated that his group, in conjunction with the Technical Committee, will set up a Round-Robin program for surface area and Bauer McNett. Concerning a proposal by the ATI Board of Governors that a cataloging of information be prepared on the varieties of asbestos minerals, it was suggested by C. E. Stiefken that the information is probably available from the Asbestos Information Association/North America. If not, Mr. Stiefken has offered to search for the data sought by the Governors.

9. The Environmental Committee report was given by Acting Chairman R. T. Matthew in the absence, due to illness, of L. E. Moody. Following a showing of the 3M film "Living With Dust," the Committee discussed the use of respirators in asbestos dust environs; the proposed new noise standard; the proposed new asbestos standard; and recent OSHA activity-plant visits. See Attachment IV for the complete Environmental Committee report.

10. Ad Hoc Committee Chairman D. H. Markusson, Esq., reported on ATI's present status in the Tyler litigation and briefly discussed the depositions of Dr. Lee B. Grant and Dr. William M. Johnson. He advised that ATI will continue to maintain a low profile and to monitor all activities of the litigation. See Attachment V for the complete Ad Hoc Committee report.

11. President Kuzmuk advised that the Board of Governors is seriously considering passing a resolution to broaden the membership by extending it beyond the boundaries of the United States to encompass the whole of the asbestos textile manufacturing world.

12. Concerning incorporation of the Institute, President Kuzmuk informed the members that it is anticipated the ATI will become a corporation effective September 1, 1975.

more.....

13. The attendees were reminded by the President of the coming Annual Meeting to be held October 1-3, 1975, at Amelia Plantation Island, Amelia Island, Florida. It was advised that at that gathering the Institute will again follow the pleasant tradition it had followed for a number of years and will hold a Grand Finale Luncheon on Friday as the closing event of the Annual Meeting -- all members and their wives cordially invited.

14. In presenting Remarks of Legal Counsel, W. B. Alcorn, Jr., Esq., reviewed the depositions of Dr's. Grant and Johnson, stating that the answers given in the interrogations indicate that whatever ATI did or did not do really had nothing to do with or had any cause and effect in Tyler, Texas. Based upon those two depositions, upon confidential negotiations on behalf of the ATI with plaintiffs' counsel, and upon the direction that plaintiffs' counsel has taken in the Tyler litigation insofar as not going after ATI but rather pursuing the real defendants in the case, Mr. Alcorn's professional opinion is that ATI has nothing more to worry about in the Tyler litigation even if it does not get out in the near future -- which he expects it to.

He then discussed coming depositions in the Tyler litigation and other completely separate law suits. A landmark decision that is expected to come out of one of the pending cases in Texas is whether or not the Texas Longarm Statute can reach Canadian miners when they sell f.o.b. the shipping dock in Canada. This is an open legal question that is now being argued in Texas.

In addition, Mr. Alcorn discussed the benefits which will be derived by the ATI becoming incorporated and the proposed expanding of the definition of membership in the Institute to include manufacturers outside the U.S.

The full text of the Remarks of Legal Counsel are appended to these Minutes as Attachment VI.

15. There being no further business to be brought before the membership, it was moved by P. E. Leclerc, seconded by M. W. Oliver, that the meeting be adjourned. The motion was carried unanimously and the meeting adjourned at 2:00 p.m.

Respectfully submitted,

Doris M. Fagan
Doris M. Fagan,
Executive Secretary

ASBESTOS TEXTILE INSTITUTE
Report of Funds

Fiscal Year ending August 31, 1975
Period: 9/1/74 thru 4/30/75

Balance on Hand September 1, 1974 --

General Fund	\$ 1,416.83	
Reserve Fund	12,601.86	
Petty Cash Fund	32.75	
Total on Hand at 9/1/74		\$ 14,051.44

Receipts

General Fund - Book Sales	\$ 20.73	
Magnetite Samples	5.00	
Reserve Fund - Book Sales	16.63	
Test Manual Sales	20,787.63	
Members' Dues	12,368.25	
Interest to 3/31/75	789.15	
Litigation Defense Fund	16,878.13	
Total Receipts		\$ 50,865.52
		\$ 64,916.96

Disbursements

Legal Services/Expenses	\$ 3,383.28	
Secretary's Gross Wages	1,448.00	
Taxes on Wages Paid by ATI	123.10	
ATI Meeting Expense	579.11	
Secretary's Travel Expense	239.10	
Telephone	254.72	
Printing/Office Supplies	472.06	
Postage	333.81	
Revision of Test Manual	172.17	
Test Manual Printing/Shipping Costs	22,185.06	
Rental of Office Space	405.00	
Accountant/Caruso/1973-74	300.00	
ASTM Dues for Year 1975	25.00	
Gifts, Flowers, Plaques, etc.	111.80	
Insurance	60.00	
		\$ 30,092.21
Litigation: Legal Services/Expenses	\$ 7,823.87	
ATI Meeting Expense	30.60	
Telephone	111.98	
Printing/Office Supplies	120.94	
Postage	118.17	
Transcripts of Depositions	325.58	
		+ 8,531.14
Total Disbursements		- 38,623.35
BALANCE ON HAND APRIL 30, 1975		\$ 26,293.61

Funds as of April 30, 1975 --

General Fund	\$ 505.10
Reserve Fund	25,756.59
Petty Cash Fund	31.92

*TOTAL AVAILABLE FUNDS APRIL 30, 1975. . \$ 26,293.61

more.....

Assets as of April 30, 1975 --

Total Funds as listed above	\$ 26,293.61
Accounts Receivable - 1975 Members' Dues	750.00
Book Sales	3.80
Furniture & Equipment/Nominal Value	<u>1.00</u>
TOTAL ASSETS	\$ 27,048.41
TOTAL LIABILITIES	<u>..</u>
TOTAL NET WORTH APRIL 30, 1975 . . .	<u>\$ 27,048.41</u>

*Total Available Funds 4/30/75: \$26,293.61
 Litigation Defense Fund: -16,435.97
 ACTUAL NET WORTH: \$ 9,857.64

EXPENSES AGAINST BUDGET FOR FISCAL YEAR 1974-75 (EXCLUDES ALL LITIGATION-RELATED COSTS) PERIOD: 9/1/74 THRU 4/30/75

	Expended To Date	Annual Budget
Legal Services/Expenses	\$ 3,383.28	\$ 4,800.00
Secretary's Gross Wages	1,448.00	2,100.00
Taxes on Wages Paid by ATI	123.10	160.00
ATI Meeting Expense	579.11	1,000.00
Secretary's Travel Expense	239.10	600.00
Telephone	254.72	600.00
Printing/Office Supplies	472.06	700.00
Postage	333.81	600.00
Revision of Test Manual	172.17	100.00
Test Manual Overrun	..	1,200.00
Rental of Office Space	405.00	540.00
Accountant (Caruso)	300.00	300.00
ASTM Dues	25.00	25.00
Gifts/Flowers/Plaques, etc.	111.80	100.00
Insurance	<u>60.00</u>	<u>160.00</u>
	<u>\$ 7,907.15</u>	<u>\$ 12,985.00</u>

Budgeted to 8/31/75.....\$ 12,985.00
 Expended to 4/30/75.....- 7,907.15
 Available to 8/31/75.....\$ 5,077.85

NOTE: Above figures do not include the \$22,185.06 expended for the Test Manual nor the \$20,787.63 received via orders for the Test Manual. Normal disbursements of \$30,092.21 less Test Manual Costs - \$7,907.15.

FIBER PRODUCERS' REPORT

Presented by P. E. Leclerc, Sales Director, Asbestos Corporation Ltd., at the 1975 Spring Meeting of the Asbestos Textile Institute, held at Stouffer's Atlanta Inn, Atlanta, Georgia -- June 6, 1975.

Because of the asbestos workers' strike which has been in effect since 12:01 a.m., March 17, 1975, Canadian Johns-Manville Co. Ltd. is the sole asbestos mining company operating in the Eastern Townships of the Province of Quebec. This means that the only firms currently producing asbestos in the whole of Canada are C.J-M at Asbestos, Quebec; Cassiar Asbestos Corporation Ltd. at Cassiar, British Columbia, and at Clinton Creek, Yukon Territory; and Advocate Mines Ltd., at Baie Verte, Newfoundland.

Statistically, for the first four months of 1975 overall tonnages (shipments) were down 37.7%. A categorical breakdown for the same period shows a decrease of 44.4% for Group 3 and increases of 11.3% for Group 6 and 20% for Group 7. Group 3 fibers, of course, do not include strictly asbestos textile fibers as much of the product from that Group is not suited to textiles but is exported around the world for use in the manufacture of asbestos-cement pipe.

Asbestos Corporation's mine at Ungava, Quebec, is operating and is expected this year to ship enough concentrate to its processing plant at Nordenham, West Germany, to produce over 100,000 metric tons of Group 4 asbestos, specially designed for the asbestos-cement industry.

There appears to be no rush on the part of the idle workers to settle the strike. They are back to their original wage demands which exceed those granted by C.J-M to its workers. There are two unions in Thetford and they have made what is known as a common front. Signs of an early settlement are not evident and there is presently no way of knowing how long the strike will last. The outcome of meetings and discussions to date between the companies and the unions are not encouraging. The strike has not only stopped production at the mines in Thetford, it also is preventing shipments of any kind as the warehouses are on the mine properties and the companies are not permitted into or out of the storage facilities.

Attachment II

MINUTES
TECHNICAL COMMITTEE

Asbestos Textile Institute
Stouffer's Atlanta Inn; Atlanta, Georgia
June 5 & 6, 1975

IN ATTENDANCE

Amatex Corporation -- W. Maaskant
Raybestos-Manhattan, Inc. -- J. W. Hawkins
Southern Asbestos Company -- J. W. Echerd
Uniroyal, Inc. -- C. S. Barnwell (Chairman)

Asbestos Textil, S.A. -- Denis B. Barois; Francisco Ize

Fiber Research & Testing Subcommittee
Asarco Incorporated -- C. E. Stiefken
Bell Asbestos Mines Ltd. -- W. H. Smith
Cassiar Asbestos Corporation Ltd. -- R. A. Kuntze (Chairman)
Southern Asbestos Company -- D. E. Childers

At the request of P. O. Nicodemus (General Electric Company; ASTM Liaison), the Committee reviewed the article authored by Mr. Nicodemus titled "Present and Proposed Methods for Testing Asbestos Materials for Electrical Insulating Purposes (February & March 1975 ASBESTOS) -- with the idea of considering the adoption of the section on dielectric properties as an ASTM Standard Method. After complete discussion the matter was deemed sufficiently complex to warrant a greater-detailed study before reaching a firm decision.

The Committee received statistical data complete enough to make the following ASTM Specifications ready for acceptance: D-315 on Woven Asbestos Tape, D-1571 on Woven Asbestos Cloth and D-628 on Asbestos Tubular Sleeving. . . . Several questions of an editorial nature concerning ASTM Specification D-1118 on Magnetic Rating of Asbestos Fiber and Textile Products were discussed and acted upon.

The group proposes to review several Military Specifications to ensure they reflect the Committee's current thinking on how they should be written. Included are Federal Specifications HH-T-1782 on Asbestos Tape, SS-C-1783 on Asbestos Cloth and HH-T-41C on Asbestos Rope, Packing Material and Military Specification MIL-I-3953 on Treated & Untreated Asbestos-Fiber Electrical Insulation.

The Technical Committee met briefly with the Fiber Research & Testing Subcommittee primarily to discuss a proposed Round-Robin to correlate laboratory and test procedures. The two items to be studied are surface area tests and wet classification tests concerning fiber lengths. The Subcommittee has agreed to spearhead this project toward establishing procedures for the Technical group to follow in interlaboratory testing.

Respectfully submitted,
Carroll S. Barnwell, Chairman

Attachment III

Minutes
GENERAL MEETING
Asbestos Textile Institute

OCT 3 1975

ASEBESTOS TEXTILE INSTITUTE

1975 ANNUAL MEETING

October 3, 1975
Amelia Island Plantation, Amelia Island, Florida

LIST OF DELEGATES

AMATEX CORPORATION

W. Maaskant
J. L. Rainey
M. J. Scanlan
H. H. Walter

ASBESTOS CORPORATION LTD.

G. F. A. Brink
P. E. Leclerc

BELL ASBESTOS MINES LTD.

W. H. Smith

CANADIAN JOHNS-MANVILLE CO. LTD.

J. P. Power

CASSIAR ASBESTOS CORPORATION LTD.

R. A. Kuntze (Ontario
Research Foundation)

GARLOCK INC.

S. G. Dixit
A. Kuzmuk
R. B. Pilmer (Garlock
of Canada Ltd.)

LAKE ASBESTOS OF QUEBEC LTD.

C. E. Stiefken (Asarco Inc.)

NIPPON ASBESTOS CO. LTD.

Y. Sato
S. Shima

RAYBESTOS-MANHATTAN, INC.

M. N. Brooks
C. D. Colson
R. M. Gordon
J. W. Hawkins
R. T. Matthew
R. O. Moebius
M. Q. Scowcroft

SOUTHERN ASBESTOS COMPANY

E. C. Bratt
D. E. Childers
J. W. Echerd
L. E. Moody

TPA INDUSTRIAL PRODUCTS LTD.

H. J. Corson

UNIROYAL, INC.

C. S. Barnwell
B. E. Carden
E. A. Morris

ASEBESTOS TEXTILE INSTITUTE, INC.

W. B. Alcorn, Jr., Esq.,
Legal Counsel;
Cadwalader, Wickersham & Taft
D. M. Fagan,
Executive Secretary

Total attendance during the three-day 1975 Annual Meeting was 59 people; 30 members, 23 spouses, 1 legal counsel, 1 secretary and 4 guests; representative of 12 member companies plus ATI, Inc.

1. The 1975 Annual General Meeting of the Asbestos Textile Institute was called to order by President A. Kuzmuk at 8:00 a.m., October 3, 1975, at the Tennis Center, Racquet Park, Amelia Island Plantation, Amelia Island, Florida.

2. Upon calling for a reading of the Minutes of the 1975 Spring Meeting of the Institute, it was moved by S. G. Dixit, seconded by C. E. Stiefken, and so carried, to dispense with the reading thereof.

3. In the absence of Treasurer M. J. Scanlan, the Financial Report as of August 31, 1975, was presented by Vice President E. A. Morris. The cash balance as of September 1, 1974, amounted to \$14,051.44. During the fiscal year under review, receipts totaled \$53,045.38 and expenditures were \$33,205.50 for general purposes and \$12,208.18 for the Litigation Defense Fund, leaving \$21,683.14 as the cash balance on August 31, 1975. Taking assets and liabilities into account, the actual net worth between the two organizations at year-end was \$21,615.74 (\$8,599.21 earmarked for the Corporation and \$13,083.93 in the Litigation Defense Fund). Please note that no funds had been transferred to the Corporation as of August 31, 1975.

Vice President Morris advised that the financial records for the fiscal year had been audited by Dreslin and Company, Certified Public Accountants, and had been found to be in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

President Kuzmuk reported that since there was a balance of approximately \$13,000.00 in the Litigation Defense Fund, the Board of Governors does not currently anticipate the need for another assessment on the members.

The complete Report of Funds as of August 31, 1975, is appended to these Minutes as Attachment I.

4. In presenting Remarks of Legal Counsel, W. B. Alcorn, Jr., Esq., of Cadwalader, Wickersham & Taft, reported that little had happened since the last meeting in the Tyler Litigation except for the intervention of some additional plaintiffs and of two insurance companies who paid workmen's compensation claims to the workers who are now plaintiffs in the case. The two insurance companies who intervened against the defendants, including ATI, are asking for indemnification and reimbursement for the claims they have paid. The prospect of a voluntary dismissal for ATI still exists -- in return for ATI voluntarily making documents from its files available to the plaintiffs. It is possible the Institute will be dismissed by either the February or the June 1976 meeting.

Respectfully submitted,

Doris M. Fagan
Doris M. Fagan,
Executive Secretary

ASEESTOS TEXTILE INSTITUTE
Report of Funds

Fiscal Year ending August 31, 1975
Period: September 1, 1974, thru August 31, 1975

Balance on Hand - September 1, 1974 --

General Fund	\$ 1,416.83
Reserve Fund	12,601.86
Petty Cash Fund	<u>32.75</u>

Total on Hand at 9/1/74 \$ 14,051.44

Receipts

General Fund - Book Sales	\$ 20.73
Magnetite Samples	5.00
Reserve Fund - Book Sales	30.80
Charged Expenses	7.00
Test Manual Sales	21,536.78
Members' Dues	13,118.25
Interest to 6/30/75	1,123.69
Litigation Defense Fund	<u>17,203.13</u>

Total Receipts + 53,045.38
\$ 67,096.82

Disbursements

Legal Services/Expenses	\$ 4,320.73
Secretary's Gross Wages	2,100.00
Taxes on Wages Paid by ATI	163.78
ATI Meeting Expense	907.52
Secretary's Travel Expense	428.29
Telephone	397.90
Printing/Office Supplies	824.12
Postage	487.45
Revision of Test Manual	322.13
Test Manual/Printing	
& Shipping Costs	22,185.06
Rental of Office Space	540.00
Accountant/Caruso/1973-74	300.00
ASTM Dues for Year 1975	25.00
Gifts/Flowers/Plaques, etc.	111.80
Insurance	60.00
Charged Expenses	<u>31.72</u>

\$ 33,205.50

Litigation:

Legal Services/Expenses	10,938.18
ATI Meeting Expense	66.54
Telephone	120.95
Printing/Office Supplies	141.51
Postage	133.35
Deposition Transcripts	565.58
Transcripts/reproducing;	
binding; postage	<u>242.07</u>

+ 12,208.18

Total Disbursements - 45,413.68

BALANCE ON HAND 8/31/75 . . . \$ 21,683.14

more.....

Funds as of August 31, 1975 --

General Fund	\$ 700.48
Reserve Fund	20,936.45
Petty Cash Fund	<u>46.21</u>

*TOTAL AVAILABLE FUNDS AUGUST 31, 1975 . . . \$ 21,683.14

Assets as of August 31, 1975 --

Total Funds as listed above	\$ 21,683.14
Accounts Receivable - Book Sales	23.35
Charged Expenses	24.72
Furniture & Equipment/Nominal Value	<u>1.00</u>

TOTAL ASSETS \$ 21,732.21

Liabilities as of August 31, 1975 --

Accrued Taxes	\$ <u>116.47</u>
---------------	------------------

TOTAL LIABILITIES . . . - 116.47

TOTAL NET WORTH AS OF AUGUST 31, 1975 . . . \$ 21,615.74

*Total Available Funds 8/31/75: \$21,683.14
Litigation Defense Fund: -13,083.93
ACTUAL NET WORTH: \$ 8,599.21

Minutes
GENERAL MEETING
Asbestos Textile Institute

FEB 3 1976

ASBESTOS VENTILE INSTITUTE
LITIGATION DEFENSE FUND

ESTABLISHED: APRIL 1, 1974

PERIOD: SEPTEMBER 1, 1975, THRU DECEMBER 31, 1975 -- F/Y 1975-76

BALANCE ON HAND - September 1, 1975 \$ 10,000.00

RECEIPTS:

12/10/75 - Bank Service Charge/Waived. \$.84

12/31/75 - Interest on Savings 137.97

TOTAL RECEIPTS + 138.81
\$ 13,242.74

DISBURSEMENTS:

10/31/75 - To ATI, Inc., for Office
Expenses 9/1/75-10/31/75 . \$ 4.61

11/14/75 - Cadwalader, Wickersham & Taft 1,450.00

11/14/75 - Hathaway & Jackson 2,368.93

11/20/75 - Bank Service Charge84

12/15/75 - To ATI, Inc., for Office
Expenses - November 1975. . 33.40

TOTAL DISBURSEMENTS - 3,877.78

BALANCE ON HAND - DECEMBER 31, 1975 \$ 9,364.96*

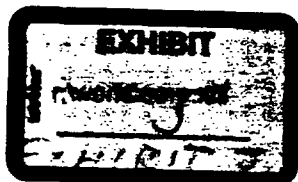
*Checking Account: \$ 323.54
Savings Account: +9,041.42
\$9,364.96

Attachment I

Worker's Compensation Claims

Updated 09/22/99

NAME	DATE OF CLAIM	DIAGNOSIS	PAYMENT/ BENEFIT TOTAL	JOB OR WORK PLACE	DATES
Clemons, Vera	11/26/48	Pulmonary Fibrosis; Asbestosis	\$ 6,086.15	Textile Dept.	1918-1943 (Intermittent Total 13-14 Yrs)
Baylor, Grace	11/14/57	Pulmonary Fibrosis; Pulmonary Asbestosis	\$ 2,400.00	Textile Dept.	1923-1957 (Employment Intermittent - Total 22 years)
Bacon, Clara	1/20/71	Asbestosis	\$ 18,000.00	Textile Dept.	1943-1970
Bohner, Elsie	6/7/73	Secondary Asbestosis	No Payment	Braiding Dept.	1951-1973
Honore, Martin D.	3/13/80	Thickened Pleura	\$ 6,753.00	No Records - Probably misc. duties in San Francisco Ware- house & Gasket Shop	1959-1960
Bills, Arthur	6/4/82	Asbestosis; Pulmonary Fibrosis	\$ 105.00 per week since 6/7/82	Textile Dept. Cut Gasket Dept	1950-1970 1970-1982
Nichols, Charles	7/24/85	Asbestosis; Emphysema; Pulmonary Fibrosis; Heart Disease	\$ 9,754.85 & \$271.38/wk to widow	Textile Dept. Braiding Yard	1947-1972 1972-1973 1973-1983
Zabliski, Raymond A.	2/22/89	Silicosis (disputed)	In Litigation	Shipping Dept.	1959-1984
Bailey, Omar H. Sr.	11/26/92	Lung Cancer	\$ 10,000.00	Compression Packing Supervisor	1956-1984
West, Sam	9/18/96	Mesothelioma	Currently denied In Litigation	Metal Parts Finisher Graphiter, Hyd/Mech Press Operator Exp. Jt. Builder Sheeter Oper.	1973-1993
Thurley, David	2/18/97	Mesothelioma	Currently denied In Litigation	Maint. Yard Scrap Fibre Prep Mach Oper Sander-washer Oper Metal Parts Finisher	1968-1996
Garnsey, Catherine	7/1/99	Lung Cancer	In Litigation	Spinning Frame Op. Insp. Packer Shipper Parts Coordinator Rubber Belt Finisher	1974-1984



— PRODUCT LIABILITY COMMITTEE —

EXHIBIT

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2. June 7, 1977 Product Liability Committee Minutes
3. July 26, 1977 Product Liability Committee Minutes
4. August 30, 1977 Product Liability Committee Minutes
5. September 27, 1977 Product Liability Committee Minutes
6. October 25, 1977 Product Liability Committee Meeting
7. October 25, 1977 Product Liability Committee Minutes
8. June 15, 1978 Product Liability Committee Meeting
9. June 15, 1978 Product Liability Committee Minutes
10. July 27, 1978 Product Liability Committee Meeting
11. July 25, 1978 Product Liability Committee Minutes
12. November 9, 1978 Product Liability Committee Minutes
13. December 14, 1978 Product Liability Committee Minutes
14. January 18, 1979 Product Liability Committee Minutes
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16. March 15, 1979 Product Liability Committee Minutes
17. August 15, 1979 Product Liability Committee Minutes
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PRODUCTS LIABILITY

11/9/76

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Complaint and Claims Procedures	7
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PRODUCTS LIABILITY

- A. Traditionally, production and quality control have been in a battle. Quality control was considered to be too conservative in rejecting parts and products for shipment. Production was considered to be too liberal with prime interests being to put the product in the hands of the customer quickly to keep backlog down.

But, now things are changing. Production and sales departments perhaps did not consider the impact of "product liability" and now they must. Every product which comes off the shipping dock creates the possibility of "product liability" suits. Courts are becoming more liberal in their interpretation of who is at fault. Customers are becoming aware of their rights if a product fails and causes them bodily harm.

The bandwagon effect of increased individual claims means that typical lawsuits against manufacturers have moved from \$50,000 per claim to \$2 million. Product failures can result with such suits as:

1. \$400,000 awarded to an employee who was burned by hot oil after being told by the foreman to proceed with the job because there probably was no danger.
2. \$2.5 million dollars pending against a manufacturer by a male employee whose long hair was caught in a machine, causing him head injuries.
3. A manufacturer changed the compound mixture for "O" rings and did not advise the customer of the change. The rings failed in the braking system of a snowmobile. The suit is pending. (not Garlock)
4. A bottle containing a liquid clearly stated that it was poison, but an adult who could not read or write drank the liquid and died. The manufacturer stated that he did all that was necessary to warn people that the product was poison. The court held otherwise, however, saying that the manufacturer should have placed a skull and crossbones on the bottle for the benefit of those who could not read.

At a recent seminar in Hartford, Connecticut with Colt and Aetna, two attorneys made presentations on the subject of "product liability."

The plaintiff attorney made the following general comments:

1. A company's general awareness of a problem or potential problem could cost the company \$2.5 million dollars. Facilities that have a high potential of fire are likely to be sued successfully if it can be demonstrated that they did not take all possible steps to protect the employees in the event they were burned. Where there is a suspicion or probable problem which could affect the lungs of an employee in a facility, another successful suit is likely to result if it can be demonstrated that the company did not take every conceivable measure to investigate the possible damage to lungs and set up appropriate counter-measures to protect the employee.
2. A company or manufacturer must anticipate how its products will be used and misused. The plaintiff attorney indicated that a company must warn potential users of possible danger. Additionally, he felt that companies had a continuing duty to warn users of possible problems.

The presentation made by the defense attorney included a number of points as follows:

1. A manufacturer must make every conceivable effort to assure that the product was perfect when it left the plant for shipment.
2. He agreed with the plaintiff attorney that a company must anticipate how the product will be used and misused. For example, he indicated that when a company ships its product to a distributor, agent, or other intermediary, the manufacturer continues to be liable for where that product is used. The manufacturer must investigate to make sure that his product is being used for what it was designed to do.
3. Where there is a margin of doubt, the court will generally support the plaintiff if the impression was that the manufacturer did not really care about the potential risk of using his product.
4. Generally speaking, if there are any alterations made on your product, this can be an excellent defense for the manufacturer.

5. Care must be used with the records that are kept. If the records show that the manufacturer was more interested in stock price than the consumer, the records are likely to be used against the manufacturer because it demonstrates that he did not seem to care enough to find out about potential problems when the product gets in the hands of the consumer.
6. If a manufacturer does not warn potential users and his defense is that it would have been too costly to conduct a warning, the court is likely to rule against the manufacturer. The attorney used General Motors as an example. Last year, General Motors spent \$50 million dollars on recalls. The \$50 million dollars came right out of profits, but they actually had no other choice but to recall. Not to have gone through with this procedure could have resulted in individual suits which would have exceeded the \$50 million dollars spent.

General Comments and Trends:

1. Claims are on the increase and come in two, three, four, and five years later than what would be assumed.
2. Dollar claims are on the increase. Colt expects to pay in excess of one million dollars in 1976.
3. In some states, like Mississippi, employees can sue individual managers if it is determined that they were lax in seeing to it that the employee's health was protected.
4. Executives are the only ones covered by our insurance carrier. There is no coverage for lower levels such as middle-management.
5. Employees, as well as customers, must be made aware of potential risks to them.
6. Every manufacturer should set up a program to anticipate and avoid potential "product liability" suits. Steps include:
 - a. What are the highest risk products?
 - b. Warnings to be included in all literature, and on products if at all possible to do so.
 - c. Develop a program of "awareness" directed toward engineering, manufacturing, marketing departments, etc. This "awareness" program would include management at all levels.

- d. Each manufacturing facility should create a "product liability" committee. Members of the committee should include the highest management level from each of the departments, such as manufacturing, marketing, engineering, etc. Representation from design engineering, quality control, and purchasing is also recommended. The committee's responsibility would be to investigate products in terms of potential liability and when this is determined, recommend solutions or intelligent choices which will resolve potential problems.

B. Two hundred ten member companies participated in a Machinery and Allied Products Institute survey with the following results:

1. Claims are on the increase; 156 of the 210 companies indicated that in the ten year period 1965 through 1975, "product liability" suits amounted to \$826 million (estimated).

We called MAPI to find out what the dollar amount of actual settlements was and they indicated that there was no data available on what the direct settlements or out of court settlements might be. They estimated, however, the ratio would be about 1 to 10. For example, in a \$1 million suit, the settlement would probably be about \$100,000.

2. Sixteen percent (16%) indicated that the upsurge in claims has inhibited the development of new products or contributed to the discontinuance of existing products.

We asked if the discontinuance of products was a result of potential liability suits or lack of profit from individual products. The response was that no one could be sure.

3. Many companies and individuals complain about governmental involvement in business and industrial matters; and yet, a good sized group of the firms participating indicated that legislation is indispensable to the solution.

RISK CRITERIA

Purpose: Identify those products which pose a significant risk for potential loss; subject those products to more stringent design, manufacturing, and marketing controls.

A. Definitions

1. "Product" means any product which is:
 - a. ready for end use;
 - b. processed further by a customer into an end product;
 - c. sold as a component for an end product; or
 - d. processed by a customer into a component for an end product.
2. "Dangerous" means a physical condition or prospective use which may cause harm or major economic loss unless dealt with carefully.

B. Risk Criteria

A product is to be classified as having significant risk whenever one of the following conditions exists:

1. The product is inherently dangerous.
2. The product can become dangerous either because of physical characteristics which deteriorate with time, or prolonged use.
3. The product conceivably be used in an improper manner, rendering it inherently dangerous, or dangerous in its mechanical applications.
4. The product will probably be used functionally in a mechanical application or in an activity which is dangerous.
5. The product, by the nature of its installation, will not be accessible, except at potentially great cost, and may be subjected to deteriorating conditions which cannot be observed.
6. The product, because of heavy use or long service life, provides a base for major economic loss in the event of unreliable performance.
7. The product, if defectively designed or manufactured, is dangerous.

The division Product Liability Committed should review the quality control procedures for all significant risk products and assure that the quality of processing, inspection, and testing is consistent with the risk.

WARRANTIES

Highly competitive markets are exerting an increasing pressure for expressed product guarantees, and subtly prompting implied guarantees through promotional brochures, advertising copy, sales presentations, rendering of technical advice, and other customer contact.

At the same time, changes in the law of product liability have imposed stringent responsibility on the manufacturer for product quality control, especially when expressed or implied representations are made concerning quality, useful life, or fitness of a product for a particular purpose. This makes it necessary to give special attention to the issuance of guarantees and the review of all product literature. It is essential to keep the following points in mind when reviewing existing materials or developing literature for new products.

1. Standard Terms and Conditions of Sale guarantee that products will be "merchantable", that is, of good material and workmanship. No representation should be made concerning the fitness of a product for a particular purpose or use.
2. Any guarantee (beyond merchantability), whether verbal or written, express or implied, shall be reviewed first by the Legal Department, and then submitted to the Group Vice President for approval. Requests for guarantee approval will be accompanied by convincing technical data and reports which precisely and quantitatively demonstrate the validity of warranty representations.
3. When expressed guarantees have been approved for specific products, each employee who has customer contact or prepares written material for customer distribution must be familiar with the scope as well as the limitations of such guarantees. Certificates should be obtained through the Legal Department.
4. All advertising copy, sales brochures, press releases, and other product promotional literature shall be submitted to the Legal Department for review and approval before release or publication.
5. Employees must exercise cautious judgment in making verbal representations concerning product quality in general. (As a rule, understatement is preferred to overstatement.) Particularly in the area of technical advice, limitations on accuracy or sufficiency should be stressed.

Any doubts concerning the implementation of this policy should be resolved by inquiring through the Legal Department.

COMPLAINT AND CLAIMS PROCEDURES

Purpose: Develop a system that provides for prompt and equitable settlement, as well as effective follow-up to minimize the possibility of recurrences.

The division Product Liability Committee should develop a written complaint and claims procedure which:

1. Assures a prompt and equitable response.
2. Minimizes the customer's and company's economic loss.
3. Provides identification of high risk product claims.
4. Obtains field information which will enable improvement of products and processes.
5. Alerts the Insurance Department and Legal Department in the event of property damage or personal injury. The need for promptly alerting these departments is stressed.

RECORDS RETENTION

Purpose: Establish criteria for developing records and record retention systems, emphasizing high risk products, to improve defense position.

The division Product Liability Committee should assure that records are developed in the specific areas related to product safety and liability. It shall develop a list of the specific documents (with titles and form numbers). The general categories of records which need to be considered are:

1. Customers' stated requirements. Results of review of customers' specifications.
2. Development records.
3. Manufacturing instructions and records.
4. Inspection procedures, standards and results.
5. Material review records.
6. Results of process, product and systems audits.
7. Quality Summary Reports.
8. Customer claims correspondence and dispositions.
9. Verbal communications with customers pertinent to requirements, product applications and claims.
10. Trip reports.
11. Corrective action taken.

The division Product Liability Committee, in cooperation with Records Management, will establish retention schedules for documents deemed relevant to product liability.

AUDITS

Purpose: Verify effective implementation of the policy.

The division Product Liability Committee should develop plans for implementing the policy and submit them to the Group Vice President for review. The plans shall include a procedure by which the division audits its own compliance.

NEW PRODUCT REVIEW

(.) Purpose: Control design safety and functional adaptability.

Each division Product Liability Committee should review all product design specifications to insure compliance with association standards, government codes and customer requirements. It is suggested that the committee:

1. Develop the systems necessary to implement the product review objective. This will include:
 - a. definition of "new product";
 - b. an administrative system at the plants and contributions from staff groups to assure that all new products are brought to the committee's attention;
 - c. a documentation system which substantiates that thorough reviews have been made and that confirming copies are sent to the Group Vice President.
2. Develop a design review procedure by which the designer is required to submit a complete description of: the product, its intended use, expected life, service environment, the testing performed during product development, potential defects and potential hazards in the use of the product, and estimated market potential.
3. Develop a manufacturing control plan, to include review of:
 - a. the manufacturing plan;
 - b. the inspection and testing plan, including documentation;
 - c. raw material control plans;
 - d. process control procedures;
 - e. material review procedures;
 - f. rework and repair controls;
 - g. control of design changes;
 - h. investigation of safety-related complaints;
 - i. corrective action plan.
4. Develop a procedure to review product liability losses which may suggest the need for changes within the division.

At the outset, the committee should identify all the significant risk products and subject those products to the review provided above.

DEIVED

J. 1577

DEPARTMENT
DANLOCK INC.

RE: PRODUCT LIABILITY COMMITTEE MINUTES

DATE: June 7, 1977 - 9:00 am

In Attendance: R Guild G LeRoy
J Guffey M Panarites
D Holmes H Schaefer
A Kuzmuk R Stay

1. The Product Liability Committee will consist of the following people:

John Guffey - Compression Packing Division
David Holmes - Controllers
Ernie Kuhnien - Hydraulic Components
Alex Kuzmuk - Construction Products
Gordon LeRoy - Engineering
Mike Panarites - Personnel; Product Liability Chairman
Herb Schaefer - MRP Operations
Ron Stay - Marketing

2. Mini-committees will be set up under the above committee.
3. A brief review of the following subjects was given by Mr. Panarites

What is Products Liability?
Risk Criteria
Warranties
Complaint and Claims Procedures
Records Retention
Audits
New Product Review

4. A slide presentation was shown which gave a brief history of product liability and the problems that industry is now facing with the new legislation.
5. General Discussion Areas:
 - (a) OSHA Caution Warning - this is very important in the asbestos industry. It is something that we have not been doing
 - (b) We do not control end use of products. We do not print on our packaging product info because there are too many different uses for our particular product.
 - (c) We do very limited testing on the products we sell.

PRODUCT LIABILITY COMMITTEE MINUTES
June 7, 1977

- (d) Information on product failures should be kept.
 - (e) What product claims do we have right now.
 - (f) Installation Instructions - are the complete or should they be revised.
6. Preparation for next monthly meeting - set up mini committees.
7. Next meeting to be held on Tuesday, July 26th. 9-00 AM

Mike

ME Panarites/bld
Chairman, Product Liability Committee

RECEIVED

AUG 5 '77

LAW DEPARTMENT
GARLOCK INC.

RE: PRODUCT LIABILITY COMMITTEE MINUTES

DATE: July 26, 1977 - 9:00 am

In Attendance:

G Barlis	E Kuhn
M Burdulis	G LeRoy
J Guffey	J Lynn
R Guild	M Panarites
D Holmes	H Schaefer
B Keep	R Stay

1. Mini-committees. Some of the product centers have set up their mini-committees; others have not. There was some question as to just what these committees should be doing.
2. Discussion on the rating of our products as far as the importance in becoming involved in a product liability claim. Should the products be categorized as to (1) potential physical injury to a person and (2) damage to equipment. Can we categorize our products without the knowledge of what the end use is for our product?
3. Biggest area of exposure for us now is 'asbestos'. It was agreed that we would work on this particular product first and through our experiences, apply them to our other products.
 - a. Bill Price and John Guffey were assigned the responsibility by Mr. Townsend to chair a labelling program in asbestos. They are to see that our labelling program satisfies all our objectives and it is to be implemented by January 1, 1978.
 - b. Mr. Guffey brought up the point that most companies have lost product liability suits because of their 'failure to warn'.

After some discussion, it was the unanimous opinion of the committee that we immediately begin to label all advertising of our products that contain asbestos with the following phrase:

C A U T I O N

Contains asbestos fibers. Avoid creating dust.
Breathing asbestos dust may cause serious bodily harm.

Mr. Stay was assigned the responsibility of seeing this label is on all advertising of asbestos products. It was also decided that all catalogs that have already been printed should be labelled with the warning before being sent out. (This warning to be only on products that contain asbestos.)

Handwritten:
8/1/77

- c. Other areas in which labelling should be done are:

- (1) CA Sheet
- (2) Spool heads of braided asbestos material.
- (3) Labels inside boxes of our products that are sent to our distributors.

- d. It was suggest that letters be sent to all of our distributors stating the following:

"Enclosed please find 'Caution' labels which we strongly recommend that you, as our distributor, pass on to all end users of our products containing asbestos."

There was a discussion as to which phrase should be used on these labels:

- (1) C A U T I O N

Contains asbestos fibers. Avoid creating dust.
Breathing asbestos dust may cause serious bodily harm.

- (2) D A N G E R

Cancer hazard. Contains asbestos fibers. Avoid creating dust.

From a marketing point of view, it was suggested that the number (1) phrase be used for all labelling. However, Mr. Lynn is to contact our legal department at corporate headquarters to find out which one they feel we should use.

After an answer is received from Mr. Lynn, Mr. Stay will proceed in having these letters/labels sent out.

- e. Mr. Schaefer was concerned as to how the asbestos sheets should be labeled. Also, whether those sheets which did not show a Garlock trademark, did they need to show a warning label.

It was decided that all sheets will be imprinted with the warning label as soon as Mr. Lynn finds out which one to use. Also, all sheets presently in inventory should be labeled in some way with the warning.

4. Items to be discussed at next meeting:
 - a. Each Product Center manager to list all products and find out what their end use is. Not necessarily in order of liability.
 - b. Review of our labelling program for asbestos.
 - c. Warranty
 - d. Sales training.
 - e. Requests from customers (Material Information Sheets) as to what materials our products contain.
 - f. Proposed regulations on acrylonitrile.
5. Next meeting to be held on Tuesday, August 30, 9:00 a.m., Personnel Conference Room, bldg. 6-1.
6. Any additions or changes in these minutes should be brought to the attention of Mr. Panarites.

/bld

RECEIVED

SEP 277

LAW DEPARTMENT
GARLOCK INC.

RE: PRODUCT LIABILITY COMMITTEE MINUTES

DATE: August 30, 1977 - 9:00 a.m.

In Attendance: M Burdulis J Lynn
F DeRosa M Panarites
R Guild H Schaefer
D Holmes L Sementilli
A Kuznuk C Terr

Not Attending: J Guffey G LeRoy
E Kuhnen R Stay

1. Labelling Program - Messrs. Guffey and Price are working on the overall labelling program and will have a report for the next Product Liability meeting.
2. Labelling Program for Asbestos -
 - A. Advertising - Advertising for Hydraulic Components and Compression Packing are now carrying the 'CAUTION' label on it. Mr. Stay was not in attendance, therefore, we do not know what other steps have been taken to label advertising now in-house or other types of advertising.
 - B. C/A Sheet - Labels have been ordered for C/A sheet and should be received shortly. They are approximately 1" x 2" in size.
 - C. Spool Heads - Mr. Burdulis, who was attending for Mr. Guffey, said that a definite decision had not been made as to how they would be labelling the spool heads for braided asbestos material. However, they had talked about having it printed on the spool head instead of stamping it on.
 - D. Labels on boxes that package our products. Nothing has been done on this yet.
 - E. Letters to Distributors - Mr. Stay was not in attendance and therefore we were unable to find out if this had been done as yet. Mr. Lynn informed us that according to our corporate legal department that the "CAUTION" label should be used and not the "DANGER" label.
3. Each Product Center was to list all products and find out what their end use is. As of this meeting, none of the product centers had accomplished this.

4-9/✓

4. Material Data Sheets - Mr. Panarites stated that per Mr. Townsend's request that we were not to complete and return any Material Data Sheets that we received from customers. If a customer insisted on this information and would not place an order with us unless we complied then Mr. Panarites should be informed and it would be discussed further. Mr. Panarites asked that the committee inform all their people that these MDS sheets should not be completed.
5. Acrylonitrile Regulations - There was a brief discussion on acrylonitrile but the consensus of the group was that nothing should be done until definite regulations or decisions were made regarding the manufacture of this product.
6. The next meeting will be held on Tuesday, September 27th, 8:00 a.m. in the Personnel Conference Room, bldg. 6-1.
7. Any additions or changes in these minutes should be brought to the attention of Mr. Panarites, Chairman.

/bld

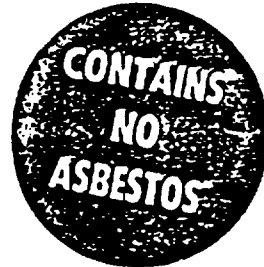
417, 77
J. Guffey
J. Lynn

RE: PRODUCT LIABILITY COMMITTEE MINUTES

DATE: September 27, 1977 - 8:00 a.m.

In Attendance: J Guffey M Panarites
B Keep H Schaefer
E Kuhnen R Stay
G LeRoy C Terr
J Lynn

Not Attending: D Holmes
A Kuzmuk



1. Labelling Program -

- A. Advertising.- All pages of the Industrial Catalog that contains products that have asbestos in it have the "Caution" label inserted on them.
- B. C/A Sheet Labels - Copy of one attached to minutes. These labels are being put on each sheet. Labels are also being sent to distributors so when they cut the material down they can attach labels to the product.
- C. Labels on Boxes - Labels are being put on the boxes that we ship our products in until they are reprinted.
- D. Letters to Distributors - Mr. Stay said that a letter would be sent out to the distributors explaining the labeling, etc. within the next week.

2. List of all Products and End Use - It was decided that we could use the new Industrial Catalog to obtain information needed on all products.

3. Are we labeling and warning about our asbestos products properly and enough? General consensus was yes for now but probably within the next 6 months, new guidelines will be issued.

4. Material Data Sheets - Harold Hughes is answering these if approval has been obtained from Mr. Townsend.

5. Brief discussion regarding aerosol/propellants. Product called Omnilube will not contain fluoro-carbons. Will use CO₂ or hydro-carbons. Omnilube is non-flamible. Companies asking for MDS sheets. Must obtain permission from Mr. Townsend. All MDS sheets should be sent to Jack Lynn.

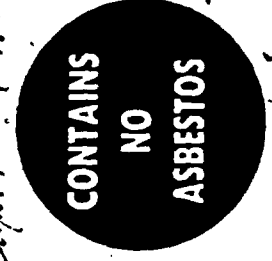
continued

6. Topics for next month: Warranties & Guarantees; Training of Field Salespersons.
7. Next meeting will be held on Tuesday, October 25, 8:00 a.m. in the Personnel Conference Room, bldg. 6-1.
8. Any additions or changes in these minutes should be brought to the attention of Mr. Panarites, Chairman.

Mike

/bld

to at road
Sept 11/9 4/27/99



ibility Committee.
- Note Panvika Co
- 8:25 AM Tuesday
- Unknown. Ron Stoy, a
- Gordon Kelley; Bonnie

CAUTION:
Contains Asbestos fibers.
Avoid creating dust. Breathing
Asbestos dust may cause
serious bodily harm.

Geffrey "dave" -
Asbestos + Asbestos
acts. "CONTAINS NO

CAUTION:
Contains Asbestos fibers.
Avoid creating dust. Breathing
Asbestos dust may cause
serious bodily harm.

SPY letter to
- dist; to get
Schaefer - non

CAUTION:
Contains Asbestos fibers.
Avoid creating dust. Breathing
Asbestos dust may cause
serious bodily harm.

thing except Mope
Bruce Kelp -
1 Asb. will carry

TO: J Guffey
D Holmes
E Kuhnen
A Kuzmuk
G LeRoy
J Lynn
H Schaefer
R Stay
C Terr

October 18, 1977

FROM: Chairman, Product Liability Committee

RE: PRODUCT LIABILITY COMMITTEE MEETING

The Product Liability Committee meeting to be held on Tuesday, October 25th, will be at 9:30 a.m. instead of 8:00 a.m. The change in time is because we have two guests flying in from New York: Joe Holwerda - Director, Safety and Security for Colt and Bill Rudolph - General Counsel for Colt. Both men are very involved in Product Liability.

Should you be unable to attend, please let me know as soon as possible.

ME
ME Panarites/bld

Attachment

RECEIVED

10/28/77

GARLOCK INC.

RE: PRODUCT LIABILITY COMMITTEE MINUTES

DATE: October 25, 1977, 9:30 a.m.

In attendance: J Guffey G Leroy
R Guild J Lynn
H Hughes M Panarites
A Kuzmuk H Schaefer

Not attending: D Holmes
E Kuhn
R Stay

Guests: P Hanke
J Holwerda
J Maher
W Rudolph

1. For the benefit of our guests, Mr. Panarites reviewed what the committee had accomplished since the first meeting that took place in June. Copies of the minutes of all the meetings were given to the guests.
2. Mr. Guffey recently attended an A.T.I. Conference (Asbestos Technical Institute) and he enlightened us on the new regulations in California which requires the end user to register with the state when any hazardous materials are used. The state does not consider all forms of asbestos as hazardous in themselves but does consider any asbestos products labeled with the "Caution" label as hazardous. Therefore any product that we (Garlock) now label would be considered hazardous and would require the end user to register.

Raybestos-Manhattan received a lot of feedback from their customers that indicated they would lose business to companies who do not label. They have converted to a new warning label which:

- A. California does not require to be registered.
- B. Continues to satisfy the goal of warning users of their products.

This new label (Shown below) will be used on all dust suppressed cloth, Compression Packings and Compressed sheet at Garlock. It will be used in all locations rather than having separate inventories for California.

continued.....

Ray
11/9

12/1/79 7-11/8

N O T I C E

This asbestos product is manufactured with a dust suppressing binder for the express purpose of locking-in fibers during normal use. Care should be used while handling all asbestos products so as to avoid abuse and excessive dust emission. For detailed information consult the recommended work practices handbook Use and Handling of Asbestos Textile Products published by the Asbestos Information Association. A copy will be sent to you on request.

Compression Packing Division
Garlock Inc
Sodus, New York 14505

Mr. Hanke asked that Mr. Guffey contact Johns/Manville to see what they are doing and also to contact R/M and find out who they contacted in California to get the okay on the above notice. This information to be forwarded to Mr. Hanke.

The question, "If a distributor does not use the labeling and we don't know about it, will we be held liable?" Probably not, however, if we do know and we don't do anything about it, we would most likely be liable. General consensus was that the sales persons should check out our distributors once in a while to see if they are labeling like they are suppose to. The sales person should report back by way of a letter as to what he found so we have record of it.

3. Messrs. LeRoy, Schaefer, Stay and Lynn met previously to this meeting to discuss putting products in proper "risk criteria". Because of the hundreds of various products we make, it presented many complications as to how this could be done and therefore, Mr. Panarites asked Mr. Holwerda if from his experience at other divisions could he help us out. Mr. Holwerda pointed out that at one of the divisions they set up their risk criteria by the number of law suits for a particular product.

Mr. Guffey said that Compression Packing was now recording case histories of product applications (i.e. when a part was installed and how long it lasted). As was pointed out, the products we make 'wear out'.....we make replacement parts. Therefore, at what point does our liability cease because the part should have been replaced. Mr. Rudolph said there were too many variables to this question and it would depend on the particular incident.

Some discussion regarding special meetings of our distributors and sales people regarding product liability and their involvement with it.

4. Many distributors have been sending in letters requesting whether Garlock would carry them under their Product Liability Insurance. All of these letters are being referred to Mr. Smith for reply.
5. Mr. Holwerda pointed out that the Consumer Protection Safety Commission requires that a report be issued should an injury occur to someone when using a "consumer product". This report must be filed within 10 days to the commission by the company who made the product.

After some discussion, it was decided that we, Garlock, do not make a "consumer product"; we only make parts that go into a consumer product and therefore this would not apply to us.

6. The meeting adjourned at 11:00 a.m.
7. The next meeting will be held on Tuesday, November 29, 1977, 8:00 a.m. in the Personnel Conference Room, bldg. 6-1.
8. Any additions or changes in these minutes should be brought to the attention of Mr. Panarites, Chairman.

/bld

PRODUCT LIABILITY COMMITTEE

JUNE 15, 1978

8:30 AM

A G E N D A

- I. WARRANTIES - JACK LYNN
- II. WARNINGS & LABELING - JOHN GUFFEY *no report - absent*
- III. MATERIAL DATA SHEETS *Handl Hughes*
- IV. DESIGN, DEVELOPMENT, AND ENGINEERING (SEE ATTACHMENT)

RECEIVED

JUN 7 '78

LAW DEPARTMENT
GARLOCK INC.

II

Design, Development, and Engineering

A product begins with its design, and that is also where the exposure of products liability begins. Most complaints initiating products liability suits contain a count alleging defective design. If the plaintiff can persuade the court and/or the jury that the design of the product which caused the injury or damage was defective and that the injury or damage was caused by the defect, in most jurisdictions he will have proven his case.

As a manufacturer proceeds through design, prototyping, testing, and engineering, he would do well to keep in mind such questions as those set out below.

Design

1. What is the product's purpose? What will it do?
2. Where, how, and by whom will it be used? In what environment? For how long?
3. Do you have established qualifications--education and/or experience--for design engineers? Training programs?
4. Are design engineers sufficiently indoctrinated in potential products liability hazards and their consequences?
5. Does your company have a formal design review program? If so, who participates?
6. Do you have a system of "feedback" to take advantage of the performance history of the same or similar product?
7. In building to the customer's design, what special consideration is given to your possible responsibility for the finally approved design? Have you consulted with the customer on the design? What of your obligation--as a manufacturer experienced in the field--to warn the customer of potential hazards in following his design?
8. Can the product be manufactured and sold at a profit and still meet or exceed:

RECEIVED

7

JUN 7 '78

LAW DEPARTMENT
GARLOCK INC.

- a. Labels or warnings plates: prominent location, legibility, understandability, durability; and
 - b. Review and approval of warning labels or plates by law, engineering, and safety departments and/or by Products Reliability Committee.
16. Does design incorporate purchased parts? From reliable and time-tested vendors? Does vendor maintain records sufficient to trace shipments from him by shipment, batch, or lot number? Does vendor carry products liability insurance? Have you inspected vendor's manufacturing facilities and quality control system? Does your purchase order require vendor to certify compliance of his part or component with applicable safety standards?
 17. Does the design allow for human error? (E.g., errors arising from fatigue, boredom, insufficient training, emotional or physical upset, etc.) Does the design require a human factors analysis?
 18. Does your design review require a failure mode and effects analysis, fault-free analysis or other systems-type approach?
 19. Does your system of design review and evaluation provide for recheck and reevaluation prior to approval for production? Some manufacturers employ a three-ply system of design review: preliminary design review, intermediate design review, and final design review.
 20. Are your design reviews and evaluations recorded and this documentation preserved against the possibility of its use in connection with some future claim?

NOTE: We reemphasize that these questions are merely suggestive of the kinds of questions that manufacturers must ask themselves as they design new or improved products. We hope they may encourage the development of design review and checklists tailor-made to the individual company and product situation.

Testing

1. Is a prototype of the product necessary?
2. What tests should be conducted? Who defines standards for testing?

(NOTE: It is most important to define in detail the standards applicable to the product. Tests

TO: FILE MEMO

FROM: Counsel-Mechanical Rubber Div.

27 October 1977
(Dict. 26 Oct.)

RE: Product Liability Committee Meeting
✓ LP 120:2:6
- - -

Outside Suppliers-Insurance Coverage of Garlock
LP 100:1

On Tuesday, 25 October, a meeting of the Product Liability Committee was held in bldg. 6-2 from 9:00-12:00 a.m. There were fourteen people present which included, in addition to the "regulars", Pete Hanke, Bill Rudolph (Asst. General Counsel, Colt), Jack Maher, Joe Holwerda (Director of Insurance, Colt) and George Townsend. I took notes of that meeting which are in the file.

Two of the subjects discussed involved problems assigned to Law Department and these are:

1. Special warning label or statement for California customers - John Guffey had written a letter a few days before outlining the situation in California which now has a rule requiring everyone in the state who buys products containing asbestos must register that fact with some State agency. He learned this at a recent meeting of the Asbestos Textile Institute. This has caused considerable confusion and is resulting in the loss of business by asbestos products suppliers who, under the existing Federal rule, have to put a caution label on such products. This automatically triggers the requirement that the buyer must thus report that to the State. Many asbestos product suppliers are not labeling their products and therefore customers are switching to them in order to avoid this registration problem. Raybestos-Manhattan has designed a statement, which will go on all their asbestos products which explains that product is held together by a binder and there is very little likelihood of any dust being released in normal usage. They feel that this will reassure their customers.

Guffey feels we ought to adopt the same wording. PS Hanke felt that we should make sure the wording is acceptable to the State so Guffey is going to find out what agency in the State should be contacted to get that information. Then, either he or Law Department will make the contact and get the ruling. In any case, apparently we are going to do that on all our products, not just those that go into California.

2. "Named Insured" coverage of Garlock on suppliers product liability insurance policies - In the general discussion of product liability insurance, mention was made of many requests we get from distributors to put their names on our policy as a "named insured". It was pointed out that Colt has a policy against that and will not do so. The reason for this is that doing this would relieve the distributor from all liability and the

2/1/78
RWW
10/28

2. "Named Insured" Coverage (cont'd)

necessity for getting his own product liability insurance. It would cover any product failures and damages/injuries caused thereby, even though the fault may lie with the distributor and his handling of the product. All Colt will do is furnish us Certificate of Insurance to such distributors.

However, later in the meeting we got on to the can goods line and the spray can situation. In products which we buy and resell "as is" such as lubricants, etc. in this line, we should ask the manufacturer of the cans (Spray-On, etc.) to make us a "named insured" on their product liability policy. It was decided that Law Department would provide Purchasing Department with the form letter to use in those cases. I have been given that assignment and will follow through. However, I must consult with Colt (or PS Hanke or ?) to make sure that the letter reads properly. Then I will get together with Ed Hardy and we will establish a procedure.


JohnDLynn:ik

bc: HD Retting
RB Steinmetz, Jr.

HT Schaefer

Paralegal

Product Liability
LP 120:2:6

March 13, 1981

This refers to your memo of March 4, 1981 under the above reference.

I have discussed your memo with Hal Retting and he endorses the reactivation of a Product Liability Committee and he expects to attend at least some of the meetings of the Divisional Committee.

I will plan to attend at least those meetings which Hal is unable to be here for and I will see that questions which need his attention are passed along to him.

Hal did indicate that he would like to have any information that is available on the planned agenda for Divisional Committee meetings. This will enable him to have a better handle on when matters of particular legal concern are planned for discussion.

He also feels that all the committees should maintain "minutes" of their proceedings and he would like to receive copies. These can be forwarded directly to him or via this office, whichever you prefer.

RW Watson:ik

Colt Industries



RECEIVED

MAR 5 '81

DEPARTMENT
GARLOCK INC.

Garlock
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522
315/597-4811

Interoffice

To: See Distribution

From: H. T. Schaefer

Subject: Product Liability

Date: March 4, 1981

It has been two or three years since we have had an active Product Liability Committee. During the time of 1977 to 1979 the previous committee did a great deal of positive work in asbestos labeling and determining direction for asbestos products.

We are in an era of product liability suits for actual or perceived product failure. It would seem that everyone has their lawyer waiting impatiently in the wings. It therefore behooves us to take the offense in terms of labeling, product design, information and modernized sales education in all aspects in order to minimize product liability costs.

Rather than have one committee which meets every month, it is my proposal that each Profit Center set up its own committee. Each Profit Center Committee would be made up of the General Manager, Chief Engineer, Quality Manager and the Marketing Manager. The Finance, Personnel and Legal Departments and Vice President of Sales should be considered as part of each committee. They do not necessarily have to be present for each and every meeting, but should be consulted for help and guidance.

The Divisional Committee which is made up of the recipients of this letter will convene once a quarter, or it can be called in an emergency if there is a specific problem to be solved by the Division or a unit within the Division.

Each unit Product Liability Committee will keep notes and send copies to this office. I would like to suggest, to begin with, that you have frequent meetings and I would like to see your schedules.

In the files of each of the Profit Centers I am certain you will find Product Liability information referring to our 1977/79 committee. However, I am attaching some information to help you get started with each of your committees.

HT Schaefer/k
HT Schaefer/k

*Run
3/5*

DISTRIBUTION:

GR Bird
JM Cook
JF Hurley
WA Johengen
ES Kuhn
P Loomis
HD Retting
RJ Stay
D. Vogel
✓RW Watson

cc: Joseph G. Holwerda
Director, Risk Management

Design, Development, and Engineering

A product begins with its design, and that is also where the exposure of products liability begins. Most complaints initiating products liability suits contain a count alleging defective design. If the plaintiff can persuade the court and/or the jury that the design of the product which caused the injury or damage was defective and that the injury or damage was caused by the defect, in most jurisdictions he will have proven his case.

As a manufacturer proceeds through design, prototyping, testing, and engineering, he would do well to keep in mind such questions as those set out below.

Design

1. What is the product's purpose? What will it do?
2. Where, how, and by whom will it be used? In what environment? For how long?
3. Do you have established qualifications--education and/or experience--for design engineers? Training programs?
4. Are design engineers sufficiently indoctrinated in potential products liability hazards and their consequences?
5. Does your company have a formal design review program? If so, who participates?
6. Do you have a system of "feedback" to take advantage of the performance history of the same or similar product?
7. In building to the customer's design, what special consideration is given to your possible responsibility for the finally approved design? Have you consulted with the customer on the design? What of your obligation--as a manufacturer experienced in the field--to warn the customer of potential hazards in following his design?
8. Can the product be manufactured and sold at a profit and still meet or exceed:

- a. Performance requirements?
 - b. Industry certification standards? (E.g., Underwriters' Laboratories, Inc. (UL), National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA), American National Standards Institute (ANSI), etc.)
 - c. Applicable federal, state, and local safety requirements? (E.g., Occupational Safety and Health Act, Consumer Product Safety Act, Federal Coal Mine Safety Act, etc.)
 - d. The extremes of potential environmental influences such as heat or cold, humidity, altitude, vibration, gases or fluids, corrosive ambients, etc.?
 - e. Expected customer requirements of use, reliability, maintenance, etc.?
9. With present factory capability, can the design be achieved in production?
 10. Does the design minimize installation and maintenance problems?
 11. What parts or components are critical to safety of the product? What will happen if these parts fail?
 12. Will the design result in a product that is safely useable? Maintainable? Repairable? Does design provide for incorporation of all necessary safety devices? Are moving parts guarded?
 13. Is the rated capacity of the machine shown on the machine by an attached permanent notice (e.g., metal plate, cast legend, stamping, etc.)?
 14. When operated in accordance with instructions and within prescribed limitations (such as capacity, velocity, rpms, etc.), what damage can the product cause to persons or property? To itself? What damage may it cause if prescribed limitations are exceeded? What are the foreseeable consequences of misuse?
 15. What dangers should users of the product be warned of? Is the warning adequate? Could the need for a warning be obviated by feasible redesign?

- a. Labels or warnings plates: prominent location, legibility, understandability, durability; and
 - b. Review and approval of warning labels or plates by law, engineering, and safety departments and/or by Products Reliability Committee.
16. Does design incorporate purchased parts? From reliable and time-tested vendors? Does vendor maintain records sufficient to trace shipments from him by shipment, batch, or lot number? Does vendor carry products liability insurance? Have you inspected vendor's manufacturing facilities and quality control system? Does your purchase order require vendor to certify compliance of his part or component with applicable safety standards?
 17. Does the design allow for human error? (E.g., errors arising from fatigue, boredom, insufficient training, emotional or physical upset, etc.) Does the design require a human factors analysis?
 18. Does your design review require a failure mode and effects analysis, fault-free analysis or other systems-type approach?
 19. Does your system of design review and evaluation provide for recheck and reevaluation prior to approval for production? Some manufacturers employ a three-ply system of design review: preliminary design review, intermediate design review, and final design review.
 20. Are your design reviews and evaluations recorded and this documentation preserved against the possibility of its use in connection with some future claim?

NOTE: We reemphasize that these questions are merely suggestive of the kinds of questions that manufacturers must ask themselves as they design new or improved products. We hope they may encourage the development of design review and checklists tailor-made to the individual company and product situation.

Testing

1. Is a prototype of the product necessary?
2. What tests should be conducted? Who defines standards for testing?

(NOTE: It is most important to define in detail the standards applicable to the product. Tests

should confirm that the product conforms to the standard in each case.)

3. By whom should tests be conducted? In-house or by independent testing laboratory? Is independent testing required for product certification?
4. What records are to be made of results of testing? By whom authenticated? Have you a formalized program for evaluation of test results? How are lessons of testing translated into redesign or abandonment of the project?
5. To whom are test results distributed? R&D? Engineering? Top management? Law? Risk management/insurance? Marketing? Products Reliability Committee? Others?
6. What records are prepared on tests conducted and results obtained?
7. Where and for how long are records of test results preserved?

Design Changes and Modifications

1. Have you a policy and procedure covering necessary design changes where "bugs" are discovered in products already in the distribution chain?
 - a. Products in transit and in hands of customers or distributors?
 - (1) If product's size, customer's requirements, etc., prevent recall, have you developed a procedure for field change-over?
 - b. Work in process?
 - c. Inventory?

(NOTE: Engineering changes and deviations (a deviation differs from an engineering change in that it represents a deviation in dimension or material in a production part from a current blueprint) should receive the same multifunction review as a total design. The attention given any such engineering change or deviation may, of course, vary with the degree of risk involved.)

Colt Industries



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JUN 21 '78

LAW DEPARTMENT
GARLOCK INC

LP 1201216

Garlock
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522
315/597-4811

Interoffice

To: See Distribution
Subject: PRODUCT LIABILITY COMMITTEE MINUTES

From: Michael E. Panarites
Date: June 21, 1978

Date & Time of Meeting: June 15, 1978 - 8:30 am

In Attendance: H Hughes H Schaefer
 J Kosowski K Schoenfelder
 G LeRoy R Stay
 J Lynn C Terr
 M Panarites

Not Attending: J Guffey
 D Holmes
 E Kuhnen
 A Kuzmuk

1. Warranties - Jack Lynn

Contract between buyer and seller. Don't rely on warranties as a defense in a Product Liability case. A question was raised if we should acknowledge all incoming orders and inquiries on our own acknowledgement order which has our warrant inprinted on the back. Yes...because if a product liability suit is brought against Garlock, our warranty would have precedent over customer's warranty. Acknowledgements need not be sent to our distributors because we already have a signed agreement with them.

Discussed whether all our products we ship out have installation instructions in them. In most cases, installation instructions are packed with shipment, however, only one instruction is sent out with each box or package. Therefore, when a distributor sells just one piece out of the package, there is not an installation instruction to go along with it. It was decided that we send additional copies of our installation instructions to each distributor for them to hand out. Since Garlock is showing good intent by supplying these instructions to the distributor, should a product liability suit occur, the onus would be placed on the distributor.

2. Warnings & Labeling - John Guffey

Tabled until next meeting.

*36/174
Rue
12/1-12/15*

3. Material Safety Data Sheets - Harold Hughes

All requests for completion of MSD sheets should be forwarded to Harold Hughes. He will supply the requesting company with information except of a proprietary nature. Mr. Hughes said that we are not required to fill out an MSD sheet unless the material is considered hazardous according to OSHA. However we have been receiving many requests along with revised OSHA-20 MSD forms that are requesting information that we should not be giving out. These forms have been attached for your information.

4. Design, Development and Engineering - ME Panarites

All units should have their engineering people review this section and come to the next meeting prepared to discuss items that apply to us. Example; are we keeping records; do we have a formal design review program, etc.

5. General Information

Ron Stay stated that because all the problems and law suits Johns Manville has been having with asbestos, they are banning smoking in all their plants. The question was brought up whether we should be doing the same at our facilities in Palmyra and Sodus. Mr. Guffey is attending an Asbestos Institute meeting in Quebec and this subject will be discussed at that time. Mr. Guffey will report back to the committee at the next meeting.

Allied Chemical has taken the stand that anytime one of their employees is involved in handling hazardous material, including compressed asbestos sheet, etc., for every 20 min they work with the hazardous material, they will have 40 minutes off. Also, they will take a shower and change clothes every hour and are closely watched by full-time supervision. In other words, in a period of four hours they only work 80 minutes. It costs approximately \$600 to change a flange gasket.

6. Booklet entitled "Company Programs to Reduce Products Liability" have been ordered and should be available to everyone by the next meeting.

7. The next meeting will be held on Thursday, July 20, 1978, 8:30 am, Personnel Conference Room.

8. Any additions or changes to these minutes should be brought to the attention of ME Panarites.

Distribution:

J Guffey	A Kuzmuk	H Schaefer
D Holmes	G LeRoy	K Schoenfelder
H Hughes	J Lynn	R Stay
J Kosowski	M Panarites	C Terr
E Kuhnen		

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Colt Industries



JUL 17 78

LAW DEPARTMENT
GARLOCK INC.

Garlock
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522
315/597-4811

Interoffice

To: See Distribution
Subject: PRODUCT LIABILITY
LP12026

From: Michael E. Panarites
Date: July 14, 1978

The Product Liability meeting scheduled for Thursday, July 20th has been changed to Thursday, July 27th, 8:30 am, Personnel Conference Room. We have attached an agenda for that meeting.

Also, for your information, there will be a special program on television this evening entitled "Way to Dusty Death" produced by Jules Bergman. It can be seen at 10 pm on channel 13. It is about asbestos. If you have a chance to watch it please do so.

Mike

ME Panarites/bld

Attachment

Distribution:

J Guffey
D Holmes
H Hughes
E Kuhnien
A Kuzmuk
G LeRoy

J Lynn
H Schaefer
R Stay
C Terr

*John - Please see the letters you have
from Dept. Coll. Meeting & copy to me when
I get it.*

PRODUCT LIABILITY COMMITTEE

JULY 27, 1978

A G E N D A

- I. WARNINGS & LABELING - JOHN GUFFEY (SEE PREVIOUS MINUTES)
- II. ENGINEERING - REVIEW ENGINEERING SECTION OF "BOOKLET")
- III. REPORT ON ASBESTOS INSTITUTE MEETING - JOHN GUFFEY
- IV. DISTRIBUTE BOOKLETS ENTITLED "COMPANY PROGRAMS TO REDUCE PRODUCTS LIABILITY"

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JUL 17 78

LAW DEPARTMENT
GARLOCK INC.

Colt Industries



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OCT 18 '78

LEGAL DEPARTMENT
GARLOCK INC.

XEROX COPY

Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522
315/597-4811

Interoffice

To: See Distribution
Subject: PRODUCT LIABILITY COMMITTEE MINUTES

From: Michael E. Panarites
Date: August 1, 1978

Date and Time of Meeting: July 25, 1978

In Attendance:	F DeRosa	G LeRoy
	J Guffey	M Panarites
	P Hanke	H Schaefer
	H Hughes	C Terr
	J Kosowski	R Whittaker
	A Kuzmuk	

Guests: J Holwerda
J Peck

Not Attending: D Holmes
E Kuhn

1. Warnings & Labeling - Referencing minutes of the October '77 meeting Mr. Guffey wrote several letters to the Occupational Cancer Control Unit at Berkeley, California referencing labeling of asbestos products in industry (like Raybestos-Manhattan was doing). After several phone calls, we finally received letters from three different departments of the Department of Health located in Sacramento, California (copies attached), which in essence give instructions for labeling of asbestos containing wastes being disposed of, but say nothing regarding restrictions on the use of asbestos fibers in industry. It was therefore determined that our standard form of hazard label for asbestos products was acceptable for shipments.
2. Asbestos Information Association - Mr. Guffey reviewed information he had received from the AIA pertaining to Secretary of HEW Califano's announcement that several steps would be taken to "inform doctors, workers and others about the increased risks of asbestos exposure." These steps are shown on the attached sheets from AIA.

Mr. Guffey suggested that perhaps the Garlock Legal Department and a representative from Colt become more involved with the AIA.

3. Review Engineering Section of Product Liability Booklet -
Mr. Gordon LeRoy said that his department had reviewed this section of the P/L booklet and felt that we should begin to define and categorize our products as follows:

1. Made to customer specifications and designs.
2. Garlock design made to specifications of ASTM, RMA, etc.
(compressed asbestos sheet)
3. Garlock design but not to any specifications (Gylon)

Mr. LeRoy would be setting up a product review committee and felt that each profit center should set up their own committee.

There would be further discussion regarding the engineering aspects of product liability at our next meeting.

4. Effective September 1st, smoking privileges at the Garlock de Sherbrooke plant would be abolished. Also, no one would be hired who presently smokes. This is also being done by Johns/Marville.
5. Mr. Holwerda reported on legislation related to product liability in the various states and its affect on industry. He also discussed hold-harmless agreements.
6. Any additions or changes to these minutes should be brought to the attention of ME Panarites.

Distribution:	F DeRosa	E Kuhn	R Whittaker
	J Guffey	A Kuzmuk	
	P Hanke	G LeRoy	
	D Holmes	M Panarites	
	H Hughes	H Schaefer	
	J Kosowski	C Terr	

cc: J Holwerda

Colt Industries



Garlock Inc.
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522
315/597-4811

Interoffice

To: See Distribution
Subject: PRODUCT LIABILITY COMMITTEE MINUTES

From: Michael E. Panarites
Date: November, 1978

Date and Time of Meeting: November 9, 1978, 8:30 am

In Attendance:	J Guffey	J Lynn
	H Hughes	M Panarites
	A Kuzmuk	H Schaefer
	E Kuhnien	R Stay
	G LeRoy	C Terr

Not Attending: D Holmes

1. Regularly scheduled meetings will be held on a monthly basis. Everyone must attend or send a representative. The next meeting is scheduled for Thursday, December 14 at 8:00 am in the Personnel Conference Room (6-1).
2. Product Liability Claim - State of Louisiana (prison) suing Belmont Distributor (Garlock Inc.) regarding an explosion of a pressure cooker. Our insurance carrier is Aetna and they have obtained local counsel in Baton Rouge. We are in the process of getting our papers together. Mr. Lynn will keep us informed.
3. Asbestos Booklet - It was the general consensus of the committee that the booklets should only be given out to those employees who work with asbestos. When an employee enters into a job in asbestos area he will be given an asbestos booklet during his orientation and asked to sign a card saying that he has read it. Mr. Panarites was to talk with Mr. George Townsend to get his approval on the above.
4. Labeling Program - Mr. Guffey said the program is going along well.
5. Gordon LeRoy spoke about the Product Review Committee they set up in Industrial Packing.

They broke it down into three categories:

- (a) Molded Rubber - Listed all auto parts. Got out all customer specifications and reviewed kinds of testing required by customer and found that we had relaxed our requirements and in doing M/C testing. We reinstated many tests because of the liability aspects of it.
- (b) Garlock Design Products - ASTM, RMA specs, etc. We have developed many new compounds, therefore, we must completely reverify that our products meet all requirements that we specify in the catalogs.
- (c) Garlock Design - Klozures, etc. - company has never had a formal program. Most testing done by customers. Do not have formal program. Very difficult to test returned goods from customers.

The other groups (Constructin Products, Hydraulic Components, Compression Packing), have not formed a Product Review Committee as yet and were requested to do so before the next meeting.

- 6. At our next meeting we would discuss the "Manufacturing" portion of the green booklet.
- 7. There was some discussion regarding a non-asbestos product pamphlet for company's who will not use asbestos products.
- 8. OSHA is looking at cotton dust. We do buy a lot of cotton products, but are looking into buying more polyester.
- 9. Any additions or changes to these minutes should be brought to the attention of ME Panarites.

Distribution:

J Guffey
H Hughes
A Kuzmuk
D Holmes
E Kuhnen
G LeRoy
J Lynn
M Panarites
H Schaefer
R Stay
C Terr

cc:

J Holwerda

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Colt Industries



DEC 19 78

LAW OFFICE
GARLOCK INC.

Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522
315/597-4811

Interoffice

To: See Distribution
Subject: PRODUCT LIABILITY COMMITTEE MINUTES

From: Michael E. Panarites
Date: December, 1978

Date and Time of Meeting: December 14, 1978 - 8:00 am

In attendance: J Guffey
H Hughes
E Kuhnien
A Kuzmuk
J Lynn
M Panarites
C Terr

Not Attending: G LeRoy
D Holmes
H Schaefer
R Stay

1. Product Liability Claim - State of Louisiana -
Mr. Lynn said there was nothing further to report.
It would probably be a while before it goes into court.
2. Asbestos Booklet - Mr. Panarites said that Mr. Townsend agreed that the asbestos booklet should be passed out to those employees working with asbestos and those who are hired into the asbestos positions. It was decided that we would use the book issued by Lake Asbestos since we had a supply on hand. A committee would be formed to decide the best method to pass these booklets out.
3. Product Review Committee -
Hydraulic Components has formed a committee headed up by Charlie Terr.
Compression Packing - Mr. Roy Whittaker is chairman of their committee with Dave White (Engineering), Tom Crannell (Marketing) and George Hayes (Manufacturing) as members. They will meet the first Tuesday of every month.

12/17/78
M.E. Panarites
12/17/78

12/19

Construction Products has set up their committee and will be meeting next month.

4. A question was raised whether it would be possible for the salaried personnel who work around the asbestos could have a yearly x-ray like the hourly personnel. Mr. Panarites said he was sure this could be done and for them to check with the Medical Department to get it set up.
5. Mr. Panarites said that each group should write up reports on how their committees are doing, i.e. engineering, manufacturing, etc., relative to the product liability to keep the whole Product Liability committee abreast of all happenings.
6. The next meeting will be held on THURSDAY, JANUARY 18, 1979, 8:00 am, Personnel Conference Room (Bldg. 6-1).
7. Any additions or changes to these minutes should be brought to the attention of ME Panarites.

Distribution:

J Guffey
H Hughes
A Kuzmuk
D Holmes
E Kuhnen
G LeRoy
J Lynn
M Panarites
H Schaefer
R Stay
C Terr

cc:

J Holwerda

Colt Industries



Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra New York 14522
315/597-4811

Interoffice

To: See Distribution
Subject: PRODUCT LIABILITY MINUTES

From: Michael E. Panarites
Date: January, 1979

Date and Time of Meeting: January 18, 1979 - 8:00 am

In Attendance: H Hughes G Leroy
A Kuzmuk
J Lynn
M Panarites
C Terr
R Whittaker

Not Attending: J Guffey
D Holmes
E Kuhn
H Schaefer
R Stay

1. Asbestos Booklet - After a meeting between Alex Kuzmuk, John Guffey and Mike Panarites, it was decided that we would use the wording from the Resinold booklet and incorporate the Garlock/Colt name with a few minor changes. Mr. Panarites is to work with the Advertising Department to get the books printed up.

There was also discussion on having health work rules put into the "Plant Rules". If the rules were violated, than disciplinary action could be taken. This will be under consideration and will be discussed at our next meeting.

2. There are several films available on the discussion of smoking and working in asbestos (Johns Manville and the FSA have produced them). These films will be looked at by the committee to see if they would be worth showing to our employees.

-continued on back-

B-1/2
Rue
2/1
12/1

3. Mr. Panarites asked for an update from the various units if their committees had been set up and if so, how their meetings were doing. Mr. Panarites stated that he had received minutes from some meetings held in the Hydraulic Components Unit. All Units have set up committees with the exception of Industrial Packing who have only the Engineering Committee at present (headed up by Gordon LeRoy).
4. OSHA - NEW REGULATIONS ON LABELING - Mr. LeRoy stated that shortly OSHA would be releasing a new policy regarding the labeling of asbestos products that are incapsulated (such as our C/A Sheet). You will no longer have to label this type of product with a warning about asbestos.
5. The next meeting will be held on THURSDAY, FEBRUARY 15, 8:00 AM in the Personnel Conference Room (Building 6-1).
6. Any additions or changes to these minutes should be brought to the attention of ME Panarites.

Distribution:

J Guffey
D Holmes
H Hughes
E Kuhnen
A Kuzmuk
G LeRoy
J Lynn
M Panarites
H Schaefer
R Stay
C Terr
R Whittaker

cc:

J Holwerda
P Hanke

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Colt Industries



FEB 9 1979

Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522
315 597-4811

Interoffice

To: See Distribution
Subject: PRODUCT LIABILITY MINUTES

From: Michael E. Panarites
Date: February, 1979

Date and Time of Meeting: February 15, 1979 - 8:00 am

In Attendance:

H. Hughes
~~J. Lynn~~
M. Panarties
R. Stay
C. Terr
R. White

Not Attending:

J. Guffey
D. Holmes
E. Kuhnien
A. Kuzmuk
G. LeRoy
H. Schaefer

1. Asbestos Booklet - It was decided that we would be making up our own booklet and using some of the ideas from Resinold and some of our own to make it more personal. Mr. Panarties would be getting together with Advertising to have them make up a booklet for us to see at the next meeting before going to press.
2. It was brought to the attention of the Committee that Nicolett was charged by their union that they were discriminating against the employees by requesting a no smoking ban in their plant. The case was taken to arbitration and the arbitrator found in favor of the union. Mr. Panarites said that this decision is not binding to other companies.
3. Ron Stay said the marketing department had set up a reporting system from the salesmen to tell them what companies were not going to buy any asbestos products in the future. Mr. Stay had a notebook filled with these reports which probably contained around 200+ companies. We, as a company, are not condemning the asbestos products we make, but tell our customers we do have alternatives. Kind of a 'soft-sell' - alternatives do not last as long and cost more, etc.

continued.....

*Review
3/19*

3/19/79

4. Discussion of labeling process - it is felt that the labeling of our products with the asbestos warning has not hurt us in the business.
5. Jack Lynn informed us that there are approximately 70 new court cases on asbestos against Garlock.
6. Mr. Panarites asked that those units who have committees to review the 'green book' and that we would be going over the marketing area at our next meeting. Mr. Panarites also stated that most of the work we had done was in the area of asbestos and that we should begin to expand into other areas.
7. The next meeting would be held on Thursday, March 15, 1979 at 8:00 am in the 6-1 conference room.
8. Any additions or changes to these minutes should be brought to the attention of ME Panarites.

cc: J Holwerda
P Hanke

Colt Industries



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APR 4 79

LAW DEPARTMENT
GARLOCK INC.

Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522
315/597-4811

Interoffice

To: See Distribution
Subject: PRODUCT LIABILITY MINUTES

From: Michael E. Panarites
Date: March 1979

Date and Time of Meeting: March 15, 1979 - 8:00 am

In Attendance: J Clement
H Hughes
A Kuzmuk
J Lynn
M Panarites
C Terr

Not Attending: J Guffey
D Holmes
E Kuhnien
G LeRoy
H Schaefer
R Stay
A Johengen

1. Xerox copies of the Colt/Garlock Asbestos booklet were passed out at the meeting for everyone to look over and offer the opinion on any changes or corrections that should be made. For those not attending the meeting, copies will be sent out with the minutes. After all changes/corrections have been made and the "brown copy" has been approved by the committee, it will be forwarded to Colt in New York for approvals by the safety and legal departments before going to press.
2. Mr. Terr from Hydraulic Components stated that they had given out copies of excerpts from the green booklet on marketing/sales to their sales people. It was suggested that other units do the same.
3. Joan Clement, Manager of Advertising, was our guest and spoke about the information that is printed in the catalogs on the chemical content, what the product is capable of doing, etc. should be approved and made sure it is correct by each unit before it is submitted to the advertising department for printing. It is not the responsibility of the advertising department to do this.

continued.....

PRODUCT LIABILITY MEETING

March 1979
Page 2

4. Because there was limited attendance at the meeting, it was adjourned.
5. The next meeting will be held on Thursday, April 12, Personnel Conference (6-1) at 8:00 a.m.
6. Any corrections or additions to these minutes should be brought to the attention of Michael Panarites.

) cc: J Holwerda
P Hanke

)

Attachment

RECEIVED

LA 10012

AUG 20 '79

LAURENCE M. GARLOCK
GARLOCK INC.

A NUMBER OF SHIPYARDS ARE NOT
TAKING THE TIME TO READ THE LABELS
AND THEY ERR ON THE SIDE OF SAFETY
LAURENCE M. GARLOCK

1-8/20/78

GARLOCK

Compression Packing
Product Liability Committee

Minutes of Meeting:

Wednesday, August 15, 1979

Attended by:

KM Artl
TJ Donovan
GD Hayes
JD Lynn
FA Piccola
RE White

Discussion centered around class action suits involving compression packing products and the amount of our liability in application recommendations made by our people.

In regards to asbestos, there has not yet been a Colt policy set forth. We are bound, however, to conform to all labeling and OSHA regulations. All dry asbestos styles have been dropped; any asbestos products produced by GARLOCK are encapsulated for safe handling. No orders are being accepted for dry asbestos products. When customers inquire as to why we no longer carry dry asbestos, we need only tell them that the line has been dropped for convenience. Should advise them, however, to discontinue use of dry asbestos unless they are willing to take the necessary precautions for safe handling. Our labeling system advises our customers of their responsibility to take precautions in the handling of all asbestos products by their employees or customers.

Most lawsuits currently on the books are for shipyards; others for our customers' customers. No employee suits. No case has gone to ~~court~~ as yet.
TRIAL

Under our "Conditions of Sale," legally we are bound only to replace or refund customer's money if our product fails. It must be proven that our product failed and that failure was not the customer's improper installation. We are bound to supply customer with a product that will work under the conditions outlined. If an order is received with the application information on the order, it is our responsibility to advise the customer that the product is not meant for the application if such is the case.

Our distributors are acting as GARLOCK representatives and are assumed to have all the application information we do. It is our responsibility to keep them informed.

*Not a
case*
~~In cases~~ where we buy our products from a supplier for resale, both GARLOCK and supplier are liable for failure of product.

*Rev
8/22*

Product Liability Committee
Meeting - August 15, 1979
Page 2

When supplying a customer with a sample of a new product on which all testing has not been completed, it is advised that evidence, in writing, be provided that states, "supplied for evaluation only ... no test data available." It is GARLOCK's responsibility and not our distributors' to include this written evidence. Also, it is recommended that we have a follow-up system to collect the name of the end-user and results of using the new product for our product file and future use. This should be done on every sample or sale of service order.

GARLOCK distributors must be informed that when breaking up a package of material that had contained a warning, the partial package must still contain the warning when sold to the end-user. If necessary, additional warning tags should be supplied by GARLOCK. Once notice has been given to distributors, it was recommended that GARLOCK salesmen check to be sure distributors comply with this requirement.

GARLOCK currently has the cleanest, safest methods of handling asbestos products in the industry. The question arose as to whether we receive additional business because of it.

The employee manual regarding hazardous materials is in the hands of ME Panarites in order to get Colt approval before distribution.

GARLOCK has not made any decision at this time in regard to smoking employees working with asbestos products.

All Material Safety Data Sheets distributed by Compression Packing are currently written by HR Hughes of the Lab in Palmyra.

Next meeting to be held Wednesday, September 12, 1979 at 10 o'clock a.m.

KM Art1
8/17/79

**before
you
begin**

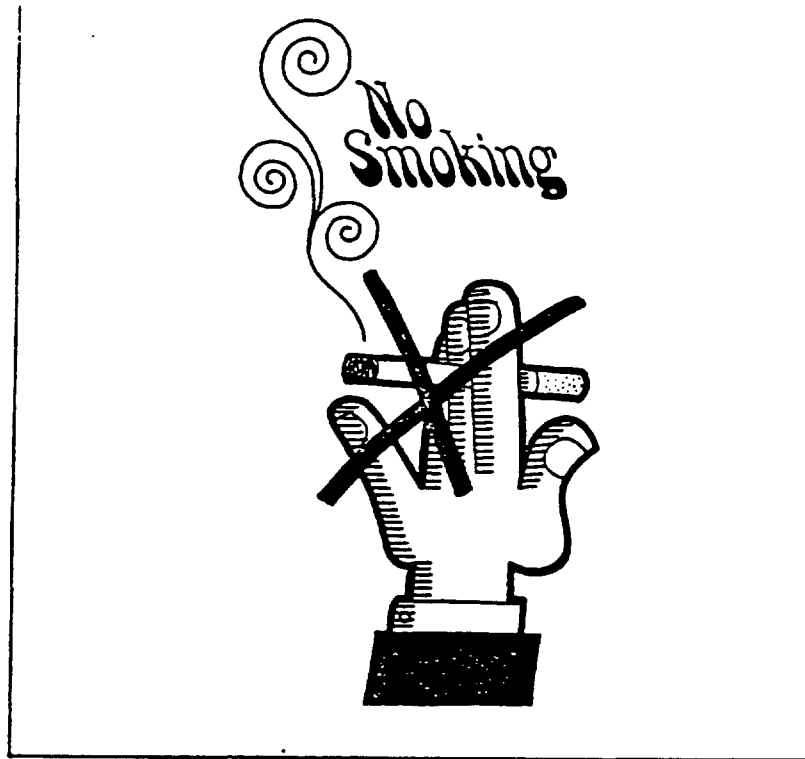
There are Some Things You Should Know...



Every person employed at GARLOCK where asbestos fiber is used should know that breathing excessive amounts of asbestos causes certain health problems.

GARLOCK has taken many steps to protect you from exposure to harmful amounts of asbestos fiber. To make these steps effective, you must follow safe working rules on the job

The health problems



The health problems that have been connected with exposure to asbestos are these:

- Breathing excessive amounts of fiber in the air might result in a disease called asbestosis — a scarring of the lung tissue, which when severe makes it difficult to breath properly.
- Persons who smoke cigarettes and inhale excessive amounts of asbestos dust are at a greater risk of developing lung cancer. Asbestos alone does not appear to cause this disease, but it can make people who smoke cigarettes more likely to develop this cancer. Studies show that if you don't smoke cigarettes, asbestos exposure does not increase your risk of getting lung cancer.
- Persons exposed to excessive amounts of asbestos have a greater risk of developing Mesothelioma which is a rare cancer of the lining of the chest or abdomen. There also is some indication from unconfirmed studies that there might be a greater incidence of cancer of the digestive tract in persons exposed to excessive amounts of airborne asbestos.

The health problems

You will be required to do certain things on the job to help us protect you. Some of these are:

1 You must do everything you can to prevent dust or getting asbestos fiber into the air where it could be inhaled.

2 In some areas you may at times be required to wear a respirator temporarily or other forms of personal protective equipment. You must wear this equipment properly whenever it is necessary.

3 You will be requested not to smoke on the job if you might be exposed to asbestos. You will be urged for your health's sake to quit smoking completely.

4 You will not be permitted to take any asbestos material home from the plant in order to prevent exposing others. You will use facilities provided to change work clothes, and wash before going home.

5 If equipment is not working correctly, you must report it to your supervisor immediately.



Be concerned — not alarmed. Present cases of health problems we mentioned are related to working conditions that existed many years ago. As we became aware of risks, we began spending considerable sums of money to upgrade dust control systems to prevent excessive asbestos exposures. We are confident that as long as employees follow safe work rules and equipment is operated properly, no employee will be exposed to hazardous amounts of asbestos fiber in our operations.

To assure continued control of risk, the company will regularly check asbestos-using operations with trained personnel. You must cooperate with these trained employees when they check your work areas.

Government inspections may be made of our facilities to make sure you are not being exposed to hazardous levels of asbestos. The government has set standards that limit how much asbestos you can be exposed to. We have taken steps to abide fully with those regulations.

**Be concerned,
not alarmed**

VIOLATION OF HEALTH WORK RULES CAN RESULT IN DISMISSAL.

After you begin work, you will be given an opportunity to learn more about the potential health risks of asbestos and what the company is doing to protect you on the job. You will be taught how to use personal protective equipment and other methods of protecting yourself. Because of the efforts of GARLOCK and your own efforts, it is likely that you will be as safe working for GARLOCK as in any other occupation or endeavor.

That is the way we want it. We will not take chances with your health and we won't allow you to take chances with it.

Violation of health work rules can result in dismissal.

After you begin work

Tear off this form on the dotted line.

Hand in the form but keep this booklet and refer to it often

Have you read the whole
booklet?

_____Yes _____No

Do you understand the health
risks connected with asbestos?

_____Yes _____No

Do you understand that
smoking cigarettes increases
the health risks connected
with asbestos?

_____Yes _____No

Do you understand that you
will have to follow certain work
rules set by the company to
protect you?

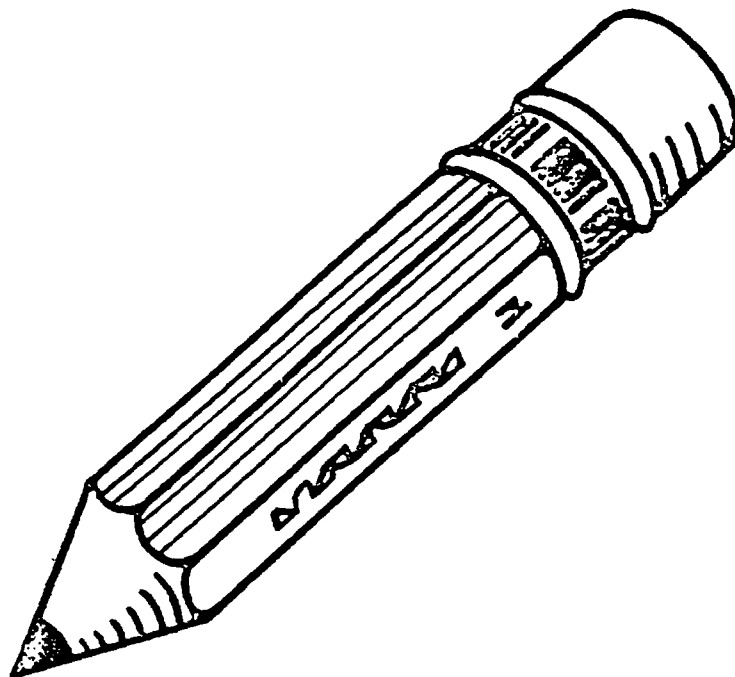
_____Yes _____No

Please sign your name and put today's date below.

Signed _____

Date _____

REFER TO THIS BOOKLET OFTEN



So we can be sure you have read this booklet and know about the potential risks connected with your job and the strict rules you must follow, we would like you to fill out the form at the right and return it to us. The form must be forwarded to your supervisor before your first pay period ends.

Special Meeting of the Board of Directors.

held at Palmyra, on the 18th

day of October 1906 at 12 o'clock M.

O.J. Garlock Presiding.

Present, the following:

The Garlock Packing Co. agreed to advance \$1000.00 for experimental purposes in connection with a Rubber and Asbestos Packing with the understanding that they could have two fifths of the stock in a company to be formed for manufacturing such sheet if successful.

EXHIBIT

L

Special Meeting of the Board of Directors

held at Palmyra on the 28'th

day of August 1907, at 9.00 o'clock, A.M.

O.J. Garlock Presiding.

Present, the following :

--Resolved, To move the building now used for storage and the
manufacture of Asbestos Gaskets to a location East of Factory

A regular meeting of the Board of Directors of The Garlock Packing Company was held at the home office of the Company, 402 East Main Street, Palmyra, New York, Tuesday, March 19, 1935, at 10:30 A.M. eastern standard time.

The gross profit ratio of Snyder has been about 50%. It is anticipated that this can be somewhat increased by diverting production to the Garlock factory. There will also be some indirect advantage in the usage of additional quantities of asbestos yarn from the textile department.

A luncheon meeting of the executive committee of the board of directors was held at the Genesee Valley Club in Rochester, N. Y. commencing at 12:30 p.m. on Friday, July 15, 1960.

Mr. McMullen stated that he had expected to bring before the meeting a recommendation for purchase from B. F. Goodrich of used equipment for manufacture of compressed asbestos sheet, which Goodrich is discontinuing; and reported that final exploration of the Canadian market, usage of the equipment for which by Yale at Kincardine had been intended, will not support the project. He indicated that therefore the recommendation will not be submitted.

A meeting of the Board of Directors of Garlock Inc. was held at the office of the Corporation, Division Street, Palmyra, New York, on Wednesday, August 3, 1960 at 11:00 o'clock a.m., e.d.t.

The President reported that a study is being made of ways to increase our direct sales of asbestos textiles to achieve fuller utilization of our present loom capacity required for internal use of woven asbestos.

The Organization meeting of the Board of Directors of Garlock Inc. was held at the principal office of the Corporation, Division Street, Palmyra, New York, on Wednesday, April 3, 1963, at 1:30 p.m., e.s.t.

-Appropriation The President requested approval of the Board for the expenditure of the sum of \$46,000 for the purpose of rebuilding certain asbestos textile equipment which had been in use continuously over a period of many years. This approval, he stated, was required in accordance with an informal policy requiring approval of the Board for expenditures in excess of \$25,000. After discussion of the need for the proposed expenditure, upon motion duly made, seconded and unanimously carried the President was authorized to expend \$46,000 for the purposes stated above.

A meeting of the Board of Directors of Garlock Inc. was held pursuant to call of the Chairman at the Conference Room of Marine Midland Bank, 1 Marine Midland Plaza, Rochester, New York on Wednesday April 25, 1973 at 10:30 A.M., EST.

- - -
Asbestos
Products

At the request of the Chairman, G. P. Wiess reported that management was looking into the possibility of building a new asbestos textile mill in Quebec, Canada. Canadian Federal Government grants and a Quebec Government loan would be available for such a project. The estimated project cost to Garlock would be about \$1,500,000.

A meeting of the Board of Directors of Garlock Inc. was held pursuant to call of the Chairman at the Executive Offices of the Company, 1250 Midtown Tower, Rochester, New York, on Wednesday, May 30, 1973 at 10:00 A.M., EDT.

Quebec Project

At the Chairman's request, Mr. Wiess reported that he is working on the proposed asbestos plant project in Quebec and has sent an application for a government grant.

Asbestos
Manufacturing

was held pursuant to call of the Chairman at the Executive Offices of the Company at Rochester, New York, on Wednesday, November 28, 1973 at 10:00 A.M. EST.

The Chairman led a discussion of Mr. Cook's background memorandum to the Board dated November 16, 1973 concerning the corporation's problems and plans relative to the manufacture of asbestos products in the United States (at Palmyra, New York), Mexico (at Mexico City), Spain (at Barcelona), and Canada (at Toronto, and planned for Sherbrooke in Quebec Province). The Chairman explained the overall situation in the following terms. The corporation manufactures four asbestos products, compressed sheet, braid, yarn, and cloth. The manufacture of two of these products, compressed sheet and braid, does not involve to a substantial degree the release of particles of asbestos fiber, and hence does not create a potential problem of compliance with existing or anticipated governmental standards for the release of such particles to the atmosphere. By contrast, the manufacture of yarn and cloth does create a potential problem of compliance. At present the corporation in its manufacture of asbestos products outside the United States - that is, in Mexico, Spain, and Canada - is in compliance with the environmental standards in effect in those countries. Those standards are now less stringent than those in effect in the United States but are expected to be brought over a period of several years to levels approximating those in effect now in the United States. The corporation intends to make from time to time any changes to its foreign manufacturing facilities required in order to stay ahead of anticipated changes in foreign environmental standards. As to its United States facilities, at Palmyra, the corporation is in compliance with the Federal standards promulgated under the Occupational Safety and Health Act and the corresponding New York State standards with respect to compressed sheet and braid, and by virtue of agreements in the nature of waivers obtained from state and federal safety authorities will be in compliance until

June 30, 1975 with respect to yarn and cloth. The corporation has two choices regarding the manufacture of yarn and cloth at Palmyra: either to make the substantial investment necessary to bring the Palmyra facilities to full compliance by June 30, 1975, or to discontinue manufacture of yarn and cloth at Palmyra by that date. Management plans to make the latter choice and to transfer Palmyra's manufacture of yarn and cloth to the proposed new plant in Quebec, assuming that the corporation's application for a grant to assist in construction of the plant is acted upon favorably. New facilities can be equipped with the required safety features more economically than can long-existing facilities such as those at Palmyra. The Board then raised questions about the health of employees working with asbestos at Palmyra. Mr. Wiess stated that liability against the corporation has recently been found in one workmen's compensation case of total disability of a Palmyra ex-employee caused by asbestos and that two other such alleged cases are pending. In the case where liability has been found, payments of some \$25,000 over five years will be due to the ex-employee for the corporation's account, and the ultimate total cost to the corporation including possible premium increases may be from \$80,000 to \$100,000. After discussion, the Chairman stated that the health procedures and tests administered for many years by the company doctor at Palmyra, by personnel of the Clifton Springs Hospital and Newark Medical Center, and by our insurance carrier, Employers Mutual Insurance Company of Wausau, for screening of new employees and monitoring of exposure to asbestos dust of present employees are constantly reexamined and are believed to be adequate.

A meeting of the Board of Directors of Garlock Inc. was held pursuant to call of the Chairman at the Executive Offices of the Company, 1250 Midtown Tower, Rochester, New York on Wednesday, December 19, 1973 at 10:00 A.M. (EST)

Asbestos
Manufacturing

The Chairman reported that management was reexamining the health procedures and tests administered at Palmyra relative to screening of new employees and monitoring of present employees working with asbestos products.

A meeting of the Board of Directors of Garlock Inc. was held pursuant to call of the Chairman at the Executive Offices of the Company, 1250 Midtown Tower, Rochester, New York on Friday, January 25, 1974 at 10:00 A.M.

Suit Against
Asbestos Textile
Institute

The Chairman stated that the Corporation, which is a member of a trade association named the Asbestos Textile Institute, had received a letter dated January 18, 1974 from Cadwalader, Wickersham & Taft, counsel to the Institute. A copy of the letter was given to each director present. The letter stated that on January 2, 1974 seven individuals who either had worked at Pittsburgh Corning Corporation's formerly operative asbestos plant at Tyler, Texas, or were spouses of such workers had brought a class action in the Federal District Court in that city against that company, its parents PPG Industries, Inc. and Corning Glass Works, Incorporated, the Industrial Health Foundation, Inc. and the Institute. The complaint charged, among other things, that the Institute impeded the flow of information concerning the health hazards involved in asbestos manufacture and thereby contributed toward the pulmonary diseases and, in some cases, deaths of workers at the plant. The Chairman stated that there was no indication at present that Garlock can or will be brought into the suit in any way.

A meeting of the Board of Directors of Garlock Inc. was held pursuant to call of the Chairman at the Executive Offices of the Company, 1250 Midtown Tower, Rochester, New York, on Friday, March 1, 1974 at 10:00 A.M.

✓ Quebec Project

At the Chairman's request, Mr. Wiess reported that the Canadian Government had offered a grant of \$182,400 outright and \$276,000 as a subsidy for 92 jobs at \$3,000 each, for a total of \$458,000, to facilitate the Company's proposed asbestos plant in Quebec, and that he would shortly meet with the Company's consulting engineers to discuss plans. Mr. Abell suggested that an additional grant be sought from the Province of Quebec and indicated the availability of an interest subsidy for certain loans. The Chairman stated that the conditions attached to the offered grant were being studied and that the project was under active consideration.

A meeting of the Board of Directors of Garlock Inc. was held pursuant to call of the Chairman at the Executive Offices of the Company, 1250 Midtown Tower, Rochester, New York, on Wednesday, May 29, 1974 at 10:00 A.M.

✓ Quebec Project

The Chairman stated that the proposed asbestos plant project in Quebec was rapidly coming to the point of decision and that the Canadian Government had increased the size of its grant offered to the Company under the terms of a law expiring June 30, 1974 from 15% to 25% of the total capital cost. Mr. Abell stated that the Government of the Province of Quebec had funds to invest in commercial enterprises and that, if the project went forward, it might be appropriate later in the summer to discuss with the provincial Government the possibility of its taking an equity position in the project, with the Company obtaining contracts to manage the project and to market the products. The Chairman stated that management was completing a report on the economics of the project and that he would like to convene a special meeting of the Board to consider the report and to decide whether to accept the offered grants and proceed with the project. After a discussion, the meeting was set for Monday, June 17, 1974 at 10:30 A.M.

A meeting of the Board of Directors of Garlock Inc. was held pursuant to call of the Chairman at the Executive Offices of the Company, 1250 Midtown Tower, Rochester, New York, on Monday, June 17, 1974 at 10:30 A.M.

Quebec Project

The Chairman discussed the report entitled "Asbestos Textile Facility - Sherbrooke, Quebec," dated June 10, 1974, of which a copy had been forwarded to each director prior to the meeting. Mr. Cook stated that the Company's objective was to build the best and cleanest asbestos-processing plant in the world. Mr. Gearhart recommended that a long-term contract be negotiated with an asbestos mine company to ensure the continued availability of raw material; Mr. Wagershauser stated that there was no shortage of raw material that would justify such a contract. In response to a question from Mr. Wells, Mr. McMullen stated that there was little prospect that asbestos packing would become obsolescent. Mr. McMullen stated that management favored establishing the new plant as a separate corporation and selling 50% of the equity to the Province of Quebec. Mr. Grady discussed financing of the project, the advisability of seeking long-term fuel and electricity contracts, and the possibility of obtaining approval for remission of import duty that would normally be charged on the machinery on order from West Germany. In summary, on behalf of management Mr. McMullen proposed to the Board that it approve the project as presented, specifically, that it approve (1) acceptance of the development incentives grant offered by the Canadian Government as explained at the May 29, 1974 Board meeting; (2) investment by the Company in the project of \$1,761,000 of new money plus about \$400,000 in working capital to be transferred from Palmyra upon the closing of asbestos textile operations there in mid-1975; (3) cancellation of R/A No. 21-11,438 for DM 1,454,513 (about \$576,000), approved by the Board on April 24, 1974, for certain equipment for E.R.I.C.A., because this equipment will now be diverted to the Quebec project and its cost is included in the \$1,761,000 of new money proposed to be invested in the Quebec project; and (4) negotiation with officials of the Province of Quebec and other appropriate governmental officials to seek additional development incentives and the sale of up to 50% of the equity to the Province. After discussion, the Board unanimously approved the Quebec project as presented.

A meeting of the Board of Directors of Garlock Inc. was held pursuant to call of the Chairman at the Oak Hill Country Club, Rochester, New York, on Friday, July 26, 1974 at 10:30 A.M.

Quebec Project

The Chairman reported that pursuant to the discussion at the previous Board meeting Garlock of Canada Ltd. had formally accepted the development incentives grant offered by the Canadian Government in the estimated amount of \$Cdn 894,250 to assist the proposed asbestos processing venture in Sherbrooke, Quebec. Mr. Wiess reported that oral discussions with officials of the Province of Quebec regarding further incentives and investment were proceeding favorably.

A meeting of the Board of Directors of Garlock Inc. was held pursuant to call of the Chairman at the Holiday Inn in Longview, Texas, on Tuesday, October 1, 1974 at 8:30 A.M.

Quebec Project

The Chairman stated that the Quebec project was proceeding as summarized in his memorandum to the Board of September 16, 1974, with a few changes in detail. He stated that Robert Pilmer, President of Garlock of Canada Ltd., would also be president of the new company, and that Mr. Pilmer together with Mr. Wiess planned to attend a ground-breaking ceremony at the site of the proposed factory in Sherbrooke, Quebec, on October 8, 1974, at which time Mr. St. Pierre, Quebec Minister of Business and Industry, would announce the project.

A meeting of the Board of Directors of Garlock Inc. was held pursuant to call of the Chairman at the Executive Offices of the Company at Rochester, New York, on Friday, October 25, 1974 at 10:00 A.M.

Quebec Project

Mr. Cook stated that the company that is to own and operate an asbestos textile factory in Sherbrooke, Quebec, as previously approved by .

the Board has been incorporated under Quebec law as Amiante de Sherbrooke Limitée. He stated that, as anticipated in Mr. McMullen's memorandum to the Board of September 16, 1974, the Quebec Industrial Development Corporation has now, by a letter of October 18, 1974 to the new company, offered to pay \$576,000 for a 48% equity interest in the company and to provide an interest subsidy of up to \$360,000 for a \$1.2 million loan to be obtained by the company from a Canadian bank, probably the Bank of Nova Scotia. He stated the QIDC offer is subject to execution of a detailed agreement. The consensus of the Board was that the project should proceed as previously approved, with Garlock of Canada Ltd. obtaining in due course a 50% equity interest in the company and private Canadian investors obtaining the remaining 2% equity interest.

A meeting of the Board of Directors of Garlock Inc. was held pursuant to call of the Chairman at the Executive Offices of the Company, 1250 Midtown Tower, Rochester, New York on Friday, January 24, 1975 at 10:00 A.M.

Quebec Project

The Chairman reported that construction of the factory for Amiante de Sherbrooke Limitée in Sherbrooke, Quebec, Canada, was approximately on schedule.

A meeting of the Board of Directors of Garlock Inc. was held pursuant to call of the Chairman at the Executive Offices of the Corporation in Rochester, New York, on Friday, July 25, 1975 at 10:00 A. M.

Amiante de
Sherbrooke
Limitee

The Chairman reminded the Board that at the October 25, 1974 meeting approval had been given for Garlock of Canada Ltd. to obtain a 50% interest in the company, named Amiante de Sherbrooke Limitee, that was to own and operate an asbestos textile factory in Sherbrooke, Quebec and for Amiante to borrow \$1.2 million from a Canadian bank, probably The Bank of Nova Scotia. He stated that said Bank had indicated willingness to make the loan, provided that Garlock Inc., as the parent of Amiante's 50% owner, would indicate its approval of the loan and would agree (a) to arrange any additional financing that Amiante might require to complete the construction, equipping, and bringing into operation of the Sherbrooke factory and (b) pending receipt by Amiante of a Canadian government grant of approximately \$900,000, to advance, directly or through a subsidiary, the funds (approximately \$500,000) for purchase of equipment and the funds (approximately \$400,000) for working capital required by Amiante (all amounts in Canadian dollars). After a discussion, the Board approved the acceptance by Garlock Inc. of said conditions imposed by said Bank.

DEPOSITION & TRIAL TESTIMONY GIVEN ON BEHALF OF GARLOCK INC
By Company Representatives, In Re: Asbestos Litigation

James E. Heffron

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
In Re: B&B Fulton Co.	Superior Court, Trial Court	GA	9/10/99	1998CV02684
McManus v. Anchor	Superior Court, Trial Court	MA	9/29/99	96-4393
Hart v. Garlock	Supreme Court, St. Lawrence Co.	NY	11/22/99	101569/98
In Re: B&B Fulton Co.	Superior Court, Trial Court	GA	11/30/99	1998 CV 02684

G. Elwood Houghton

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
Overby v. Raymark	Circuit Court, City of Chesapeake	VA	12/4/86	2055-M
Re: Asbestos Cases	Circuit Court, Madison County	IL	6/9/88	-

Harold Hughes

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
Sadowsky v. Anchor	Circuit Court, Oconto County	WI	3/22/95	91-CV-275

Clayton M. Jewett

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
* Bailey v. J-M	U.S. Dist. Court, Eastern Dist.	VA	10/26/78	76-155-NN et al.
Matthew v. J-M	Court of Common Pleas, PCCP	PA	10/23/79	4052(1/97);AC#1-71
Pennell v. J-M	Supreme Court, Albany County	NY	10/18/83	L-57219-8
Jakupko v. Alloy	Superior Court, Middlesex County	NJ	12/9/83	NA
Pratt v. Optical	U.S. Dist. Court, Western Dist.	TX	4/27/84	EP-83-CA-288,406 EP-82-CA-366
Adgate v. Keene	Common Pleas, 1st Judicial Dist.	PA	6/25/84	N-3080
* Atkins v. Garlock	U.S. Dist. Court, Southern Dist.	GA	5/23/88	CV288-52
Chancey v. Garlock	U.S. Dist. Court, Northern Dist.	GA	5/23/88	CV286-178
Bigpond v. Fibreboard	U.S. Dist. Court, Northern Dist.	OK	9/14/88	87-C-1223-E
Bigpond v. Fibreboard	U.S. Dist. Court, Northern Dist.	OK	10/13/88	87-C-1223-E
Hoell v. Garlock	Circuit Court, Sheboygan County	WI	2/26/92	90CV667
Armistead v. Celotex	U.S. Dist. Court, Calcasieu Parr.	LA	3/2/92	91-400
Delong v. Garlock	Superior Court, New Castle Co.	DE	4/21/92	88C-NO-110
* West v. Garlock	Superior Court, New Castle Co.	DE	4/21/92	89C-SE-123
Lukowski v. Garlock	Superior Court, New Castle Co.	DE	4/21/92	87C-JN-84
Kenny v. Garlock	Superior Court, New Castle Co.	DE	4/21/92	86C-AU-70
Deschenes v. Fibreboard	Superior Court, Orange County	CA	5/29/92	573285
Abercrombie v. Abex	Superior Court, San Francisco Co	CA	9/4/92	941345
Hellquist	Supreme Court, Los Angeles Co.	CA	10/19/93	BC-072504
Malone v. Garlock	District Court, Brazoria County	TX	11/15/93	7868

* = Cases consolidated for discovery purposes

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Clayton M. Jewett, continued:

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
Baltimore City Asb. Lit.	Circuit Court, for Baltimore City	MD	6/29/94	94095701
Pl's v. Borden Inc.	Civil Dist. Court, Orleans Parish	LA	7/11/94	91-18397
MI Board of Education	Circuit Court, Wayne County	MI	8/16/94	84-429-634-NP
MI Board of Education	Circuit Court, Wayne County	MI	8/17/94	84-429-634-NP
Potter, Et Al	District Court, Orleans Parish	LA	8/11/95	88-16051
Abate, Et Al (Phase II)	Circuit Court, Baltimore City	MD	1/19/95	93-076701
Boyd (Phase I)	Circuit Court, Common Pleas	PA	10/26/95	91-3806
Osick (Phase I)	Circuit Court, Common Pleas	PA	10/26/95	91-2571
Chappell	Circuit Court, Baltimore City	MD	5/29/96	95-213501
Cozie/Zong/Springer	Common Pleas, 1st Judicial Dist.	PA	1/30/97	2584/1135/3357

Kanwal Kapur

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
McGuire V. J-M	U.S. Dist. Court, Eastern Dist.	VA	6/22/79	CP77-1;CS77-68-NN

Wilbur Klotz

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
McGuire V. J-M	U.S. Dist. Court, Eastern Dist.	VA	6/22/79	CP77-1;CS77-68-NN

Alexander Kuzmuk

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
Bailey v. J-M	U.S. Dist. Court, Eastern Dist.	VA	10/27/78	76-155-NN et al.
Matthews v. J-M	Common Pleas, Philadelphia Co.	PA	10/23/79	4025(Jan 79);AC1-71

Gordon Leroy

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
Matthews v. J-M	Common Pleas, Philadelphia Co.	PA	10/23/79	4025(Jan 79);AC1-71

Thomas Mills

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
Hutton V. Raymark	Superior Court, Middlesex County	NJ	9/22/88	L-014451-87
* Mehegan V. Celotex	Superior Court, Middlesex County	NJ	9/22/88	L-025167-86
Smith, H. v. Raymark	Superior Court, Middlesex County	NJ	9/22/88	L-88932-85

Walter Rooney

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
Re: Asbestos Cases	U.S. Dist. Court, Eastern Dist.	VA	4/26/79	CP-#77-1
* Patrick V. J-M	U.S. Dist. Court, Eastern Dist.	VA	4/26/79	ALN#2330

* = Cases consolidated for discovery purposes

Revised 02/15/00

Excel : R:\ Testify\ Garlock Dep&trl Company Reps

Herbert Schaefer

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
McGuire v. J-M	U.S. Dist. Court, Eastern Dist.	VA	6/22/79	CP77-1; CS77-68-NN

George Townsend

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
McGuire v. J-M	U.S. Dist. Court, Eastern Dist.	VA	6/21/79	CP77-1; CS77-68-NN

Roy Whittaker

CAPTION	COURT	STATE	DATE	CIVIL ACTION NO.
Durski v. Celotex	Superior Court, Middlesex County	NJ	7/21/87	L-063301-86
* Lee v. Am. Cyan.	Superior Court, Middlesex County	NJ	7/21/87	L-019976-84
Sholtis v. Am. Cyan.	Superior Court, Middlesex County	NJ	7/21/87	L-069326-85
* Sharp v. II. C.G. RR	U.S. Dist. Court, Southern Dist.	KY	1/27/88	86-3749
Bruce v. II. C.G. RR	U.S. Dist. Court, Western Dist.	KY	1/27/88	C87-0229P(J)
Douglas v. Garlock	U.S. Dist. Court, Southern Dist.	NY	2/29/88	-
Judy v. Armstrong	Circuit Court, Monongalia County	WV	10/30/91	CA 88-C-147
* Vogel v. Armstrong	Circuit Court, Monongalia County	WV	10/30/91	CA 86-C-832
Hurlow v. Armstrong	Circuit Court, Monongalia County	WV	10/30/91	CA 86-C-764
Delong v. Garlock	Superior Court, New Castle Co.	DE	4/21/92	88C-NO-110
* West v. Garlock	Superior Court, New Castle Co.	DE	4/21/92	89C-SC-123
Lukowski v. Garlock	Superior Court, New Castle Co.	DE	4/21/92	87C-JN-84
Kenney v. Garlock	Superior Court, New Castle Co.	DE	4/21/92	86C-AU-70
Morgan v. Garlock	Superior Court, New Castle Co.	DE	8/30/93	CA89C-OC-185
Abate v. Garlock	Circuit Court, Baltimore City	MD	9/29/93	9236705
Dolan, Thomas W.	Superior Court, Middlesex Co.	MA	4/13/94	93-6001
Huff/Fowler v. Garlock	Superior Court, King County	WA	8/1/94	94-2-02492-2
McDonald v. U.P. RR	District Court, Cameron County	TX	12/6/94	94-01-497-E
Layton v. Garlock	Superior Court, Middlesex County	NJ	7/19/95	W02605788
* Granski v. Garlock	Circuit Court, Baltimore City	MD	12/6/95	95-020502
Balonis v. Garlock	Circuit Court, Baltimore City	MD	12/6/95	95-261701
Norman, Mike	Circuit Court, Wayne County	MI	12/13/95	94-421061
Charlot v. Garlock	District Court, Orleans Parish	LA	3/27/96	91-18397
* Fertig v. Garlock	Circuit Court, Baltimore City	MD	4/11/96	94-032501
Brannan v. Acands	Circuit Court, Baltimore City	MD	4/11/96	92-153501
Jackson, R. B.	District Court, Harris County	TX	4/17/96	87-37068 (?)
Swindler, Jr.	District Court, Orleans Parish	LA	6/5/96	95-15916
Eitemiller v. Acands	Circuit Court, Baltimore City	MD	9/24/96	96-176701
Aaron, Johnny B.	District Court, Brazoria County	TX	5/1/97	94-C-2110-2
Neary & McAnany	Common Pleas, 1st Judicial Dist.	PA	5/15/97	975 & 3666
Fisk & Graves	Common Pleas, 1st Judicial Dist.	PA	5/27/97	4276 & 4348
Finocchio	Common Pleas, 1st Judicial Dist.	PA	6/18/97	1484
Hornung & Steffancavage	Common Pleas, Philadelphia Co.	PA	11/13/97	Nos. 2681 & 2679
Nelson [Excerpt only]	Circuit Court, Baltimore City	MD	11/18/97	97-314701
MON MASS II	Circuit Court, Monogalia County	WV	1/14/98	Mon Mass II
Scribner	Circuit Court, Baltimore City	MD	10/30/98	95-284501
Boyd/Collins/Conger	Common Pleas, 1st Judicial Dist.	PA	?	Nos. 3834, 0760 & 4476
Greenleaf	U.S. Dist. Court, Eastern Dist.	PA	17/24/97	90-1557

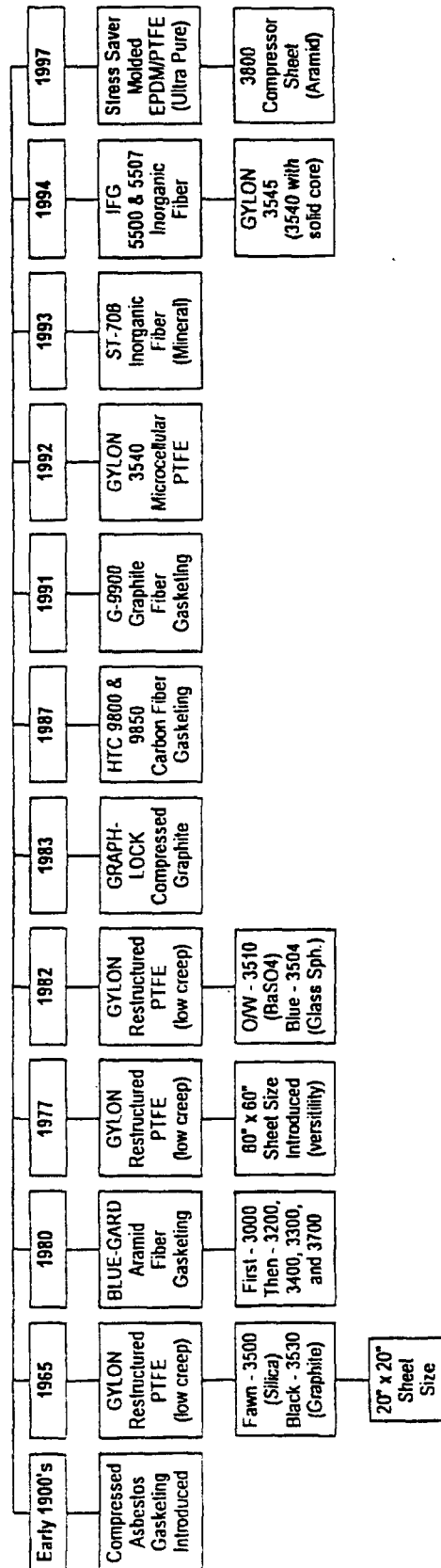
* = Cases consolidated for discovery purposes

Revised 02/15/00

Excel : R:\ Testify\ Garlock Dep&trl Company Reps

Garlock Sealing Technologies

History of Gasketing



Coltec Industries



**GARLOCK INC'S
DESIGNATION OF FACT AND EXPERT WITNESSES**

I.

Garlock Inc designates the following fact and expert witnesses¹ who may be called to testify at trial:

CARL MANGOLD, C.I.H.

Environmental Control Sciences, inc.
3033 170th Place Southeast
Bellevue, Washington 98008
206-747-9620

Mr. Mangold is an industrial hygienist. He may give testimony regarding the level of fiber release, if any, from gasket and packing products in the occupational setting. He may testify regarding threshold limit values and permissible exposure levels as promulgated by private organizations and government agencies. He may testify as to issues involving reentrainment and fiber drift. He may testify as to work practices regarding various types of occupations using products that contained asbestos. He may testify as to the applicability of the OSHA and EPA's guidelines as they relate to various types of products including gaskets and packings. He may testify as to exposure that may result from the use of other types of asbestos products. He may complete asbestos exposure assessments on individual plaintiffs.

ROBERT GAY, Ph.D.

83rd Place
Portland, Oregon 97229
503-297-3727

Mr. Gay is an environmental consultant and chemist. He may give testimony regarding' the level of fiber release, if any, from gasket and packing products in the occupational setting. He may testify regarding threshold limit values and permissible exposure levels as promulgated by private organizations and government agencies. He may testify as to issues involving reentrainment and fiber drift. He may testify as to work practices regarding various types of occupations using products that contained asbestos. He may testify as to the applicability of the OSHA and EPA's guidelines as they relate to various types of products including gaskets and packings. He may testify as to exposure that may result from the use of other types of asbestos products.

¹A Curriculum Vitae for each expert is available on request. These experts have been designated numerous times in the past and their C.V.'s previously produced, thus their C.V.'s are not being provided with this pleading in order to conserve the Court's valuable resources.

DONNA M. RINGO, C.I.H.

DMR & Associates
Post Office Box 24467
604 Pennyroyal Way
Louisville, KY 40223
502-245-5289

Ms. Ringo is a Certified Industrial Hygienist. She may give testimony regarding the level of fiber release, if any, from gasket and packing products in the occupational setting. She may testify regarding threshold limit values and permissible exposure levels as promulgated by private organizations and government agencies. She may testify as to work practices regarding various types of occupations using products that contained asbestos. She may testify as to the applicability of the OSHA and EPA's guidelines as they relate to various types of products including gaskets and packings. She may testify as to exposure that may result from the use of other types of asbestos products. She may complete asbestos exposure assessments on individual plaintiffs.

LARRY LIUKONEN, C.I.H.

Technical Safety & Health Consulting, Inc.
3605 West Pioneer Parkway, Suite D
Arlington, Texas 76013-4500
817-460-8400

Mr. Liukonen is a Certified Industrial Hygienist. He may give testimony regarding the level of fiber release, if any, from gasket and packing products in the occupational setting. He may testify regarding threshold limit values and permissible exposure levels as promulgated by private organizations and government agencies. He may testify as to work practices regarding various types of occupations using products that contained asbestos. He may testify as to the applicability of the OSHA and EPA's guidelines as they relate to various types of products including gaskets and packings. He may testify as to exposure that may result from the use of other types of asbestos products. He may complete asbestos exposure assessments on individual plaintiffs.

FREDERICK WILLIAM BOELTER, C.I.H.

Boelter Environmental Consultants
1300 Higgins Road, Suite 301
Park Ridge, Illinois 60068-5772
847-692-4700

Mr. Boelter is an industrial hygienist. He may give testimony regarding the level of fiber release, if any, from gasket and packing products in the occupational setting. He may testify regarding threshold limit values and permissible exposure levels as promulgated by private organizations and government agencies. He may testify as to issues involving reentrainment and fiber drift. He may testify as to work practices regarding various types of occupations using products that contained asbestos. He may testify as to the applicability of the OSHA and EPA's guidelines as they relate to various types of products including gaskets and packings. He may testify as to exposure that may result from the use of other types of asbestos products. He may complete asbestos exposure assessments on individual plaintiffs.

JOHN SPENCER, C.I.H.

Environmental Profiles
813 Frederick Road
Baltimore, Maryland 21228
410-744-0700

Mr. Spencer is an industrial hygienist. He may give testimony regarding the level of fiber release, if any, from gasket and packing products in the occupational setting. He may testify regarding threshold limit values and permissible exposure levels as promulgated by private organizations and government agencies. He may testify as to issues involving reentrainment and fiber drift. He may testify as to work practices regarding various types of occupations using products that contained asbestos. He may testify as to the applicability of the OSHA and EPA's guidelines as they relate to various types of products including gaskets and packings. He may testify as to exposure that may result from the use of other types of asbestos products. He may complete asbestos exposure assessments on individual plaintiffs.

J. LEROY BALZER, PH.D., C.I.H.

408 Horse Trail Court
Walnut Creek, California 94595
510-274-0826

Mr. Balzer is a Certified Industrial Hygienist. He may give testimony regarding the level of fiber release, if any, from gasket and packing products in the occupational setting. He may testify regarding threshold limit values and permissible exposure levels as promulgated by private organizations and government agencies. He may testify as to issues involving reentrainment and fiber drift. He may testify as to work practices regarding asbestos. He may testify as to the applicability of the OSHA and EPA's guidelines as they relate to various types of products including gaskets and packings. He may testify as to exposure that may result from the use of other types of asbestos products.

ROBERT SAWYER, M.D.

Preventive and Occupational medicine
149 Prospect Ave.
Post Office Box 1407
Guilford, Connecticut 06437
203-453-3060

Dr. Sawyer may testify, in general, concerning asbestos-related diseases and the effects of exposure to asbestos upon persons in occupational settings, including the epidemiology of asbestos-related diseases and the criteria for diagnosis of an asbestos-related disease. He may also testify regarding the existence or non-existence of any asbestos-related disease in the plaintiffs, including, but not limited to pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer and stomach cancer. He may also testify on whether any asbestos-related disease allegedly suffered by plaintiffs was medically or proximately caused by exposure to asbestos-containing gasket and packing products. He may also testify on the existence of a dose response relationship between exposure to asbestos and asbestos-related disease. He may also testify on increased risk of cancer issues and whether a particular plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking. With respect to particular plaintiffs, he may testify as to review and interpretation of x-ray films, review and interpretation of pulmonary function testing, the nature and extent of any impairment or disability, whether the condition is progressive and whether other disease or conditions are present in plaintiffs. Dr. Sawyer's testimony will be based on his training, experience, education and review of the medical literature concerning asbestos-related disease.

STANLEY FIEL, M.D.

Pulmonary Disease & Critical Care
Medical College of Pennsylvania
3300 Henry Ave
Philadelphia, Pennsylvania 19129
215-842-7748

Dr. Fiel may testify, in general, concerning asbestos-related diseases and the effects of exposure to asbestos upon persons in occupational settings, including the epidemiology of asbestos-related diseases and the criteria for diagnosis of an asbestos-related disease. He may also testify regarding the existence or non-existence of any asbestos-related disease in the plaintiffs, including, but not limited to pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer and stomach cancer. He may also testify on whether any asbestos-related disease allegedly suffered by plaintiffs was medically or proximately caused by exposure to asbestos-containing gasket and packing products. He may also testify on the existence of a dose response relationship between exposure to asbestos and asbestos-related disease. He may also testify on increased risk of cancer issues and whether a

particular plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking. With respect to particular plaintiffs, he may testify as to review and interpretation of x-ray films, review and interpretation of pulmonary function testing, the nature and extent of any impairment or disability, whether the condition is progressive and whether other disease or conditions are present in plaintiffs. Dr. Fiel's testimony will be based on his training, experience, education and review of the medical literature concerning asbestos-related disease.

JAMES CRAPO, M.D.

National Jewish Medical and Research Center
1400 Jackson Street
Denver, Colorado 80206
303-398-1436

Dr. Crapo may testify, in general, concerning asbestos-related diseases and the effects of exposure to asbestos upon persons in occupational settings, including the epidemiology of asbestos-related diseases and the criteria for diagnosis of an asbestos-related disease. He may also testify regarding the existence or non-existence of any asbestos-related disease in the plaintiffs, including, but not limited to pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer and stomach cancer. He may also testify on whether any asbestos-related disease allegedly suffered by plaintiffs was medically or proximately caused by exposure to asbestos-containing gasket and packing products. He may also testify on the existence of a dose response relationship between exposure to asbestos and asbestos-related disease. He may also testify on increased risk of cancer issues and whether a particular plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking. With respect to particular plaintiffs, he may testify as to review and interpretation of x-ray films, review and interpretation of pulmonary function testing, the nature and extent of any impairment or disability, whether the condition is progressive and whether other disease or conditions are present in plaintiffs. Dr. Crapo's testimony will be based on his training, experience, education and review of the medical literature concerning asbestos-related disease.

ILAN ALLAN FEINGOLD, M.D.

South Miami Hospital
6200 Southwest
73rd Street
Miami, Florida 33143
305-661-4611

Dr. Feingold may testify, in general, concerning asbestos-related diseases and the effects of exposure to asbestos upon persons in occupational settings, including the epidemiology of

asbestos-related diseases and the criteria for diagnosis of an asbestos-related disease. He may also testify regarding the existence or non-existence of any asbestos-related disease in the plaintiffs, including, but not limited to pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer and stomach cancer. He may also testify on whether any asbestos-related disease allegedly suffered by plaintiffs was medically or proximately caused by exposure to asbestos-containing gasket and packing products. He may also testify on the existence of a dose response relationship between exposure to asbestos and asbestos-related disease. He may also testify on increased risk of cancer issues and whether a particular plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking. With respect to particular plaintiffs, he may testify as to review and interpretation of x-ray films, review and interpretation of pulmonary function testing, the nature and extent of any impairment or disability, whether the condition is progressive and whether other disease or conditions are present in plaintiffs. Dr. Feingold's testimony will be based on his training, experience, education and review of the medical literature concerning asbestos-related disease.

ROBERT W. MORGAN, M.D., S.M. HYG.

Environmental Health Strategies, Inc.
250 C. Twin Dolphin Drive
Redwood City, California 94065
415-637-0723

Dr. Morgan may testify, in general, concerning asbestos-related diseases and the effects of exposure to asbestos upon persons in occupational settings, including the epidemiology of asbestos-related diseases and the criteria for diagnosis of an asbestos-related disease. He may also testify regarding the existence or non-existence of any asbestos-related disease in the plaintiffs, including, but not limited to pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer and stomach cancer. He may also testify on whether any asbestos-related disease allegedly suffered by plaintiffs was medically or proximately caused by exposure to asbestos-containing gasket and packing products. He may also testify on the existence of a dose response relationship between exposure to asbestos and asbestos-related disease. He may also testify on increased risk of cancer issues and whether a particular plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking. With respect to particular plaintiffs, he may testify as to review and interpretation of x-ray films, review and interpretation of pulmonary function testing, the nature and extent of any impairment or disability, whether the condition is progressive and whether other disease or conditions are present in plaintiffs. Dr. Morgan's testimony will be based on his training, experience, education and review of the literature concerning asbestos-related disease.

PETER BARRETT, M.D.

Clinical Professor of Radiology

Tufts University School of Medicine
10 Martins Lane
Hingham, Massachusetts 02043
617-471-1360

Dr. Barrett is a practicing radiologist and a B-reader certified by NIOSH. His testimony will relate to his interpretation of chest films taken of the plaintiffs, as disclosed in reports produced and made available to the plaintiff. It is anticipated that Dr. Barrett will testify generally as to his interpretation of the plaintiffs chest films, the presence of any asbestos-related condition as evidenced on the chest film, and the presence of other abnormalities or conditions unrelated to any exposure to asbestos. Dr. Barrett may testify, in general, concerning asbestos-related diseases and the effects of exposure to asbestos upon persons in occupational settings, including the epidemiology of asbestos-related diseases and the criteria for diagnosis of an asbestos-related disease. He may also testify regarding the existence or non-existence of any asbestos-related disease in the plaintiffs, including, but not limited to pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer and stomach cancer. He may also testify on whether any asbestos-related disease allegedly suffered by plaintiffs was medically or proximately caused by exposure to asbestos-containing gasket and packing products. He may also testify on the existence of a dose response relationship between exposure to asbestos and asbestos-related disease. He may also testify on increased risk of cancer issues and whether a particular plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking. With respect to particular plaintiffs, he may testify as to review and interpretation of x-ray films, review and interpretation of pulmonary function testing, the nature and extent of any impairment or disability, whether the condition is progressive and whether other disease or conditions are present in plaintiffs. Dr. Barrett's testimony will be based on his training, experience, education and review of the medical literature concerning asbestos-related disease.

ANDREW CHURG, M.D.

Department of Laboratory Medicine
University Hospital
2211 Wefbrook Hall
Vancouver, BC V6T 2B5
604-822-7776
604-822-7111

Dr. Churg is a board certified pathologist who may give testimony regarding the pathological diagnosis of the medical condition of any plaintiff and in the case of a deceased plaintiff, may give testimony as to the cause of death. He will further testify as to whether any given plaintiff or plaintiff's decedent had a condition or illness caused by asbestos exposure. He may also testify on the latency period related to various asbestos-related diseases and the carcinogenic properties of different types of asbestos fibers. Dr. Churg may testify, in general, concerning

asbestos-related diseases and the effects of exposure to asbestos upon persons in occupational settings, including the epidemiology of asbestos-related diseases and the criteria for diagnosis of an asbestos-related disease.

He may also testify regarding the existence or non-existence of any asbestos-related disease in the plaintiffs, including, but not limited to pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer and stomach cancer. He may also testify on whether any asbestos-related disease allegedly suffered by plaintiffs was medically or proximately caused by exposure to asbestos-containing gasket and packing products. He may also testify on the existence of a dose response relationship between exposure to asbestos and asbestos-related disease. He may also testify on increased risk of cancer issues and whether a particular plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking.

MICHAEL GRAHAM, M.D.

Office of the Medical Examiner
City of St. Louis
1300 Clark Street
St. Louis, Missouri 63104
314-522-6410

Dr. Graham is a board certified pathologist who may give testimony regarding the pathological diagnosis of the medical condition of any plaintiff and in the case of a deceased plaintiff, may give testimony as to the cause of death. He will further testify as to whether any given plaintiff or plaintiff's decedent had a condition or illness caused by asbestos exposure. He may also testify on the latency period related to various asbestos-related diseases and the carcinogenic properties of different types of asbestos fibers. Dr. Graham may testify, in general, concerning asbestos-related diseases and the effects of exposure to asbestos upon persons in occupational settings, including the epidemiology of asbestos-related diseases and the criteria for diagnosis of an asbestos-related disease.

He may also testify regarding the existence or non-existence of any asbestos-related disease in the plaintiffs, including, but not limited to pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer and stomach cancer. He may also testify on whether any asbestos-related disease allegedly suffered by plaintiffs was medically or proximately caused by exposure to asbestos-containing gasket and packing products. He may also testify on the existence of a dose response relationship between exposure to asbestos and asbestos-related disease.

He may also testify on increased risk of cancer issues and whether a particular plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking.

JOHN CRAIGHEAD, M.D.

Chairman, Department of Pathology
A249 Given Medical Building
University of Vermont College of Medicine
Burlington, Vermont 05405
802-656-3131

Dr. Craighead is a board certified pathologist who may give testimony regarding the pathological diagnosis of the medical condition of any plaintiff and, in the case of a deceased plaintiff, may give testimony on the medical condition which caused plaintiff's death. He will further testify as to whether any given plaintiff or plaintiffs decedent had a condition or illness caused by asbestos exposure. He may also testify on the latency period related to various asbestos-related diseases and the carcinogenic properties of different types of asbestos fibers. Dr. Craighead may testify, in general, concerning asbestos-related diseases and the effects of exposure to asbestos upon persons in occupational settings, including the epidemiology of asbestos-related diseases and the criteria for diagnosis of an asbestos-related disease. He may also testify regarding the existence or non-existence of any asbestos-related disease in the plaintiffs, including, but not limited to pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer and stomach cancer. He may also testify on whether any asbestos-related disease allegedly suffered by plaintiffs was medically or proximately caused by exposure to asbestos-containing gasket and packing products. He may also testify on the existence of a dose response relationship between exposure to asbestos and asbestos-related disease. He may also testify on increased risk of cancer issues and whether a particular plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking.

PHILIP CAGLE, M.D.

Baylor College of Medicine
One Baylor Plaza
6565 Fannin, MS 205
Houston, Texas 77030
713-790-2370

Dr. Cagle is a board certified pathologist who may give testimony regarding the pathological diagnosis of the medical condition of any plaintiff and in the case of a deceased plaintiff, may give testimony as to the cause of death. He will further testify as to whether any given plaintiff or plaintiff's decedent had a condition or illness caused by asbestos exposure. He may also testify on the latency period related to various asbestos-related diseases and the carcinogenic properties of different types of asbestos fibers. Dr. Cagle may testify, in general, concerning asbestos-related diseases and the effects of exposure to asbestos upon persons in occupational settings, including the epidemiology of asbestos-related diseases and the criteria for diagnosis of an asbestos-related disease.

He may also testify regarding the existence or non-existence of any asbestos-related disease in the plaintiffs, including, but not limited to pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer and stomach cancer. He may also testify on whether any asbestos-related disease allegedly suffered by plaintiffs was medically or proximately caused by exposure to asbestos-containing gasket and packing products. He may also testify on the existence of a dose response relationship between exposure to asbestos and asbestos-related disease. He may also testify on increased risk of cancer issues and whether a particular plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking.

VICTOR ROGGLI, M.D.

Department of Pathology
Box 3712
Duke University Medical Center
Durham, North Carolina 27710
919-681-3133

Dr. Victor Roggli will generally testify concerning asbestos related diseases and the effects of exposure to various asbestos-containing products upon persons in occupational settings. He may further testify regarding the epidemiology of asbestos diseases, the criteria for diagnosis of asbestos related disease, as well as the existence of a dose response relationship between exposure to asbestos and asbestos related diseases. He may also testify regarding asbestos-containing products, including their asbestos fiber content and use and their respective ability to cause or contribute to disease. He may further testify regarding the propensity of various asbestos fiber types to contribute to mesothelioma or other disease. He may also testify regarding the determination of the relative risks of suffering personal injury or death as a result of exposure to asbestos in occupational settings. He may also testify regarding the existence or non-existence of any asbestos related disease in the plaintiffs, including, but not limited to, pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer, and gastrointestinal cancer, where applicable. He may further testify on whether any asbestos related disease allegedly suffered by plaintiffs was proximately caused by exposure to asbestos-containing gasket and packing products, government regulation applicable to these products and whether these products are unreasonably dangerous. He may also testify on increased risk of cancer issues and whether a particular plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking and the relationship between smoking and alleged asbestos related diseases. Generally and with respect to particular plaintiffs, he may testify as to review and interpretation of x-ray films, review and interpretation of pulmonary function testing, the nature and extent of any impairment or disability, whether a condition is progressive and whether other diseases or conditions are present in plaintiffs. Dr. Roggli's testimony will be based on his training, experience, education and review of the medical and scientific literature and various air sampling studies, where applicable, as well as review of medical records, chest films, and pathology materials.

MARK WICK, M.D.

Barnes Hospital
Barnes Hospital Plaza
St. Louis, Missouri 63110

Dr. Mark Wick will generally testify concerning asbestos related diseases and the effects of exposure to various asbestos-containing products upon persons in occupational settings. He may further testify regarding the epidemiology of asbestos related diseases, the criteria for diagnosis of asbestos related disease, as well as the existence of a dose response relationship between exposure to asbestos and asbestos related diseases. He may also testify regarding asbestos-containing products, including their asbestos fiber content and use and their respective ability to cause or contribute to disease. He may further testify regarding the propensity of various asbestos fiber types to contribute to mesothelioma or other disease. He may also testify regarding the determination of the relative risks of suffering personal injury or death as a result of exposure to asbestos in occupational settings. He may also testify regarding the existence or non-existence of any asbestos related disease in the plaintiffs, including, but not limited to, pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer, and gastrointestinal cancer, where applicable. He may further testify on whether any asbestos related diseases allegedly suffered by plaintiffs was proximately caused by exposure to asbestos-containing gasket and packing products, government regulations applicable to these products and whether these products are unreasonably dangerous. He may also testify on increased risk of cancer issues and whether a plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking and the relationship between smoking and alleged asbestos related diseases.

Generally and with respect to particular plaintiffs, he may testify as to review and interpretation of x-ray films, review and interpretation of pulmonary function testing, the nature and extent of any impairment or disability, whether a condition is progressive and whether other diseases or conditions are present in plaintiffs. Dr. Wick's testimony will be based on his training, experience, education and review of the medical and scientific literature and various air sampling studies, where applicable, as well as review of medical records, chest films, and pathology materials.

BRUCE CASE, M.D.

Dust Disease Research Unit
School of Occupational Health
McGill University
1140 Pine Avenue West
Montreal, Canada H3A 1A3
514-398-4237

Dr. Bruce Case will generally testify concerning asbestos related diseases and the effects of exposure to various asbestos-containing products upon persons in occupational settings. He may further testify regarding the epidemiology of asbestos diseases, the criteria for diagnosis of asbestos related disease, as well as the existence of a dose response relationship between exposure to asbestos and asbestos related diseases. He may also testify regarding asbestos containing products, including their asbestos fiber content and use and their respective ability to cause or contribute to disease. He may further testify regarding the propensity of various asbestos fiber types to contribute to mesothelioma or other disease. He may also testify regarding the determination of the relative risks of suffering personal injury or death as a result of exposure to asbestos in occupational settings. He may also testify regarding the existence or non-existence of any asbestos related disease in the plaintiffs, including, but not limited to, pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer, and gastrointestinal cancer, where applicable. He may further testify on whether any asbestos related disease allegedly suffered by plaintiffs was proximately caused by exposure to asbestos-containing gasket and packing products, government regulation applicable to these products and whether these products are unreasonably dangerous. He may also testify on increased risk of cancer issues and whether a particular plaintiff has a reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking and the relationship between smoking and alleged asbestos related diseases. Generally and with respect to particular plaintiffs, he may testify as to review and interpretation of x-ray films, review and interpretation of pulmonary function testing, the nature and extent of any impairment or disability, whether a condition is progressive and whether other diseases or conditions are present in plaintiffs. Dr. Case's testimony will be based on his training, experience, education and review of the medical and scientific literature and various air sampling studies, where applicable, as well as review of medical records, chest films, and pathology materials.

RICHARD. J. LEE, Ph.D.

R.J. Lee Group, Inc.
350 Hochberg Road
Monroeville, Pennsylvania 15146
724-325-1776

Dr. Richard Lee is President of R.J. Lee Group, Inc. He has a Ph.D. in Theoretical Solid State Physics and his fields of specialization include phased contrast microscopy, transmission electron microscopy, computer controlled scanning electron microscopy, environmental asbestos analysis and quantitative materials characterization. He will testify regarding the appropriate analytical method (PCM) for the measurement of airborne asbestos fibers in occupational settings. He will also testify that the TEM Indirect Method is not a reliable method for measurement of exposure to airborne asbestos fibers in the occupational setting. He will also testify that the tyndallization effect is not a useful scientific tool for evaluating the amount of respirable asbestos fibers in the

air. He may also critique the sampling and analytical method employed by William Longo in experiments involving Garlock gasket and packing products.

HARRY DEMOPOULOS, M.D.

NYU Medical Center
Department of Pathology
550 First Avenue
New York, New York 10016
212-679-3200

Dr. Demopoulos will testify regarding the state of the scientific and medical knowledge concerning asbestos. His testimony may include, but is not limited to, discussions regarding the respiratory system, asbestos-related diseases and the effect of other substances on the respiratory system. Dr. Demopoulos may testify, in general, concerning asbestos-related diseases and the effects of exposure to asbestos upon persons in occupational settings, including the epidemiology of asbestos-related diseases and the criteria for diagnosis of an asbestos-related disease. He may also testify regarding the existence or non-existence of any asbestos-related disease in the plaintiffs, including, but not limited to pleural changes, asbestosis, lung cancer, mesothelioma, laryngeal cancer, esophageal cancer and stomach cancer. He may also testify on whether any asbestos-related disease allegedly suffered by plaintiffs was medically or proximately caused by exposure to asbestos-containing gaskets and packing products. He may also testify on the existence of a dose response relationship between exposure to asbestos and asbestos-related disease. He may also testify on increased risk of cancer issues and whether a particular plaintiff has reasonable fear of cancer due to exposure to asbestos. He may also testify on the health consequences of smoking.

DR. JOHN C. MADDOX

Department of Pathology
Riverside Hospital
J. Clyde Morris Blvd.
Newport News, Virginia 23601
757-594-2000

Dr. Maddox will testify as to the pathological diagnosis of diseases including, but not limited to, asbestosis, lung cancer, colon cancer and mesothelioma, and the association between asbestos (including the various types) and the alleged disease process involving the plaintiff. Dr. Maddox will further testify as to the contribution, if any, of exposure to gasket and packing products in the causation of the plaintiff's asbestos-related disease. Finally, Dr. Maddox will testify, in cases where sufficient lung tissue is available, as to the burden of asbestos (including the various types) in plaintiff's lungs and its contribution, if any, in causing the plaintiff's alleged asbestos-related disease.

II.

Garlock reserves the right to adopt the testimony of any and all experts identified by other defendants in this case, to the extent the testimony of said expert is not inconsistent with the defenses asserted by Garlock.

III.

Garlock reserves the right to call any all treating physicians, attending physicians, screening physicians, consulting physicians and/or pathologists of the plaintiff with knowledge of the physical or mental condition of the plaintiff.

IV.

Garlock further identifies all expert witnesses named by any other party and reserves the right to call any such witness in its case in chief. Garlock also reserves the right to call any fact or expert witnesses, whether listed here or not, in rebuttal.

Segal McCambridge Singer & Mahoney, Ltd.

ATTORNEYS AT LAW

SUITE 700
FIRST STATE BANK TOWER BUILDING
400 WEST 15TH STREET
AUSTIN, TEXAS 78701
(512) 476-7834
(512) 476-7832 FAX

00 APR -3 PM 10:09

MELISSA K. FERRELL

OFFICES IN:
CHICAGO
ANN ARBOR
AUSTIN

March 30, 2000

Mr. Reagan E. Greer
Bexar County District Clerk
Courthouse
100 Dolorosa Street
San Antonio, Texas 78205

VIA HAND-DELIVERY

Re: Cause No. 94-CI-10078; *In Re: All Asbestos-Related Personal Injury or Death Cases
File or To Be Filed in Bexar, County; In the District Court, Bexar County, Texas*

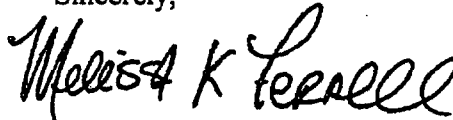
Dear Mr. Greer:

With regards to the above-referenced matter, I am enclosing an original and copy of *Defendant Garlock Inc.'s Objections, Answers and Responses to Plaintiffs' Master Set of Interrogatories and Request for Production*. We have retained the original of this document in accordance with Rule 191.4(d) of the Texas Rules of Civil Procedure.

Please have documents filed among the Court's docket and return the file-stamped copy with my courier.

With a copy of this letter, I am notifying all known defense counsel that a copy of this document has been served on Plaintiffs' counsel and to contact my office if they would like one.

Sincerely,



Melissa K. Ferrell

MKF:gmc
Encl.

Mr. Reagan E. Greer

March 20, 2000

Page 2

cc:	Baron & Budd, P.C.	Via Federal Express
	The Bogdan Law Firm	Via Federal Express
	Law Offices of Joseph Bruegger	Via Federal Express
	Law Offices of David McQuade Leibowitz, P.C.	Via Federal Express
	Silber Pearlman	Via Federal Express
	Waters & Kraus, Dallas	Via Federal Express
	All Known Defense Counsel of Record (without attachments)	Via U.S. Mail

Segal McCambridge Singer & Mahoney, Ltd.

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March 31, 2000

Via Federal Express

Ms. Nicole Brown Kennedy
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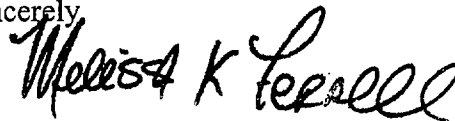
RE: Cause No. 99-CI-08314; *Patricia Ann Cavanaugh, Individually and as Personal Representative of the Heirs and Estate of Fred Patrick Cavanaugh, Jr., Deceased*; In the 57th Judicial District Court of Bexar County, Texas

RE: Cause No. 94-CI-10078; In RE: *All Asbestos-Related Personal Injury or Death Cases Filed or To Be Filed in Bexar County, Texas*; In the District Court, Bexar County, Texas

Dear Nicole:

Since you were not able to sign our Rule 11 Agreement that Garlock's El Paso and Cameron County supplemental responses were acceptable in Bexar County and the Cavanaugh case, we have filed supplemental responses in both the master file and the Cavanaugh case. As I explained on the phone, we would be glad to provide you with any exhibits you are interested in seeing. If you have any questions, please feel free to call.

Sincerely,



Melissa K. Ferrell

MKF:aps