

VIRGINIA: IN THE CIRCUIT COURT FOR THE CITY OF NEWPORT NEWS

D. GARLAND MOORE,	:	AT LAW NOS. 13603-S,
	:	14062-S & 14577-S
	:	
WILLIAM L. KELLEY,	:	AT LAW NO. 13945-S
	:	
Plaintiffs,	:	
	:	
v.	:	
	:	
H.K. PORTER COMPANY, INC.,	:	
et al.	:	
	:	
Defendants.	:	

**RESPONSES OF DEFENDANT MANVILLE
CORPORATION ASBESTOS DISEASE
COMPENSATION FUND TO
PLAINTIFFS' INTERROGATORIES**

Defendant Manville Corporation Asbestos Disease Compensation Fund (hereafter "the Fund"), by and through its attorneys, KNIGHT, DUDLEY, DEZERN & CLARKE, hereby submits the following Responses to Plaintiffs' Interrogatories.

PRELIMINARY MATTERS

The Fund objects to these discovery requests to the extent that they ask for information relating to the Fund's involvement in the asbestos industry. The Fund has never been involved in the manufacture, sale or distribution of asbestos or asbestos containing products. Nevertheless, the Fund interprets these questions to relate to Manville Corporation, its predecessors or subsidiaries (hereafter "related entities").

The Fund objects to these discovery requests to the extent that they call for production of documents entitled to protection as privileged attorney client communications or attorney work product.

To the extent that the information contained herein differs in any respect from any prior response to discovery, these answers shall be deemed to update and supersede such prior answers in any and all cases. The Fund reserves the right to supplement these responses to the extent that new or additional information becomes available.

RESPONSES

Interrogatory No. 1:

Describe in detail Manville's complete corporate history, including, but not limited to, date and place of incorporation, corporate purpose, principal place of business, and location of sales offices, and including any mergers, consolidations, asset purchases, acquisitions or spinoffs which concern or affect manufacture, sale, or distribution of asbestos-containing products. In addition:

- (a) State the name of any subsidiary or predecessor corporation, its date of incorporation, and its corporate purposes;
- (b) If Manville has bought or sold any asbestos product line or stock in a company dealing in asbestos-containing products, state the date of the sale and identify the seller or purchaser;
- (c) Identify each document related to the history or transaction(s) set forth above.
- (d) State whether Manville agreed to be, or has been held by any Court to be, legally responsible for the past liabilities of any nature of any other such corporation or entity. For each Court which has so held, identify the case, the jurisdiction of the Court, and the date of the Order.

RESPONSE:

For many decades, Manville Corporation or related entities engaged in the manufacture and sale of asbestos containing products, as well as the mining, milling and sale of asbestos fiber. The H. W. Johns Company, a predecessor to Manville Corporation, first commenced business in 1858. Manville Corporation or related entities first became involved in the mining and milling of asbestos in 1916 when it purchased the Jeffrey Mine in Asbestos, Quebec.

Johns-Manville Corporation was incorporated in New York in 1927. Johns-Manville Products Corporation, incorporated in 1927 in Delaware, was responsible for the manufacture of asbestos containing products. Johns-Manville Sales Corporation, incorporated in 1929 in Delaware, was responsible for the sale of asbestos containing products. In 1975, Johns-Manville Products Corporation merged into Johns-Manville Sales Corporation. A corporate reorganization in 1982 created a new parent corporation known as Manville Corporation, and in 1985 Johns-Manville Sales Corporation became Manville Sales Corporation.

Manville Corporation or related entities' principal place of business is Denver, Colorado.

Upon information available to the Fund the following subsidiaries of Manville Corporation or related entities at one time were related to the asbestos industry.

CURRENT MANVILLE SUBSIDIARIES

Cobra Canada, Inc. (50% owned by American Standard)
Incorporated in Canada
Name changed from Cobra Friction Products, Limited - 1981

Johns-Manville Corporation
Incorporated in New York - 1926
Authorized to do business in Colorado, Georgia, New Hampshire,
New Jersey, and New York

Johns-Manville East Africa, Limited
Incorporated in Delaware - 1968
Authorized to do business in Delaware

Johns-Manville India, Limited
Incorporated in Delaware - 1965
Authorized to do business in Delaware

Manville (Great Britain) Limited
Incorporated in the United Kingdom of Great Britain and
North Ireland
Name changed from Johns-Manville (Great Britain) Limited
- 1982

Manville De France S.A.
Incorporated in France
Name changed from Johns-Manville De France S.A. - 1982

Manville Do Brazil Ltda.
Incorporated in Brazil
Name changed from Johns-Manville Do Brazil - 1982

Manville Italian S.p.A.
Incorporated in Italy
Name changed from Johns-Manville Italiana S.P.A - 1982

Manville Japan, Limited
Incorporated in Japan
Name changed from Johns-Manville Japan, Limited - 1981

Manville Mexicana S.A. de C.V.
Incorporated in Mexico
Name changed from Johns-Manville Mexicana, S.A. de C.V. - 1982

Manville Sales Corporation
Incorporated in Delaware
Authorized to business in all fifty sates and the District of
Columbia
Name changed from Johns-Manville Sales Corporation - 1985

Manville Sudamericana Ltda
Incorporated in Delaware
Authorized to do business in Delaware
Name changed from Johns-Manville Sudamericana, Limited - 1982

New Materials, Inc.
Incorporated in New York - 1958
Authorized to do business in New York

Railroad Friction Products (50% owned by American Standard)
Incorporated in Delaware - 1954
Authorized to do business in Arizona, Arkansas, California,
Delaware, Georgia, Idaho, Illinois, Indiana, Kansas,
Maryland, Minnesota, Missouri, New York, North Carolina,
North Dakota, Oregon and Pennsylvania

Termoacusticos, S.A. de C.V.
Incorporated in Mexico - 1973

PREVIOUS MANVILLE SUBSIDIARIES

Acoustical Construction Corporation
Incorporated in New York - 1930
Dissolved - 1946

American Mineral Company
Name changed from Seehaver Clay & Mineral Company - 1947
Incorporated in California
Merged into Desert Minerals, Inc. - 1975

Asbestos Construction Company, Inc.
Incorporated in New York - 1922
Name changed to Johns-Manville Insulation Contracting & Supply
Company - 1960

Asbestos and Danville Railway Company
Incorporated in Quebec, Canada - 1897
Authorized to do business in Quebec
Divested - 1982

Banner Rock Corporation
Incorporated - 1929
Dissolved - 1938

Beton et Mollith S.A.

Incorporated in Belgium - 1923

Name changed to Johns-Manville S.A

Canadian Johns-Manville Asbestos, Limited

Incorporated in Canada - 1954

Name changed to Johns-Manville Amiante Canada, Inc. - 1980

Canadian Johns-Manville Ontario, Limited

Incorporated in Ontario, Canada - 1950

Dissolved - 1968

Celite Corporation

Name changed from Fibre Corporation - 1928

Dissolved - 1939

Chem Blend System Corporation

Incorporated in New Jersey - 1965

1970 - Acquisition

Dissolved - 1972

Coalinga Asbestos Company, Inc.

Incorporated in Delaware - 1960

Authorized to do business in California and Delaware

Merged into Johns-Manville Sales Corporation - 1975

Cobra Friction Products, Limited (50% Held by J-M - 1981)

Incorporated in the Dominion of Canada - 1960

Authorized to do business in the Dominion of Canada

Name changed to Cobra Canada, Inc.

Crown Tuft Carpet, Inc.

Incorporated in Georgia - 1963

Merged into Johns-Manville Products Corporation - 1972

Divested to Celotex Corporation - 1972

Delaware Johns-Manville Corporation

Incorporated - 1927

Name changed to Johns-Manville Corporation of Delaware - 1927

Desert Minerals, Inc.

Incorporated in California - 1956

Merged into L. Grantham Corporation - 1975

Fibre Corporation

Incorporated - 1914

Name changed to Celite Corporation - 1928

Grantham Mines Corporation

Incorporated in California - 1969

Name changed to L. Grantham Corporation - 1969

Holophane Company, Limited (The)
 Incorporated - 1911
 Amalgamated with Canadian Johns-Manville Company, Limited
 - 1978

Holophane S.A. de C.V.
 Incorporated in the Dominion of Canada - 1962
 Authorized to do business in California, New York, Ohio, New
 Jersey and the Dominion of Canada
 Divested - 1988

Interstate Flooring and Construction Company, Inc.
 Incorporated - 1930
 Dissolved - unknown

Jayem Exploration Company, Limited
 Incorporated in Quebec, Canada - 1961
 Dissolved - 1980

John Brand Corporation
 Incorporated in Delaware
 Name changed from Johns-Manville Dutch Brand Products - 1970
 Dissolved - 1972

Johns-Manville (Great Britain), Limited
 Incorporated in the United Kingdom of Great Britain and
 North Ireland
 Name changed from Johns-Manville Company, Limited - 1966
 Name changed to Manville (Great Britain) (Limited) - 1982

Johns-Manville (United Kingdom), Limited
 Incorporated - 1959
 Merged into Johns-Manville Company, Limited - 1965

H. W. Johns Manufacturing Company
 Incorporated - 1858
 Reorganized as H. W. Johns Manufacturing Company - 1874
 Merged with Manville Covering Company to become H.W.
 Johns-Manville Company - 1901

H. W. Johns-Manville Company
 Organized through merger between Manville Covering Company and
 H. W. Johns Manufacturing Company - 1901
 Name changed to Johns-Manville, Inc. - 1920

Johns-Manville Amiante Canada, Inc.
 Incorporated in Canada
 Authorized to do business in Quebec, Canada
 Name changed from Canadian Johns-Manville Asbestos, Limited
 - 1980
 Sold - 1983

Johns-Manville Belgium, S.A.
 Incorporated in Belgium - 1961
 Divested - 1983

Johns-Manville Boley, Limited
 Incorporated in Delaware - 1931
 Name changed to Johns-Manville Sudamericana, Limited - 1955

Johns-Manville Canada, Inc.
 Incorporated in the Dominion of Canada - 1978
 Authorized to do business in Alberta, British Columbia,
 Manitoba,
 New Brunswick, Nova Scotia, Ontario, Prince Edward
 Island, Quebec, Saskatchewan and Yukon Territory
 Sold - 1983

Johns-Manville Ceiling Corporation
 Incorporated - 1973
 Name changed to Southern Johns-Manville Products Corporation
 (Delaware) - 1973

Johns-Manville Company, Limited (United Kingdom)
 Incorporated in the United Kingdom - 1939
 Name changed to Johns-Manville (Great Britain), Limited - 1966

Johns-Manville Construction
 Incorporated - 1956
 Name changed to Johns-Manville Service Corporation - 1960

Johns-Manville Corporation of Delaware
 Name changed from Delaware Johns-Manville Corporation - 1927
 Name changed to Johns-Manville Products Corporation - 1932

Johns-Manville De France S.A.
 Incorporated in France
 Name changed from Societe Anciens Etablissements Hordot and
 Chataignon, Flechet et Cie., Succs. - 1961
 Name changed to Manville de France S.A. - 1982

Johns-Manville De Ventas S.A. de C.V.
 Incorporated in Mexico - 1962
 Name changed to Johns-Manville Mexicana, S.A. de C.V. - 1962

Johns-Manville Development Corporation
 Incorporated in Delaware
 Authorized to do business in California, Colorado, Illinois,
 New Jersey and Ohio
 Name changed to Johns-Manville Service Corporation - 1973
 Merged into Johns-Manville Sales Corporation - 1975

Johns-Manville Do Brazil Isolantes Termicos, Limited
 Incorporated in Brazil
 Name changed from Johns-Manville do Brazil S/A Isolantes
 Termicos - 1977
 Name changed to Manville Do Brazil, Limited - 1982

Johns-Manville Do Brazil S/A - Isolantes Termicos
 Incorporated in Brazil
 Name changed from Magnebras, S.A. - 1976
 Name changed to Johns-Manville Do Brazil Isolantes Termicos
 Ltda - 1977

Johns-Manville Dutch Brand Products Corporation
 Incorporated in Delaware
 Name changed from Van Cleef Brothers, Inc. - 1955
 Name changed to John Brand Corporation - 1970

Johns-Manville Equipment Corporation
 Incorporated in Delaware - 1961
 Merged with Johns-Manville Sales Corporation - 1973

Johns-Manville, Inc.
 Name changed from H. W. Johns-Manville Company - 1920
 Dissolved - 1927

Johns-Manville Insulation Contracting & Supply Company, Inc.
 Incorporated in New York
 Name changed from Asbestos Construction Company, Inc. - 1960
 Merged into Johns-Manville Sales Corporation - 1962

Johns-Manville International Corporation
 Incorporated in Delaware - 1929
 Authorized to do business in California, Colorado, Delaware,
 Florida, New York and Texas
 Merged into Manville Sales Corporation - 1986

Johns-Manville Italiana S.p.A.
 Incorporated in Italy
 Name changed from Silex S.p.A. - unknown
 Name changed to Manville Italiana S.p.A. - 1982

Johns-Manville Japan, Limited
 Incorporated in Japan
 Name changed from New Materials Kabushiki Kaisha - 1978
 Name changed to Manville Japan, Limited - 1981

Johns-Manville Mexicana S.A. de C.V.
 Incorporated in Mexico
 Name changed from Johns-Manville de Ventas S.A. de C.V. - 1962
 Name changed to Manville Mexicana S.A. de C.V. - 1982

Johns-Manville Mining and Trading
 Incorporated in Delaware - 1966
 Merged into Johns-Manville Corporation - 1973

Johns-Manville (Overseas), Limited
 Incorporated in the Province of Ontario - 1958
 Authorized to do business in Ontario
 Dissolved - 1981

Johns-Manville Products Corporation of California
 Incorporated in Delaware - 1956
 Authorized to do business in California
 Merged into Johns-Manville Products Corporation - 1972

Johns-Manville Products Corporation
 Incorporated in Delaware
 Authorized to do business in AZ, CA, CO, DE, FL, IL, IN, IA,
 KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, NE, NV, NH, NJ,
 NY, NC, OH, OR, PA, TN, TX, UT, VA, WA
 Name changed from Johns-Manville Corporation of Delaware
 - 1932
 Merged with Johns-Manville Sales Corporation - 1975

Johns-Manville Products Corporation of Georgia
 Incorporated in Delaware - 1955
 Merged into Johns-Manville Corporation - 1970

Johns-Manville Products Corporation of Massachusetts
 Incorporated in Delaware - 1939
 Merged into Johns-Manville Products Corporation - 1972

Johns-Manville Products Corporation of Mississippi
 Incorporated in Delaware - 1958
 Dissolved - 1966

Johns-Manville Products Corporation of Ohio
 Incorporated in Delaware - 1959
 Dissolved - 1972

Johns-Manville Products Corporation of Oregon
 Incorporated - 1956
 Merged into Johns-Manville Corporation - 1962

Johns-Manville Products Corporation of Pennsylvania
 Incorporated in Pennsylvania - 1940
 Merged into Johns-Manville Sales Corporation - 1975

Johns-Manville S.A.
 Incorporated in Belgium
 Name changed from Beton et Mollith
 Divested - 1983

Johns-Manville Sales Corporation
 Incorporated in Delaware - 1929
 Name changed to Manville Sales Corporation - 1985

Johns-Manville Service Corporation
 Incorporated in Delaware
 Name changed from Johns-Manville Construction Corporation
 - 1960
 Name changed to Johns-Manville Development Corporation - 1973

Johns-Manville Sudamericana, Limitada
 Incorporated in Delaware
 Name changed from Johns-Manville Boley, Limited - 1955
 Name changed to Manville Sudamericana, Limitada - 1982

Kingsey Falls Paper, Inc. (50% owned by Johns-Manville)
 Incorporated in Quebec - 1972
 Authorized to do business in Quebec
 Sold - 1984

L. Grantham Corporation
 Incorporated in California
 Authorized to do business in California
 Name changed from Grantham Mines Corporation - 1969
 Acquired in 1972
 Merged into Johns-Manville Sales Corporation - 1978

Magnebras, S.A.
 Incorporated in Brazil - 1957
 1973 - Acquisition
 Name changed to Johns-Manville Do Brazil, S.A. - Isolantes
 Termicos - 1976

Manvilglass, Limited
 Incorporated in Delaware - 1970
 Authorized to do business in Delaware and Argentina
 Name changed to Thermocoustic Insulations, Limited - 1976

Manville Covering Company
 Incorporated - 1886
 Merged into H. W. Johns Manufacturing Company - 1901

New Materials Kabushiki Kaisha
 Incorporated in Japan - 1959
 Name changed to Johns-Manville Japan, Limited - 1972

Nicely Corporation (The)
 Incorporated - 1933
 Dissolved - 1946

Revere Mills, Inc.
 Incorporated - 1964
 Name changed to Revere, Inc. - 1965

Revere, Inc.
 Name changed from Revere Mills, Inc. - 1965
 Merged into Crown Tuft Carpet, Inc.- 1972

Seehaver Clay and Mineral Company
 Incorporated in California - 1946
 Name changed to American Mineral Company - 1947

Silex S.p.A.
 Incorporated in Italy
 Name changed to Societa Anonima Immobiliare esari - 1940
 Name changed to Johns-Manville Italiana S.p.A. - 1962

Societa Accomandita Semplice Silex
 Incorporated - 1940
 Merged into Societa Anonima Immobiliare Cesari - 1940

Societa Anonima Immobiliare Cesari
 Incorporated in Italy - 1939
 Name changed to Silex S.p.A. - 1940

Societe Anciens Etablissements Hordot and Chataignon, Flechet et Cie., Succs.
 Incorporated - 1961
 Name changed to Johns-Manville De France S.A. - 1961

Southern Johns-Manville Products Corporation
 Incorporated in Delaware
 Name changed from Johns-Manville Ceiling Corporation - 1973
 Merged into Johns-Manville Sales Corporation - 1979

Table Mountain Asbestos Company, Inc.
 Incorporated - 1962
 Dissolved - 1967

Thermocoustic Insulations, Limited
 Incorporated in Delaware
 Name changed from Manvilglass, Limited - 1976
 Merged into Johns-Manville Sudamericana Limitada - 1976

Van Cleef Brothers, Inc.
 Name changed from Vee Cee Brothers, Inc. - 1947
 Name changed to Johns-Manville Dutch Brand Products Corporation - 1955

Vee Cee Brothers, Inc.
 Incorporated - 1947
 Name changed to Van Cleef Brothers, Inc. - 1947

Additionally, the names of any consolidation, merger or purchase of assets of any company by Manville Corporation or related entities can be obtained by a review of the Annual Reports of Manville Corporation and related entities, and the location of sales offices can be obtained from a review of corporate organizational charts. Copies of such reports and organizational charts are located at the records repository maintained by the Fund in Denver, Colorado, and will be made available for inspection and copying at a time agreed upon by the parties.

RECORDS REPOSITORY

All of the non-privileged documents in the possession, custody and control of the Fund which were obtained from Manville Corporation and which relate to asbestos litigation are located in a records repository in Denver, Colorado. The Fund assumed the management and operation of this repository on November 28, 1988, the date on which the Manville Corporation bankruptcy plan was consummated.

The repository was originally set up and managed by Manville Corporation to house the documents which Manville retrieved and produced in previous litigation. In 1983, pursuant to an order entered by Judge Ira Brown of the Superior Court in the City and County of San Francisco, Manville Corporation was required to produce all non-privileged documents relevant to the coverage litigation which Manville Corporation had commenced against its insurance carriers. That litigation was brought to establish Manville Corporation's right to defense and indemnification for costs incurred in connection with the asbestos litigation. The insurance litigation was ultimately settled for sums in excess of \$800 million.

In order to comply with Judge Brown's order, Manville Corporation hired numerous paralegals and law clerks and undertook a massive and comprehensive review of the corporate records of the company which existed at various Manville facilities world wide. Manville spent literally millions of dollars to gather and maintain this collection of documents.

Similarly, beginning in 1985, Manville Corporation was required to produce the vast majority of these same documents to representatives of the United States Department of Justice, in connection with Manville's actions against the United States. In those cases, Manville Corporation was claiming a right to indemnification or contribution for expenses incurred in the defense of asbestos health cases brought by workers employed in government owned or controlled shipyards.

These documents are currently kept at the document repository referred to above. The repository is now maintained and operated by the Fund.

Manville Fund Document Categories

The repository contains 19,317 boxes and 968 rolls of microfilm. These documents are grouped in nine categories:

- 01: Manville plant collection - 10,383 boxes
- 02: Waukegan plant collection - 4,908 boxes
- 03: Lompoc plant collection - 149 boxes
- 04: World Headquarters (WHQ) collection - 3,417 boxes
- 05: Microfilm from Manville WHQ - 492 rolls
- 06: Microfilm from Manville WHQ - 361 rolls
- 07: Documents sent by Local Counsel - 385 boxes
- 08: Microfilm with Redacted Documents - 115 rolls
- 09: Documents produced in January, 1989 - 73 boxes

The Manville Plant collection (01) includes documents from the Manville, NJ plant; the Nashua, NH plant; the Billerica, MA plant; the Savannah, GA plant; the Laurinburg, NC plant; and the Fort Worth, TX plant. It also includes documents sent to the plant for storage from Manville General Headquarters prior to the early 1970s, when the Headquarters offices were located in New York. In addition, this collection includes documents from plants in the eastern United States which were closed prior to the 1980s.

The Waukegan Plant collection (02) includes documents from the Waukegan, IL plant and the Oak Brook, IL office.

The Lompoc Plant collection (03) includes documents from the Lompoc, CA plant.

The World Headquarters (WHQ) collection (04) includes documents which were obtained from a number of locations, including: the Denison, TX plant; the Franklin, PA plant; the Green Cove Springs, FL plant; the Jeffrey Mine in Asbestos, Quebec, Canada; the Long Beach, CA plant; the Lompoc, CA plant; the Marrero, LA plant; the Manville offices in Montreal, Quebec, Canada; the Pompano Beach, FL plant; the Pittsburg, CA plant; the Stockton, CA plant; and the Waukegan, IL plant.

The WHQ collection also includes documents obtained from the files maintained at the World Headquarters, including: the Asbestos Fiber Division; the Audio-Visual Department; Manville Contract Units; the Corporate Information Center; the Corporate Relations Department; the Engineering Department; the Executive offices; the Fiberglass Division; the Filtration and Minerals Division; the Finance Department; the Health, Safety, and Environment offices; the Holophane Division; the Industrial Products Division; the Labor Relations offices; the Legal Department; the Patent and Licensing offices; the Research and Development offices; Sales Offices; and Workers' Compensation records.

Finally, the WHQ collection also includes: asbestos health claims filed against Manville; bankruptcy related materials; documents from the historical records kept at Manville headquarters ("B-Level"); insurance loss runs and policies; local counsel files; legal department files; and miscellaneous asbestos-related documents.

The Microfilm collections (05), (06) also contain documents which were located at World Headquarters. Generally, the same types of documents from the same departments and offices are included. However, at the time of the production in the insurance litigation, these documents were produced on film, usually because the documents were in active files which needed to be maintained for normal operations of the company. Records from the following collections were included in these microfilm collections: patents and licensing department; the Research and Development offices; the Lompoc plant; the Health, Safety, and Environment offices; and the records from the Englewood Cliffs, NJ sales offices; insurance department files; insurance policies; industrial hygiene surveys; administrative bulletins; asbestos medical articles; asbestos health depositions; asbestos health files; Manville Corporation general ledgers from 1919 to 1952; and growth plans from 1971 to 1980. In addition, some document collections produced to insurance companies are also located on film in these collections.

The Local Counsel Boxes (07) collection includes documents from Manville's counsel in California, Illinois and New Jersey.

The Microfilm collection with the redacted documents (08) contains documents from many locations previously mentioned. However, privileged portions of the documents have been redacted, and the redacted copy was filmed, so that the documents could be produced.

The Boxes produced in January, 1989 (09) are documents which had originally been classified as privileged. All privileged documents were reviewed again in 1988 and 1989, and the documents in the 09 collection were determined at that time to be producible.

Box Index

A Box Index for the repository is provided to reviewers. It took six paralegals three months to index the boxes. The microfilm took an additional three months to index. The finished indices were then spot-checked for accuracy by a supervising paralegal with five years experience in the asbestos litigation.

The form used to prepare the index was reviewed in advance by Selected Counsel for the Beneficiaries, a group of three plaintiff's attorneys appointed by the Trust's Board of Trustees to represent the Asbestos Litigation Group. Any changes suggested by these attorneys were incorporated into the form.

The index consists of twenty subject categories, twelve document types, and twelve time periods ranging from pre-1930 to post 1985, in five year increments. Each box and microfilm roll is indexed individually. A box may contain more than one type of document, subject area, or time period.

The Box Index allows reviewers to: 1) establish priorities for their searches; and 2) eliminate large numbers of boxes with irrelevant documents. For example, many boxes contain nothing but sales invoices or payroll records. A reviewer interested in documents relating to knowledge of asbestos health hazards would be able to eliminate those boxes from his or her search on the basis of the Box Index alone.

Reviewers may order a copy of the index so that they can identify the boxes which they wish to review prior to their arrival at the repository. Alternatively, the Fund will provide reviewers with a printout of all the information contained in the index. Finally, the Fund will conduct computer searches of the data base for reviewers who identify the categories in which they are interested.

Review Procedures

The repository is open to all parties to the asbestos litigation. An informational packet on the repository is provided to all parties who express an interest in the collection. It contains information regarding the hours of operation, rules regarding reviews, and procedures for scheduling visits to the repository. Generally speaking, the Fund has been able to accommodate the schedules of persons wishing to conduct a review, and access is often provided with less than one week's notice.

Interrogatory No. 2:

If Manville has, at any time, been engaged in the mining, manufacturing, producing, processing, compounding, converting, selling, merchandising, supplying, distributing, and/or otherwise placing in the stream of commerce asbestos, asbestos products and/or material containing asbestos, be specific in your answer and state:

- (a) The trade name(s) of the product(s);
- (b) The date you first mined, manufactured, produced, processed, compounded, converted, sold, merchandised, supplied, distributed and/or otherwise placed in the stream of commerce your asbestos, asbestos products and/or products containing asbestos;
- (c) The date your asbestos, asbestos products and/or materials containing asbestos were first placed upon the market;

- (d) The inclusive dates of mining, manufacturing, producing, processing, compounding, converting, selling, merchandising, supplying, distributing and/or otherwise placing in the stream of commerce;
- (e) A complete description of the product or products including the components of the product in percentage terms including specifically the percentage of each type of asbestos fiber (i.e., amosite, chrysotile and/or crocidolite) incorporated into the product;
- (f) A description of the physical appearance of such product;
- (g) A description of the intended uses of each such product;
- (h) The specific nature and date of each alteration or change in the composition of the product since the initial date of mining, manufacturing, supplying, distributing, and/or otherwise placing in the stream of commerce.

RESPONSE:

See Exhibit A attached hereto for a list of asbestos containing insulation or shipyard products manufactured by Manville Corporation or related entities. This list includes the product name, product type, fiber type, percent of fiber by weight, years of production and the date labeled.

Additionally, the Fund has in its possession product directories prepared by the Advertising and Public Relations Department from 1959 through 1986. These directories provide information regarding product lines, construction of the product, popular uses, responsible sales division or department, various operating divisions, the plants at which certain products were manufactured, products with a registered trademark, generic product names and competitive product names.

The Fund also has in its possession eighty-three boxes of product literature and brochures. Much of this material came from the Manville Corporate Information Center which contained the corporate library materials for Manville Corporation or related entities. These documents will be produced at the records repository maintained by the Fund in Denver, Colorado at a time agreed upon by the parties.

In addition to the documents which will be specifically identified and produced at that time, there may be additional documents responsive to this Interrogatory among the general collection of documents in the repository. This collection of documents will be made available to counsel for review.

See Exhibit B attached hereto for descriptions and intended uses of the products listed in Exhibit A.

The specific composition of asbestos containing products manufactured by Manville Corporation or related entities was changed frequently over the years in order to meet the needs and demands of customers. In general, these changes would have been made on the recommendation of personnel in the Research & Development Department. In addition, minor changes in product formulations were often accomplished at the plant level, depending on the availability and characteristics of certain raw materials. Many of these changes are reflected by manufacturing documents and product specifications which are located in the records repository maintained by the Fund in Denver, Colorado.

Manville also developed asbestos free replacement products for many of the asbestos containing products which were manufactured previously. For the most part, these replacement products differed substantially from the products which they replaced, and were not simply products from which asbestos was removed. No asbestos containing products have been manufactured by Manville since 1985. With respect to asbestos fiber, Manville Corporation or related entities divested their interest in asbestos mining and milling operations in 1983.

Substitutes for thermal insulation asbestos containing products manufactured by Manville Corporation or related entities and the dates of substitution are as follows:

<u>Asbestos containing products</u>	<u>Non-asbestos Products</u>	<u>Date Replaced</u>
SUPEREX-M	SUPEREX-1600	1971/73
SUPEREX-1900	SUPEREX-2000	1971/73
301 Cement	375 Cement	1971
450 Cement	460 Cement	1972/77
500 Cement	505 Cement	1972
THERMOBESTOS	THERMO-12	1972/74
MARINITE 23, 36, & 65	MARINITE XL	1976
METAL-ON (THERMOBESTOS)	METAL-ON (THERMO-12)	1972/74
SUPEREX-2000 (AF later dropped, making replacement product name SUPEREX-2000)	SUPEREX-2000AF	1972
Molded MIN-K (500, 1301, 2000)	Molded MIN-K (500, 1301, 2000)	1973/77
Flexible MIN-K	Flexible MIN-K	1973/77

(High Temperature Std.) (High Temperature Std.)

SONITE

SONITE

1973/74

See also response to Interrogatory No. 1.

Interrogatory No. 3:

Please identify by location and product produced each plant in which products listed in your answer to Interrogatory No. 2 have been manufactured and/or assembled and the dates said plants have been in operation.

RESPONSE:

Manville Corporation or related entities manufactured asbestos containing products at the following locations:

Johns-Manville
High Street
Billerica, Massachusetts 01862
(1940 to 1985)

Johns-Manville
Highway 75
Denison, Texas
(1957 to 1982)

Johns-Manville
2222 W. 5th Street
Fort Worth, Texas
(1952 to 1985)

Johns-Manville
P. O. Box 185
Green Cove Springs, Florida
(1965 to 1982)

Johns-Manville
Laurinburg, North Carolina
(1965 to 1980s)

Johns-Manville
Lawrence, Massachusetts
(1964 to 1974)

Johns-Manville
2500 Miguelito Road
Lompoc, California
(1928 to 1980s)

Johns-Manville
2420 East 223 Street
Long Beach, California 90810
(1938 to 1982)

Johns-Manville
(Watson)
Los Angeles, California
(1929 to 1981)

Johns-Manville
Main Street
Manville, New Jersey 08835
(1913 to 1985)

Johns-Manville
P. O. Box 128
Marrero, Louisiana
(1947 to 1980s)

Johns-Manville
P.O. Box 428
Marshville, North Carolina
(1963 to 1969)

Johns-Manville
Nashua, New Hampshire
(1907 to 1985)

Johns-Manville
P. O. Box 66
North Brunswick, New Jersey
(1947 to 1975)

Johns-Manville
McLean Boulevard at 9th Avenue
Patterson, New Jersey
(1970 to 1975)

Johns-Manville
P. O. Box 591
Pittsburg, California 94565
(1926 to 1980s)

Johns-Manville
Middlefield Road
Redwood City, California
(1932 to 1955)

Johns-Manville
Savannah, Georgia
(1956 to 1985)

Johns-Manville
Sperry Road & Airport Way
Stockton, California
(1957 to 1982)

Johns-Manville
Tilton, New Hampshire 03275
(1948 to 1976)

Johns-Manville
P. O. Box 55
Waukegan, Illinois 60085
(1922 to 1985)

Johns-Manville
P. O. Box 190
Zelienople, Pennsylvania 16163
(1943 to 1973)

To the best of the Fund's knowledge, the following asbestos containing products were among those manufactured at each facility listed below.

Billerica Plant products included:

- Asbestocite
- Heat Treated Molten Metal Marinite
- Heat Treated Thermostone
- Imperial Marinite
- Marimet 45
- Marinite
- Marinite 23
- Marinite 30
- Marinite 36
- Marinite 65
- Metal Veneered Marinite
- Molten Metal Marinite
- Pallite
- Permatone Corrugated Transite
- Reeferite
- Terraceran
- Thermostone
- Veneered Marinite

Denison Plant products included:

- Transite Pipe

Fort Worth Plant products included:

- Asbestos Roofing Felts

Green Cove Springs Plant products included:

Transite Pipe

Laurinburg Plant products included:

Railroad Brake Shoes
Rubber Rings

Lompoc Plant products included:

Diaseal M
Fibra-Flo
Precoat Celite 564
Precoat Sorbo-Cel
Sil-O-Cel Hard Finish Cement
Sil-O-Cel Plastic Insulating Cement

Long Beach Plant products included:

Metal On
Thermobestos Block
Thermobestos Insulating Cement
Thermobestos Pipe Covering
Transite Pipe

Los Angeles Plant products included:

15A Asbestos Jacket
45A Asbestos Jacket
Insulkote ET

Manville Plant products included:

0352 Cement
12 lb. Asbestos Tape
15A Asbestos Jacket
45A Asbestos Jacket
#50 Weatherproofing Felt
301 Cement
302 Cement
340 Cement
364 Cement
7700 Coated Asbestos Jacket
85% Magnesia Block
85% Magnesia Pipe Covering
Aertite
Albaseal
Anti-Sweat
Armature Asbestos Paper
Asbestobord

Asbestocel
Asbestos Cloth
Asbestos Fire Felt
Asbestos Firetard
Asbestos Jelly Rolls
Asbestos Paper and Rollboard
Asbestos Pipe Blanket
Asbesto-Sponge (felted, sectional, molded)
Asbestos Roll Fire Felt
Asbestos Rope
Asbestos Sheet
Asbestos Tape
Asbestos Textiles
Asbestos Tubing
Asbestos Turbine Blanket
Asbestos Welding Paper
Automotive Friction Materials
Body Sealer
Branchtite
Ceilinite
Colorsil
Commercial Grade Asbestos Paper
Corrugated Transite
Corspan
D.C. Flexstone
Doublex Asbestos Paper
Duplex Asbestos Paper
Duxseal
Engineers Insulating Tape
Facespan
Fibrofil Cement
Fibroid Asbestos Paper
Fil Insul Cement
Fine Corrugated Asbestocel
Flexboard
Flexible Min-K
H-Navaseal
HF Navaseal
High Strength Fibroid Asbestos Paper
High Temperature Flexible Min-K Blankets
Industrial Vent Caulking
Insulkote ET
Insulkote SG
Insulkote ST
Laptite Cement
Long Fiber Asbestos Paper
Metal On
Microbestos Paper
Millboard 101
Millboard 102
Millboard 103
Millboard 104

Millboard 105
Millboard 106
Millboard 219
Millboard C
Millboard XXX
Min-K 500
Min-K 1301
Min-K 2000
Min-Klad
Molded Packings
MX-3803 Asbestos Filler
Navy 450 Cement
Niagrite
Nodrseal
Non-Burn Asbestos Paper
Pan-O-Cel
Plastiseal F
Silicated Thermobestos Block
Silicated Thermobestos Pipe Covering
Sonite
Standard Flexible Min-K Blankets
Stove Putty
Superex M Block
Superex 1900 Block
Superex Cement
Superex Cement for Navy
Superex M Pipe Covering
Super Fire Felt
Thermobestos Block
Thermobestos Pipe Covering
ThermoFire Felt
Thermomat
Thermotape
Thermowrap
Transhield Asbestos Felt
Transite Pipe
Transite Ridge Roll and Battens
Transoseal
Type T Nodrseal
Uniseal
Vitribestos
Vitro Fire Felt
Wet Strength Fibroid Asbestos Paper
White Surface Asbestos Jacket
Woven Asbestos Sheet Packing

Marrero Plant products included:

15A Asbestos Jacket
7700 Coated Asbestos Jacket
Insulkote ET
Insulkote ST

Laptite Cement
Transite Pipe

Marshville Plant products included:

Asbestos Textiles

Nashua Plant products included:

Aegean
Armor-On
Asbestocite
Chemstone
Colorceran
Colorceran Edge Coating
Colorchip
Colored Marine Veneer
Colorlith
Colorlith Chalkboard
Colorthin
Dekeran
Duplex Asbestos Paper
Ebony
Electrobestos
Fireglaze Stonehenge
Flat Transite
Flexboard
Flexboard "B"
Imperial Walls & Beams
Marine Acoustical Unit
Marine Veneer
Marinite 36
Marinite 65
Molded Ebony
Molded Electrobestos
Molded Unit
Ohmstone
Perforated Colored Marine Veneer
Perforated Fiberboard "S"
Perforated Flexboard
Perforated Marine Veneer
Quadro
Santone
Splitwood II
Steam Cured Transite
Stonehenge
Submarine Bulkhead
Textured Transite
Transite Acoustical Panel
Transite Core Plates, Pallets and Slip Jackets
Transite Core Plate Sheets
Venetia

North Brunswick Plant products included:

Spirotallic Gaskets

Patterson Plant products included:

Die-Formed Rings
Gaskets

Pittsburgh Plant products included:

0352 Cement
6# Asbestos Felt Saturated for Pipe Covering
9# Asbestos Felt for Pipe Line
15A Asbestos Jacket
15# Pipeline Felt
23-1/2# Pipe Line Felt
301 Cement
302 Cement
319 Semi-Refractory Cement
400 Cement
45A Asbestos Jacket
450 Cement
50 Weatherproofing Felt
500 Cement
#55 Asbestos Base Felt
678 Semi-Refractory Cement
Aertite Coating
Anti-Sweat
Asbestile
Asbestocel
Asbestoment Type "S"
Asbesto-Sponge
Commercial Grade Asbestos Paper
Corrugated Transite
D.C. Flexstone
Fibroid Asbestos Paper
Fibrous Adhesive
Flexboard
Glasal Asbestos Cement Sheet
Insulkote ET
Insulkote SG
Insulkote ST
Kearsarge
Laptite Cement
Millboard
Saturated Asbestos Felts for Ply and Pipe Covering
Service Sheet No. 60
Transhield Asbestos Felt

Redwood City Plant products included:

- 85% Magnesia Block
- 85% Magnesia Cement
- 85% Magnesia Pipe Covering
- 85% Magnesia Pipe Covering for Copper Tubing
- Combination Pipe Covering (85% Magnesia and Superex)
- D.C. Flexstone
- End Lap Strips for Weatherproof Jackets
- Flat, Curved and Lagging Blocks (85% Magnesia and Superex)
- Magnesia Plastic
- Rough 85% Magnesia Sectional Pipe Covering, Segments and Block
- Rough Superex Sectional Pipe Covering, Pipe Blocks and Blocks
- Superex Block
- Superex Cement
- Superex Pipe Covering
- Superex Plastic

Savannah Plant products include:

- Asbestos Roofing Felts

Stockton Plant products included:

- Transite Pipe

Tilton Plant products included:

- Fuel Cell Millboard
- Fuel Cell Paper
- Microbestos
- Millboard, Type 106
- Quinorgo
- Quinorgobord
- Quinterra
- Quinterrabord
- Quintex
- Telgard
- Toasterbord
- TV Bord

Waukegan Plant products included:

- 0352 Cement
- 12# Asbestos Tape
- 15A Asbestos Jacket
- 45A Asbestos Jacket
- #50 Weatherproofing Felt
- 300 Cement
- 300 E Cement
- 301 Cement

302 Cement
304 Cement
319 Semi-Refractory Cement
340 Cement
364 Cement
400 Cement
450 Cement
500 Cement
678 Semi-Refractory Cement
7700 Coated Asbestos Jacket
85% Magnesia Block
85% Magnesia Cement
85% Magnesia Pipe Covering
Aertite
Anti-Sweat
Aqua Covering
Architectural Panels
Asbestile Cement
Asbestoboard
Asbestocel
Asbestoment
Asbestos Fire Felt
Asbestos Firetard
Asbestos Sponge (felted, sectional and molded)
Asbestos Textile Adhesive
Asbestos Welding Paper
Automotive Friction Materials
Commercial Grade Asbestos Paper and Rollboard
Corrugated Transite
D.C. Flexstone
Ebony
Fibroid Asbestos Paper
Fibrofil
Fibrous Adhesive
Fil Insul Cement
Fine Corrugated Asbestocel
Fireite Furnace Cement
Flat Transite
Flexboard
Insulkote ET
Insulkote SG
Insulkote ST
Klefstone
Laptite Cement
Marine Veneer
Millboard 101
Millboard 102
Millboard 103
Millboard 106
Millboard 106B
Millboard 106C
Millboard 106H

Millboard 202
Millboard 219
Millboard 766
Millboard Type A
Millboard Type C
Millboard XXX
MX-3808 Asbestos Filler
Navy 450 Cement
Non-Burn Asbestos Paper
Permatone S
Rentone
Ridge Roll
Santone
Sheet Packing
Splitwood
Super Fire Felt
Superex 1600 Block
Superex 1900 Block
Superex 2000 Block
Superex M Block
Superex SG Block
Superex Cement
Superex Cement for Navy
Superex M Pipe Covering
Superex SG Pipe Covering
Thermo Fire Felt
Thermobestos Block
Thermobestos Cement
Thermobestos Pipe Covering
Thermocore
Transhield Asbestos Felt
Transifoam
Transite Pipe
Transite Ridge Roll and Battens
Transitop
Vitro Fire Felt

Zelienople Plant products included:

Fireite Furnace Cement
Heat Treating Cement

Interrogatory No. 4:

Please list the name and address of each business entity from whom you have received raw asbestos and the dates and amounts received.

RESPONSE:

Manville Corporation or related entities used asbestos fiber obtained from a number of sources. For products which contained chrysotile, much of the fiber used was obtained from the Jeffrey Mine in Asbestos, Quebec, which was owned and operated by a Canadian subsidiary. In addition, Manville Corporation or related entities used fiber from their Coalinga Mine in California, Munro Mine in Ontario, Reeves Mine in Ontario and from their Rhodesian mines in southern Rhodesia. Manville also purchased asbestos from the Advocate Mine in Newfoundland, of which it was part owner. Other sources of chrysotile included: Advocate Mines, Ltd.; Bell Asbestos Mines, Ltd.; Calaveras Asbestos, Ltd.; Cassiar Asbestos Corporation, Ltd.; H.K. Porter Company; Marlime Chrysotile Asbestos Corporation, Ltd.; Metate Asbestos Corporation; Pacific Asbestos Corporation; and Rhodesian Asbestos, Ltd.

Crocidolite and amosite fibers were imported into this country, primarily from South Africa. The suppliers included: Antony Gibbs & Company, Ltd.; Asbestos Investment (Pty), Ltd.; John Beith (S.A.) Pty.; Ltd.; British Metal Corporation; Cape Blue Mines (Pty), Ltd.; Central Asbestos Company, Ltd.; C. J. Petro & Company; Colonial Sugar Refining Company, Ltd.; Egnepe (Pty), Ltd.; Flintkote Building Products Group; General Mining & Finance Corporation, Ltd.; General Services Administration; Hooker Chemical Company; John Holt & Company; Norca Corporation; North American Asbestos Corporation; Raw Asbestos Distributors; S.A. Asbestos Trading (Pty), Ltd.; V/O Soyuspromexport; Special Asbestos Company, Inc.; Turner & Newell, Ltd.; Turners Asbestos Fibres, Ltd.; and Watson, Geach & Company, Inc.

All responsive documents in the possession, custody or control of the Fund will be produced at the records repository maintained by the Fund in Denver, Colorado. In addition to the documents which will be specifically identified and produced at that time, there may be additional documents responsive to this request among the general collection of documents in the repository. This collection of documents will be produced at a time agreed upon by the parties. See response to Interrogatory No. 1.

Interrogatory No. 5:

Does Manville have custody, possession or control of any samples of asbestos-containing products? If so:

- (a) Identify each such sample;
- (b) Identify the custodian of each such sample;
- (c) Identify the date on which each such sample was sold and/or distributed by Manville;
- (d) State whether or not each such sample was retrieved from the stream of commerce or was retrieved from warehouses or storage facilities of Manville;

- (e) If it was retrieved from the stream of commerce, identify the person or company from whom it was retrieved;
- (f) If it was retrieved from in-house sources, i.e., warehouses, storage facilities, or sales representative of Manville, identify where and from whom it was received.

RESPONSE:

To the extent any such samples exist, they will be produced at the records repository maintained by the Fund in Denver, Colorado.

Interrogatory No. 6:

Does Manville have custody, possession, or control of any packages that presently or formerly packaged asbestos-containing products. If so:

- (a) Identify each such package;
- (b) Identify the custodian of each such package;
- (c) Identify the date on which each such package was sold and/or distributed by Manville;
- (d) State whether or not each such package was retrieved from the stream of commerce or was retrieved from warehouses or storage facilities of Manville;
- (e) If it was retrieved from the stream of commerce, identify the person or company from whom it was retrieved;
- (f) If it was retrieved from in-house sources, i.e., warehouses, storage facilities, or sales representatives of Manville, identify where and from whom it was received.

RESPONSE:

Samples of any such packages used by Manville Corporation or related entities and all responsive documents in the possession, custody or control of the Fund will be produced at the records repository maintained by the Fund in Denver, Colorado. In addition to the documents which will be specifically identified and produced at that time, there may be additional documents responsive to this request among the general collection of documents in the repository. This collection of documents will be produced at a time agreed upon by the parties. See response to Interrogatory No. 1.

Interrogatory No. 7:

Describe in detail the type of packages in which Manville sold, distributed or delivered asbestos, material containing asbestos, asbestos products and compounds in the Commonwealth of Virginia, listing:

- (a) The date each type of package was used;
- (b) A physical description thereof, including the size of the package, color, and size of any lettering on the package, including warnings of any kind; and
- (c) A description of any printed material or trademarks that appeared on or in said package, including a verbatim statement of any warnings or cautions; and
- (d) The name(s) of the most knowledgeable person(s) concerning the packaging of the asbestos and asbestos products.

RESPONSE:

PRODUCT PACKAGING

Asbestos containing pipe covering and block were placed in Kraft cardboard boxes. Asbestos cements were sold in multi-ply Kraft paper bags or heavy duty, polyethylene bags. Asbestos cloth was rolled, wrapped in laminated kraft paper, tied with tape or twine, and placed in burlap tubing. In later years, reinforced paper was used in place of burlap tubing.

Asbestos yarns were wound on paper tubes and shipped in fiberboard cartons or wooden boxes. Depending on the specified size, asbestos tubing was either wound on spools or cut to specified lengths, and placed in fiberboard cartons. Asbestos tape was rolled, bound with twine, and placed in fiberboard cartons.

Asbestos sheeting was rolled on tubes then wrapped in laminated kraft paper, tied with tape then placed in fiberboard cartons with paper lining between each roll. Larger sheets, which were individually wrapped in kraft paper, were placed in corrugated fiberboard cartons or placed in wooden crates.

Printing on the cartons or bags usually included the J-M logo, the name "Johns-Manville", the product name, the size and the weight. Additional language may have been used from time to time. Some photographs and product literature are located at the document repository maintained by the Fund in Denver, Colorado, and will be produced at a time agreed upon by the parties.

In addition, warning labels were placed on packaging of asbestos containing products beginning in 1964 as set forth below.

Also, the Fund has in its possession finished product specifications and purchase specifications for various asbestos containing products which describe the packaging of each product in detail, any alterations thereto, and the physical description thereof, including placement of warning labels. These specifications will be produced at the records repository maintained by the Fund in Denver, Colorado, at a time agreed upon by the parties.

FIBER PACKAGING

Manville Corporation or related entities first began to sell asbestos fiber in 1916. From that time through the early 1920s, fiber was packed by hand in jute bags. From the 1920s to the 1950s, the fiber was fed into spouts which poured fiber into jute bags. Dimensions of some of the jute bags used were as follows:

20" x 36"
23" x 40"
30" x 40"
32" x 40"
25 1/2" x 42"

In addition to jute bags, the use of open mouthed, two or three ply kraft paper bags began in 1940. The standard dimensions of the open mouthed bags were 16 1/4" x 7 1/2".

Beginning in the late 1940s, Manville Corporation or related entities began to use valve paper bags in addition to the open mouthed bags. This multi-walled bag was constructed of a specified number of plies, then completely sealed except for a sleeved opening on one corner, through which the fiber was injected. Dimensions of the valve bags ranged from 15" x 6 3/4" to 25" x 7 1/4".

Manville Corporation or related entities first began to "pressure pack" fiber in the late 1940s. The pressure pack method allowed the fiber to be automatically weighed out, dropped into a chamber, and compressed into a block. By 1954, all fiber was pressure packed. Jute bags were no longer used after this date unless specifically requested by the customer.

Two standard bags were used in conjunction with the pressure pack method: 1) the open mouthed multi-walled kraft paper bag, described above; and 2) the woven polyethylene bag. Pressure packed woven polyethylene bags were constructed of woven polyethylene filaments, which gave the bag strength and durability. The bags were coated on the outside with a polyethylene film to make it impervious to dust and moisture. The bag was then passed through a bag sealer, which automatically applied glue to the flaps and creased the bag together. These woven polyethylene bags may have been "palletized" for shipment by stacking and gluing several bags together to form a stable load for mechanical handling.

The size of the mold and resulting package dimensions were related to the density of the fiber grade involved. Varied sizes of pressure packers were developed to accommodate ranges of fiber grades and included the following:

11" x 16" x 24"
10" x 16" x 24"
8" x 16" x 24"
7" x 16" x 30"

In the 1970s, additional equipment was developed which was capable of producing high-density blocks of fiber measuring 9" x 12" x 16." These blocks had a density of 100 pounds per cubic foot, approximately twice the density of a standard pressure packed bag. Additionally, in 1972, Manville Corporation or related entities completed modifications of all pressure packaging equipment to allow production of a standard sized package with dimensions of 9" x 15" x 22 1/2." This new package accommodated fifty kilograms of fiber.

Also in the 1970s, Manville Corporation or related entities began to use a newly developed multi-ply unsized kraft paper bag to package fiber which was used in wet papermaking processes. The entire bag could be thrown into the mix, without removing the fiber from the bag.

Manville Corporation or related entities developed packing and shipping procedures designed to avoid damage to the bags during shipment. For example, when palletizing bags of fiber, various stacking arrangements were used to create a stable load. Some of the stacking practices implemented by Manville Corporation or related entities included the five bag pattern, three bag pattern, pinwheel pattern, two bag cross pattern and two bag pattern.

Additionally, it was necessary to pack the fiber in a fashion which would accommodate the customer's unloading practices. Single decking was used when the customer was capable of handling the full height and weight of units. In this case, a pallet was placed under the bottom layer of the bags so that the mechanical equipment could pick up the entire load.

Double decking was used when the customer was incapable of handling a full height and weight unit. In that case, the units which were prepared were approximately one half of the normal height and weight. The types of pallets used included cardboard deck sheets, cardboard deck sheets with stringer, single faced wood, double faced wood and polypropylene sheets.

In order to prevent deterioration of the pallet load during transit and subsequent handling by the customer, Manville Corporation or related entities used adhesive to bond the bags together on the pallet. The adhesive was applied to the face of the bag. If the bags were palletized automatically, as were pressure packed bags, the adhesive was automatically applied by a spray gun. If the bags were palletized manually, the adhesive was applied by brush.