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DATE: 1971-1978

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Illinois Proposed Ban; Work Guide - Bulletin, Report & Meeting
Minutes

BULLETIN

NO. 416

October 28, 1971

PROPOSED ILLINOIS BAN ON ASBESTOS IN BRAKE LINING

There has been considerable activity by members of the Asbestos Study Committee as regards the proposed Illinois regulations on "Asbestos and Spray Insulation". To quote from Part VII, Section 702 of the regulations proposed by the Illinois Pollution Control Board:

"The use of asbestos in the brake lining of vehicles manufactured after January 1, 1975, and sold for use in Illinois is prohibited."

In the Board's explanation it notes that the prohibition is worded to avoid the necessity of fitting vehicles manufactured prior to 1975 with "non-asbestos" brakes. However, there is no question but that the ban includes original equipment linings, and there can be little doubt but that replacement linings on these vehicles must also be of a "non-asbestos" type. Further, interpretation of the proposed regulations indicates that all vehicles are included: Passenger Cars, Trucks, Off Highway Equipment, Farm Tractors and the like. Also, the Board apparently considers "clutch facings to be the same as brake linings". While the immediate effect would be on those supplying original equipment linings, the secondary effect would be felt by all friction material manufacturers.

In the Board's explanation they state: "These prohibitions have been made with full consideration given to the available alternative materials."

From the Illinois hearings this past month, the Institute has received several articles of interest:

- (1) Johns-Manville memorandum, October 20, 1971, by Mr. Swetonic summarizing the Chicago hearings on October 15, 1971.
- (2) Written presentation by Dr. F. Pundsack of Johns-Manville as given at the Chicago hearings.
- (3) Dr. W. J. Nicholson, Mt. Sinai Hospital, a presentation in support of the Board's regulations, at the Chicago hearings.
- (4) Chicago Sun-Times October 18, 1971 report on the Chicago hearings.
- (5) Waukegan newspaper report of October 20, 1971 concerning the hearings in Waukegan.
- (6) Johns-Manville memorandum, October 20, 1971, by W. Raines summarizing the Waukegan hearings on October 19, 1971.

Attached to the delegates copies only of this Bulletin are excerpts:

- (1) Entire J-M summary of the Chicago Hearings.

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(2) Entire J-M summary of the Waukegan Hearings.

(3) Pages 20, 21 of Dr. Pundsack's presentation at the Chicago Hearings.

All those who have appeared at the hearings feel it is most urgent that the brake lining manufacturers advise the Control Board of their position on this proposed ban. It has been learned that the Control Board was surprised over the lack of response to the brake lining ban from friction material manufacturers.

Realizing the unreasonable deadline you must work against, comments should be in the hands of the Pollution Control Board by November 10, 1971. Please write:

Mr. Samuel T. Lawton
State of Illinois Pollution Control Board
189 West Madison Street
Suite 900
Chicago, Illinois 60602

The comments must be your own. We suggest that the primary force of these comments might be the lack of availability of known substitutes at this time. A secondary point might be that the Federal EPA (Environmental Protection Agency) is currently having studies made concerning the extent of emissions in the general environment from brake linings, and these results will not be known till mid 1972. Unless you have specific medical background, we suggest you not question the proposed safety standards on asbestos concentrations. Further, as is the case with most government bureaus, any pleading on cost or economics should be avoided. Please note that the portion of the proposed regulations that we are concerned with at this time is the general environment from brake lining emissions on vehicles in use. While the in-plant environment is also covered in the proposed regulations, we are advising our members primarily on the proposed ban on brake lining on vehicles.

Should you write Mr. Lawton, it would be appreciated if you would send a copy to the Institute. If there are any questions, please give me a call.

E. W. Drislane
Executive Secretary

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MEASUREMENT OF ASBESTOS FIBERS IN THE AIR

Since the organization of the Asbestos Study Committee it has been suggested that all members be advised on monitoring asbestos fiber concentrations in the work place. This should be of interest since the Occupational Safety and Health Act of 1970 was effective on April 28, 1971. Mr. William Reitze of Johns-Manville addressed the June meeting on this Act and subsequently we distributed literature concerning the Act and Threshold Limit Values.

Mr. Reitze advised that there was a guide published by the Asbestos Textile Institute:

"Measurement of Airborne Asbestos Fiber by the Membrane Filter Method."

Source: Asbestos Textile Institute

P.O. Box 239

Pompton Lakes, N. J. 07442

Price: \$1.00

Mr. Reitze cautioned, however, that this document might be misleading if personnel doing the work do not have the proper background or training.

For this reason, Mr. Reitze would be willing to give a talk and demonstration, including a discussion of materials, methods, costs, personnel requirements, and legal aspects. This would not be a training course but would be an information session where those responsible for making decisions could be given enough information to decide which course their firm should follow. There would, of course, be no charge for this presentation.

If there are members of your firm who would be interested in such a session please advise. It generally would be planned to have the session, if interest is sufficient, sometime after mid-January in the New York metropolitan area. As Mr. Reitze now must travel in from Denver, it would be important for those interested to indicate rather positively their intentions as regards attending such a session.

E. W. Drislane
Executive Secretary

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Asbestos Study Committee

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File
FRICTION MATERIALS STANDARDS INSTITUTE, INC., E-210 ROUTE #4, PARAMUS, N.J. 07652

MINUTES OF THE MEETING

of the

ASBESTOS STUDY COMMITTEE

Thursday, August 3, 1978 at 9:30 A.M.

Institute Office, E-210 Route 4, Paramus, N.J.

*Maige -
Pls make copy
for Ed Jenner
Thx
JW*

MEMBERS PRESENT

H. Wagner, Chairman
G. Nicholson
D. E. Stone
J. W. Armstrong

Carlisle Corporation
Abex Corporation
Bendix Corporation
Bendix Corporation

MEMBERS ABSENT

J. Dunderdale
I. H. Weaver

Lear-Siegler, Inc.
Raybestos-Manhattan, Inc.

OTHERS PRESENT

R. P. Gorman, Attorney
E. W. Drielane, Secretary

Gorman & Cole
Friction Materials Standards Institute

The meeting was called to order by Mr. Wagner, Chairman, at 9:30 A.M.

MINUTES OF PREVIOUS MEETING

The minutes of the meeting held January 19, 1978 had been distributed. These minutes were reviewed by the Secretary and a motion for their acceptance was made.

Upon motion duly made, seconded and unanimously passed, it was;

RESOLVED: To accept the minutes of the January 19, 1978 meeting as written.

MEMBERSHIP OF COMMITTEE

The Secretary advised that R. G. Nicholson was replacing Mr. D. J. Ivarsson from Abex Corporation on the Committee. Other than this change, the Committee Membership remains the same as in the past fiscal year. In addition to Members of the Committee, Mr. Jim Reis of Johns-Manville has been invited to serve as an associate of the Committee. At this August 3, 1978 meeting Mr. Dunderdale and Mr. Weaver were not present. Mr. Weaver called on August 2, 1978 to advise that he could not attend because of a last minute scheduling problem at his home plant. In the meanwhile, he had phoned the Secretary to suggest several changes to the work practices booklet. He had asked that these suggested changes be considered at this meeting.

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WORK PRACTICES BOOKLET

Mr. Wagner, Chairman of the Committee and Chairman of the Task Force that worked on the work practices booklet explained to the Committee the major reason for this meeting. He apologized to the Committee for the Task Force's attempt to complete the work practices booklet without having final Committee approval before being sent to the Board of Directors. The Secretary read from the minutes of the Board of Directors meeting, which was held on June 27, 1978, concerning the work practices booklet. At the Board meeting, the Directors reviewed the text of the suggested work practices booklet which had been completed by the Task Force. The Directors asked several questions concerning the booklet including such items as the disclaimer at the front of the booklet and they questioned whether the disclaimer was strong enough. A Director had also criticized the Appendix where the FESI was listed as a source for information concerning items such as the OSHA regulations, EPA regulation, etc. There were some items in the text with which the Directors did not agree. At the Board meeting it was asked if the Committee had reviewed this work after the Task Force had completed the write-up. The Secretary indicated that the Task Force did not submit it to the Committee because of the lengthy time it had taken to get it into the form shown. The Board of Directors then resolved to have this booklet submitted to the full Asbestos Study Committee for their recommendations. When the Committee has finished reviewing the booklet they were to re-submit it to the Board of Directors.

In order to review the booklet text, the Secretary read from comments he had received from Mr. Weaver. Mr. Weaver suggested that the art work should be improved. There was an indication that this might be possible based on the covering letter received from Mr. Cooper of Johns-Manville. Mr. Armstrong criticized the illustration showing the mechanic blowing dust from a set of brakes. He felt that there should be something to indicate that the mechanic was using eye protection during this operation. Another question concerned the respirator illustrated towards the end of the booklet. It was stated that it would be better if this respirator had "Approved" stamped on it. A member indicated that this was not a widely used respirator and that it would be preferable if the illustration showed a worker with the respirator most commonly used in this environment. A member stated that the most widely used approved respirator for this use would be the 3M-8710 disposable respirator. The Secretary asked if anyone had illustrations of the 3M-C710 respirator that could be used to show the artist. If not available, the Secretary stated that he would write 3M to request such an illustration. It was agreed that if the booklet were published that this illustration would be changed to show the 3M-8710 respirator.

Mr. Weaver had suggested a different title for the booklet. The title shown on the Task Force's booklet was "Friction Materials Handling Methods." Mr. Weaver suggested "Recommended Work Practices for Asbestos Friction Materials During Brake and Clutch Servicing." Mr. Weaver had indicated that the "Asbestos Friction Materials" part of this title could be shown in bolder type with the other words in smaller type. This suggested title was considered too long by the Committee members. It was stated that an Institute booklet should be generic or general in items and should not be tied specifically to asbestos. There are other elements in the dust that should be controlled. Perhaps the precautions suggested would apply to dust from other materials as well as asbestos dust. Concern was expressed that other fibers may create problems similar to those experienced with asbestos. It was suggested that in addition to being too specific, the suggested title was too specific. A member suggested that the appropriate title could be "Friction Materials Work Practices Methods." It was suggested that this was inappropriate and that this booklet should serve primarily as a guide. It was then suggested that the title be "Friction Materials Work Practices Guide."

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Because of the many decisions to be made at this meeting it was decided that resolutions would not be necessary for every editing change to the booklet, but that changes would be indicated when members approved certain wording. At this point, the Committee members approved the wording "Friction Materials Work Practices Guide" as the title for the booklet. In addition, it was suggested that "Friction Materials Standards Institute, Inc." be shown in smaller type at the bottom of the front cover. A suggestion was made that "FMSI" be inserted. The Secretary noted that in the copy from Johns-Manville that "Friction Materials Standards Institute" had been put at the top of the front cover but it did not show in the stencilled copies made for the Committee Members. This "Friction Materials Standards Institute" should be dropped to the bottom of the front cover. At a later point in the meeting it was stated that the month and year of publication should also be shown on the front cover. It was suggested that the month and year of publication be shown at the top of the front cover.

Mr. Weaver had reiterated that Raybestos-Manhattan did not agree with the disclaimer shown in the third paragraph under the Introduction. The members read this disclaimer wording and agreed that it was appropriate as written. One member indicated that his company would not proceed with distribution of the booklet without a disclaimer approved by Counsel. The Members accepted the wording as shown in the text.

At the bottom of this first page under "Asbestos and Friction Materials" it was suggested that the words "Proper Work Practices...." be underlined. This was to emphasize this point. Counsel stated that if this sentence was underlined he would insist that the disclaimer language be underlined. Counsel stated that it would be inappropriate if other wording was emphasized more than the disclaimer. It was decided not to underline this wording.

On the page summarizing the OSHA Asbestos Standard, Mr. Weaver had suggested that the summary be moved to the rear of the booklet along with the reference sources for additional information, such as the Asbestos Information Association, Friction Materials Standards Institute or the users' friction materials supplier. A member suggested that the blank area over the summary of the OSHA Asbestos Standard have a prominent "WHY." In essence, the "WHY" is questioning the illustration telling a mechanic not to use an air hose, and the OSHA Asbestos Standard is the answer. It was stated that use of this space on this page would help emphasize the importance of these procedures. The Members agreed that the summary of the OSHA Asbestos Standard should stay where originally set and that "WHY" should be placed in large letters over the text.

A question was raised about the use of the word "ceiling" concentrations. This wording was used in the OSHA Standard. It was suggested that a user in a brake shop might misunderstand the term "ceiling." One might think that measurements are to be made at the ceiling in the workplace rather than in the immediate workplace area. It was felt that this "ceiling" usage could be confusing to the uninitiated. It was suggested that a word such as "maximum" or "peak" be added. The word "maximum" could also be confusing and it was suggested that the word "peak" be shown in parenthesis following the word "ceiling" for the exposure limits. There were additional comments made concerning the "two fibers" and the punctuation that appeared after it. By reference to the OSHA Standard as written, the wording was left as shown. In a further reading, the wording "All external surfaces, machinery and equipment must be maintained free of asbestos fiber accumulation" was reviewed. Reference is not made to machinery and equipment in the OSHA text. Those words were therefore removed. At the bottom of this page reference to the Appendix was removed, because the Appendix was to be dropped in favor of new wording.

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Mr. Weaver had suggested rewording of the caption over the illustration of a worker vacuuming a brake drum. He had suggested that the words "brake assemblies" replace the word "brakes." Members felt that this applied to clutch housings as well as to brake assemblies and that the wording "brakes" should be dropped. After discussion, the members agreed that the wording would read as follows: "Use vacuum or wet methods for cleaning." Mr. Weaver had made suggestions for considerable rewording under the heading "Handling New Friction Materials." Suggestions were made for a rather complete revision of the second paragraph. His suggestions were accepted, except that in the last sentence the members wished to change the suggested wording to "This may keep dust levels below OSHA maximums and eliminate the need for respiratory protection...."

In the next section Mr. Weaver's suggestions were considered and changes were made to both the text and the suggestions. In particular, the last sentences were changed to read as follows: "Heat and abrasion during normal use may generate dust containing asbestos. Some dust will accumulate in brake and clutch assemblies." The members felt that it was not necessary to indicate "drum" brake or "dry" clutch assemblies. Other suggestions in this section by Mr. Weaver were accepted. He indicated that dust "can" be removed. Another suggestion accepted was to separate the paragraphs in the next section. The other was to remove the words "air purifying" before respirator. Under Machining Friction Materials, Mr. Weaver's suggestion to remove the words "or press brake" was accepted.

Per Mr. Weaver's suggestion, the "Dust Collection Methods" heading should be all caps. At the end of the second paragraph under this section "below permissible levels" was changed to "within permissible levels." The entire next paragraph was removed. It was felt inappropriate that the Institute recommend adapting or modifying other peoples' equipment. In order to get this message in the text it was suggested that the NIOSH recommendations that a hose of a high efficiency industrial vacuum be attached to the arcing machine exhaust be worded exactly as NIOSH had worded it. In this fashion, this will be a NIOSH recommendation. In addition, the reference to the Appendix was removed.

Where the entrance warning sign is shown in all capital letters, Counsel indicated that this applies more emphasis to the sign than the disclaimer wording. It was suggested that either the disclaimer wording be put in caps, or that this lettering be put in the same type size and style as that used in the remainder of the text. It was decided that the asbestos dust warning sign for the entrance be set in the same type size as used in the balance of the text.

Mr. Weaver had suggested that the words "multiple stage high efficiency filters" be used in the wording at the top of this final page. This suggested wording appeared appropriate and was accepted by the Committee. Reference to the Appendix was eliminated. The one sentence which had the smoking, washing and showering referred to was changed to three separate sentences: "Do not smoke." "Wash before eating." "Shower after work." The last part of the paragraph concerned the laundering of asbestos-exposed clothing by an industrial laundry. It was pointed out that some shops use disposable clothing. It was felt that wording for this section is sensitive and that wording directly from the OSHA Standard be used concerning the laundering of asbestos contaminated clothing. The wording from the standard was used as the final sentence.

In the final two paragraphs of the booklet, extensive changes had been suggested. Mr. Weaver suggested that the last sentence in the first paragraph be eliminated. The wording was changed substantially but it was not eliminated. There was a suggestion that in the final paragraph, that the words "requirements of applicable laws" be changed to "in accordance with applicable regulations." This wording

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was changed completely. Part of the wording was adopted as suggested and the final paragraph was made to read as follows:

Asbestos-containing waste materials must be collected, processed, packaged, transported and deposited in such a fashion that no visible emissions are generated to the atmosphere. All wastes must be disposed of at sites operated in accordance with applicable laws and regulations.

While this had been noted earlier the words "air purifying" before respirator were to be removed wherever shown in the text. The Committee reconsidered the suggestion that the summary of the OSHA Asbestos Standard be moved to the rear of book. However, it was decided that it was appropriate to leave this after the Introduction page, with emphasis on "WHY" over the text.

As regards the suggestions by Mr. Cooper of Johns-Manville, it was felt that the text should be on one color paper. Rather than debate this it was suggested that the color be a light blue, with black printing thereon. It might be possible to consider a second color for the illustrations, but it was suggested that if a second color is considered, that cost be a governing factor. Mr. Cooper had indicated that as far as the basic paper cost was concerned, a color would not cost that much more than white. If the Directors concur in proceeding with publication of this booklet, it was suggested that decisions as regards the use of a second color would be left to the discretion of the Committee Chairman working with the Institute's Secretary. This was decided to expedite the booklet and to prevent the selection of colors from becoming an obstacle to completing this task.

Mr. Cooper's recommendation that the Institute have the illustrations in the booklet made into posters was considered. It was felt that this could be a worthwhile suggestion but that it is more important to have the booklet approved by the Board of Directors than it is to resolve a question concerning posters. It was suggested that if the Board of Directors concur in proceeding with the booklet that the Asbestos Study Committee will then consider the suggestion on posters.

Upon motion duly made, seconded and unanimously passed, it was:

RESOLVED: That the Committee recommends publication of the "Friction Materials Works Practices Guide" with the revisions adopted by the Committee at this August 3, 1978 meeting.

It was suggested that the Secretary prepare a double spaced draft of the text as approved by the Committee for submission to the Board of Directors. The Secretary indicated that he did not know whether the Board of Directors would call a meeting or would handle this by mail ballot, but that he would discuss this with the President of the Institute.

CONSUMER PRODUCT SAFETY COMMISSION

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The Secretary reviewed the resolution passed at the Membership Meeting on June 29, 1978. This resolution had been introduced by Mr. Adrian Comins and passed the Membership by a vote of 6 in favor, 2 opposed, with 3 abstaining. The resolution was "That the Friction Materials Standards Institute take an active role with the Consumer Product Safety Commission regarding the position of friction materials: manufacturers as to recall procedures that could possibly affect asbestos-containing friction materials."

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In discussing implementation of this resolution with Counsel and the President after return from the Annual Meeting, it was suggested that this be submitted to the Asbestos Study Committee for its consideration. Copies of the resolution and its background were sent to Asbestos Study Committee Members prior to this meeting. In addition, copies of the Kearney report for the Consumer Product Safety Commission on the uses of asbestos in consumer products was also distributed to the Members. Legal Counsel advised that the Consumer Product Safety Commission had no jurisdiction, under either the Federal Hazardous Substances Act (brake linings not being a "banned hazardous substance" as defined there) or the Consumer Product Safety Act, to recall brake linings. "Motor vehicle equipment" expressly is not a "consumer product" under the Consumer Product Safety Act, and specifically is governed by the Department of Transportation under the National Motor Vehicle Safety Standards Act of 1966. Copies of a letter by Legal Counsel on this matter had been distributed to Committee Members.

The Chairman had studied this resolution and based on the remarks in Counsel's letter and the Kearney report, he drafted the following: "Based upon the Kearney report to CPSC which excludes brakes and clutches from the Commission's jurisdiction, and advice from Institute's Counsel opinion that we are rather governed by the Motor Vehicle Safety Standards Act, we do not recommend any present representation to the Consumer Product Safety Commission."

Upon motion duly made, seconded and unanimously passed, it was;

RESOLVED: That the Asbestos Study Committee recommends that the Institute not make representations to the Consumer Product Safety Commission concerning possible recalls of asbestos-bearing friction materials.

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

The Secretary circulated a memo concerning the National Highway Traffic Safety Administration and an inquiry they had made concerning non-asbestos friction materials. This inquiry had been made by a Mr. Manny Lorenzo of NHTSA during the Secretary's absence after the Annual Meeting. Miss Collins had received this call from NHTSA and talked with the Secretary who tried to answer some of the questions concerning non-asbestos friction materials. While the subject of the memo concerned an inquiry as to the types of non-asbestos friction materials and the costs thereof, the Secretary indicated that he was concerned about the fact that the question had been raised by NHTSA. Perhaps this question may have been asked with the idea of a possible banning of asbestos-bearing friction materials by the Department of Transportation. It was asked if anyone else had information on this particular item. It was suggested that this could be simply a random question prompted by some inquiry made of the NHTSA.

It was stated that some Europeans, notably the Swedes, have considered the idea of banning asbestos products. However, this has not been taken too seriously to date. There has been no word from anyone else in the Membership concerning NHTSA activity relative to asbestos free friction materials. It was suggested that Committee Members monitor any inquiries in this area. The Secretary indicated that he would probably be going to Washington in September and could make inquiry of NHTSA at that time. It was suggested that there would be no purpose in such an inquiry unless

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there were more information concerning the Department of Transportation's interest in this area. One Member suggested that if NHTSA did have such a question under study that the Asbestos Information Association would have picked up this information by now. Counsel suggested that a search could be made on laws and regulations concerning recalls of automotive equipment under the Motor Vehicle Safety and Standards Act. If a search on this subject and a report to the Directors was desired it could be done. The Secretary indicated that he would ask the Board of Directors concerning whether a search and report concerning DOT recall procedures should be made.

OSHA GENERIC STANDARD

The OSHA Generic Standard in essence would classify various materials as to whether they are known carcinogenic, carcinogenic suspects or other. In the case of asbestos, it would be a Type I or a known carcinogen. In this case, according to the OSHA Generic Standards, the concentrations of asbestos in the workplace must be held to the lowest feasible level. It has not been decided at this time whether this OSHA Generic Standard would replace the Asbestos Standard now in place. Hearings have been held in Washington over the past several months concerning this Generic Standard but it will be sometime before additional rulemaking is made.

INSTITUTE SPONSORSHIP OF ASBESTOS SEMINAR

The Institute sponsored an Asbestos Seminar in December 1975 at which several parties made presentations. One of the highlights was the talk by Mr. Byung Kwon of the Occupational Safety and Health Administration. It was been suggested and recommended by the President that the Institute consider sponsoring another seminar. At the January 1978 Committee meeting it was voted that the Committee did not feel it appropriate to have a seminar until such time as the work practices booklet had been completed. It might be appropriate if the work practices booklet is finished and ready for distribution that a seminar be coupled with its initial distribution. The Committee felt that this condition has not changed and that until such time that there is a booklet to distribute that there would be no purpose in holding a seminar.

The Secretary advised that on August 2, 1978 Dr. William Nicholson of Mount Sinai had come to the Office to talk with Mr. Wagner and the Secretary. Questions by Dr. Nicholson concerned the forms in which asbestos-bearing brake linings had been used over the past many years. He was looking for information as to when molded linings replaced woven linings, and when bonded undrilled linings came onto the marketplace. He was also concerned with the amount of work done in brake shops, and whether they cut, drill and otherwise machine friction materials or whether they just install an assembly. Mr. Wagner and the Secretary had as best they could filled Dr. Nicholson in on this type information at this informal meeting. Before Dr. Nicholson departed, the Secretary asked whether he or others at Mount Sinai would be willing to address a seminar if the Institute were to sponsor such an affair. The Secretary indicated that Dr. Nicholson stated that he would be happy to accept such an invitation. It was suggested that if a seminar is held, consideration be given to inviting either Dr. Nicholson or someone from Mount Sinai for a presentation.

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AMERICAN TRUCKING ASSOCIATION PROGRAM

The Secretary advised that he had received an invitation from the American Trucking Association to circulate a promotion for ATA courses on the handling of hazardous wastes. The "hazardous wastes" referred to were primarily nuclear and chemical, but it is possible that asbestos waste may have been considered. It has generally been the policy that the Institute will not send out mailing lists to those requesting, because of the over abundance of mail received by Members from unsolicited sources. It was suggested that the Institute continue this practice and no mailing be made of the ATA program.

* * * * *

There being no other business brought to the attention of the Committee,
Upon motion duly made, seconded and unanimously passed, it was;

RESOLVED: To Adjourn

Adjourned: 2:20 P.M.

E. W. Drislane
Secretary

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U.S. MANUFACTURERS OF ASBESTOS-BEARING FRICTION MATERIALS

<u>Company</u>	<u>Plant Location</u>	<u>Approximate Number of Production Employees*</u>
Raybestos-Manhattan, Inc.	Stratford, Conn.	1,000
	Mannheim, Pa.	900
	Crawfordsville, Ind.	500
	Fullerton, Calif.	200
Bendix Corporation	Troy, N.Y.	600
	Cleveland, Tenn.	250
General Motors Corp.	Delco-Moraine Div.	
	Dayton, Ohio	300
	Inland Division	
	Dayton, Ohio	200
Abex Corporation	Cleveland, Ohio	200
	Troy, Michigan	175
	American Brakeblok Division	
	Winchester, Va.	150
H. K. Porter Co.	Huntington, Indiana	200
	Richmond, Ky.	225
Chrysler Corporation	Cyclo weld Division	
	Trenton, Michigan	200
Borg Warner Corporation	Spring Division	
	Bellwood, Ill.	150
Maremont Corporation	Grizzly Products Division	
	Paulding, Ohio	150
Carlisle Corporation	Ridgeway, Pa.	125
Forcee Mfg. Corporation	Tappahannock, Va.	100
World Bestos Co.	New Castle, Ind.	100
Scandura, Inc.	Charlotte, N.C.	100
Gatke Corporation	Marsaw, Ind.	100
Mar Pro Corporation	Grizzly Brake Division	
	Chicago, Ill.	100
Standco Industries	Houston, Texas	100
Auto Friction Corp.	Lawrence, Ma.	75
Brassbestos Mfg. Corp.	Patterson, N.J.	75
Southern Friction Material Co.	Charlotte, N.C.	75
x L. J. Hiley Co.	Chicago, Ill.	75
Auto Specialties Mfg. Co.	St. Joseph, Mich.	75

TABLE B-3 CONTINUED

U.S. MANUFACTURERS OF ASBESTOS-BEARING FRICTION MATERIALS

<u>Company</u>	<u>Plant Location</u>	<u>Approximate Number of Production Employees*</u>
National Friction Products Corp.	Logansport, Ind.	70
Reddaway Mfg. Co.	Newark, N.J.	50
Molded Ind. Friction Corp.	Prattville, Ala.	50
Royal Ind. Brake Products, Inc.	Danville, Ky.	50
Lasco Brake Products Co.	Oakland, Calif.	50
California Blok Co.	Gardena, Calif.	50
HGM Brakes, Inc.	Cloverdale, Calif.	50
Wheeling Brake Block Mfg. Co.	Bridgeport, Ohio	40
Baldwin-Elmet Hill, Inc.	Trenton, N.J.	40
Thiokol Chemical Corp.	Trenton, N.J.	30

*Contractor's estimates of number employed in friction materials manufacture in 1973.

TABLE B-4

ESTIMATES OF DISTRIBUTION OF 1973 SALES OF ASBESTOS FRICTION MATERIALS
BY THE MAJOR MANUFACTURING COMPANIES

<u>Company</u>	<u>Estimated 1973 Sales, \$MM (all products)</u>	<u>Sales of Friction Materials, \$MM</u>	<u>% of Firm's Total Sales</u>
Abex Corp.	25	20+	>80%
Bendix Corp.	2,212	33	<2
Delco-Moraine Division of General Motors	N/A	20-25	N/A
H. K. Porter Co.	270	16	6
Raybestos- Manhattan, Inc.	175	125	71
All others	14	<u>14</u>	
TOTAL		233	

N/A - Not Available

SOURCE: Contractor's estimates

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1.3 - Active Members

Stephen S. Conway - Delegate Robert E. Nelson, Alternate	Abex Corporation Friction Products Group 1650 West Big Beaver Road Suite 205 Troy, Michigan 48084	313-643-4400
Stuart Comins - Delegate Adrian Comins - Alternate Ben Kublin	Auto Friction Corporation 651 Andover Street Lawrence, Mass. 01842	617-686-3926
Francis E. Messier - Delegate W. James Cooney - Alternate Timothy Manion	The Bendix Corporation Automotive Aftermarket Operations P. O. Box 1632 1094 Bendix Drive Jackson, Tennessee 38301	901-423-1300
Robert Elliott	Bendix Corporation Heavy Vehicle Systems Group 901 Cleveland Street Elyria, Ohio 44035	216-323-3151
William Simon - Delegate Judson Foster - Alternate	Brassbestos Mfg. Corporation 45 East 5th Street Paterson, New Jersey 07524	201-278-6655
Edward R. Zacharias - Delegate William E. Harris - Alternate	Carlisle Corporation Molded Materials Division P. O. Box P Ridgway, Pa. 15853	814-773-3185
Robert J. Kick - Delegate Donald L. Emrick - Alternate Ross E. Kettering	Delco-Moraine Division General Motors Corporation 1420 Wisconsin Boulevard Dayton, Ohio 45401	513-445-4413 513-445-4413 513-445-4056
John A. Penberthy - Delegate Cecil Beazley - Alternate	Forsee Mfg. Corporation P. O. Box 285 Tappahannock, Virginia 22560	804-443-3322
Frank T. Gatke - Delegate	Gatke Corporation 228 North La Salle Street Chicago, Illinois 60601	312-782-0081
Marcus Gudema - Delegate John F. Voorhees - Alternate	Hayes-Albion Corporation Brake Systems Division 1199 Wildwood Avenue Jackson, Michigan 49202	517-782-9421

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Wil J. Laher - Alternate	Lasco Brake Products Corporation, Ltd. P. O. Box 731 New Albany, Mississippi 38652	601-534-4783
Joseph W. Greenen - Delegate	Maremont Corporation 697 Randolph Street Costa Mesa, California 92626	714-556-7700
Andre A. Laus - Alternate	Maremont Corporation 200 East Randolph Drive Chicago, Illinois 60601	312-861-4090
Murrell Amos - Delegate Thomas Terrell - Alternate	Molded Industrial Friction Corporation 327 Walnut Street Prattville, Ala. 36707	205-365-3324
Ab Lechter-Lopez - Delegate Eugene L. Werner - Alternate	H. K. Porter Company, Inc. Thermoid Division 601 Grant Street Porter Building Pittsburgh, Pa. 15219	412-391-1800
Ronald R. Moalli - Delegate	Raybestos-Manhattan, Inc. 100 Oakview Drive Trumbull, Connecticut 06611	203-371-0101
David E. Cunningham - Alternate John H. Kelly	Raybestos-Manhattan, Inc. 100 Oakview Drive Trumbull, Connecticut 06611	203-371-0101
F. William Barton - Delegate J. M. Moore - Alternate	Reddaway Mfg. Company, Inc. 32 Euclid Avenue Newark, New Jersey 07105	201-589-1410
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1.4 - Regional Members

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