

ASBESTOS STUDY
COMMITTEE-1974-75

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FRICTION MATERIALS STANDARDS INSTITUTE, INC.

BERGEN MALL OFFICE CENTER

E. 210 ROUTE 4

PARAMUS, N. J. 07652

41

June 30, 1975

Representative Millicent Fenwick
U. S. House of Representatives
Washington, D. C. 20515

Subject: H. R. 5683 National Stockpile of Chrysotile Asbestos

Dear Mrs. Fenwick:

The Friction Materials Standards Institute is an association of most of the manufacturers of brake linings and clutch facings in this country. A list of our Membership is enclosed.

Chrysotile asbestos is a basic material used in the manufacture of brake linings and clutch facings. As you are aware, a major asbestos processing mill was destroyed by fire in December, and there has been a prolonged strike at the Canadian mines. Several of our members have had to limit production because of the current asbestos shortage.

Our Institute supports your H. R. 5683 to release the chrysotile asbestos in the national stockpile to help this industry, and the workers there employed.

When this Canadian strike is settled, market conditions should permit appropriate re-stocking of the national stockpile.

Sincerely,

FRICTION MATERIALS STANDARDS INSTITUTE

EWD/erc

E. W. Drislane
Executive Director

E-1
(10)

FMSI 03100



MAY 22 1975

AUTOMOTIVE SERVICE INDUSTRY ASSOCIATION

230 North Michigan Avenue, Chicago, Illinois 60601 (312) 236-8720

THE INDUSTRY'S ONLY FULL SERVICE ASSOCIATION

Washington Office
1725 "K" Street, N.W.
Washington, D.C. 20006

May 20, 1975

*Ed.
This is about
Asbestos Hammer*

Representative Millicent Fenwick
U.S. House of Representatives
Washington, D.C. 20515

Dear Mrs. Fenwick:

Thank you very much for your letter of May 5th requesting our Association's comments regarding HR 5683 on the disposal of asbestos chrysotile from the national stockpile.

The Automotive Service Industry Association is the automotive world's largest and most comprehensive organization, with its membership encompassing more than 7,000 independent automotive wholesalers, warehouse distributors, heavy-duty parts and equipment distributors, automotive electric service distributors, manufacturers and remanufacturers of replacement parts, tools, equipment, chemicals, paint, refinishing materials, supplies, and accessories.

ASIA enjoys affiliation with the Automotive Booster Clubs International, and maintains close and constant liaison with the Automotive Service Council; National Congress of Petroleum Retailers; Equipment & Tool Institute; Automotive Wholesaler Association Executives; Production Engine Remanufacturers Association and the Automotive Industries Association of Canada, giving ASIA representation at every point of the automotive service market from the manufacturer to the ultimate consumer.

Asbestos is used in the automotive aftermarket industry for brake linings and for clutch facings. In checking with a number of our member firms who manufacture these products, we are informed that there is an increasing shortage of asbestos for their production lines. Unless action is taken immediately to relieve this shortage, some firms may be forced to severely restrict or halt production of these replacement parts.

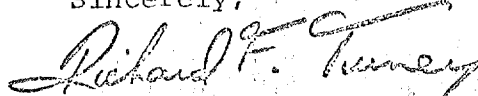
It is our understanding that this shortage will probably not be a long term problem in that within a reasonable amount of time

FMSI 03101

the Johns-Manville Corporation mine will be fully operational and the other Canadian mines which are presently on strike will be back to work. In other words, if Congress does not move to relieve this shortage in the very near future, the damage will be done and the business recovery of the brake lining and clutch facing manufacturers will have to await the resumption of imports from Canada.

In light of the information supplied by our members, we strongly support HR 5683 as introduced by you to release asbestos chrysotile from the national stockpile and the supplemental stockpile to tide industry over this temporary shortage.

Sincerely,



Richard F. Turney
Assoc. Washington Representative

RFT/lde

cc: Representative Charles E. Bennett
Chairman,
House Armed Services Subcommittee on Strategic Stockpiles

bcc: John W. Nerlinger, Jr.
Harold T. Halfpenny
✓Tom McLennan

5683



ASBESTOS INFORMATION ASSOCIATION

1660 L Street, N.W. · Washington, D.C. 20036 / (202) 223-4885

12 May 1975

Memorandum For: MEMBERS

Subject: Pending legislation concerning sale of chrysotile asbestos from the national stockpile

On April 8, Representative Millicent Fenwick (R-NJ) introduced a bill (H.R. 5683) which would authorize the General Services Administration (GSA) to dispose of about 9,900 s.t. of chrysotile asbestos from the national stockpile. This amount is in excess of the nation's current chrysotile stockpile objective of 1,100 s.t. GSA has advised that such disposal, if approved, would be by sealed bidding. The basic justification offered in support of this legislation pertains to the current unemployment situation in the United States which is expected to be further aggravated by the shortage of asbestos available from Canada in 1975. (News & Notes, 4/28/75) A copy of Congresswoman Fenwick's bill and pertinent excerpt from the Congressional Record for 8 April are attached. A detailed inventory of the chrysotile asbestos in the national stockpile that would be affected by this legislation is also attached.

H.R. 5683 has been referred to the Sea Power and Critical Materials subcommittee of the House Armed Services Committee, chaired by Rep. Charles E. Bennett (D-Fla). A date for subcommittee consideration has not yet been announced.

As may be noted in the appended copy of Rep. Fenwick's letter of 5 May, the Association has been requested to provide general comment on the pending bill and, specifically, advise as to what affect the current shortage of asbestos will have on members. Members may wish to communicate directly with Congresswoman Fenwick's office. Additionally, members may wish to express their interests in this matter to members of Congress representing those districts where company plants are located for co-sponsorship of the bill, as may be desired. Related to the bill is interest in rebuilding the stockpile from the points of view of strategic and economic interests should the legislation be passed.

FMSI 03103

Page -2-

Contact in Representative Fenwick's office for this matter is William Canis, 1610 Longworth House Office Building, Washington, D.C. 20515; (202) 225-9546.

A handwritten signature in dark ink, appearing to read "R. H. Mereness", is written over the typed name.

R. H. Mereness
Executive Director

Enclosures

94TH CONGRESS
1ST SESSION

H. R. 5683

IN THE HOUSE OF REPRESENTATIVES

APRIL 8, 1975

Ms. FENWICK introduced the following bill; which was referred to the Committee on Armed Services

A BILL

To authorize the disposal of asbestos chrysotile from the national stockpile and the supplemental stockpile.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That the Administrator of General Services is hereby
4 authorized to dispose of, by negotiation or otherwise, approxi-
5 mately nine thousand nine hundred short tons of asbestos
6 chrysotile now held in the national stockpile established
7 pursuant to the Strategic and Critical Materials Stock Piling
8 Act (50 U.S.C. 98-98h) and the supplemental stockpile
9 established pursuant to section 104(b) of the Agricultural
10 Trade Development and Assistance Act of 1954 (68 Stat.
11 456, as amended by 73 Stat. 607). Such disposition may be

1 made without regard to the requirements of section 3 of the
 2 Strategic and Critical Materials Stock Piling Act: *Provided,*
 3 That the time and method of disposition shall be fixed with
 4 due regard to the protection of the United States against
 5 avoidable loss and the protection of producers, processors,
 6 and consumers against avoidable disruption of their usual
 7 markets.

91st CONGRESS
 1st Session

H. R. 5683

A BILL

To authorize the disposal of asbestos chrysotile
 from the national stockpile and the supple-
 mental stockpile.

By Ms. FENWICK

April 8, 1975

Referred to the Committee on Armed Services

SAVING JOBS OR DISPOSAL OF
ASBESTOS CHRYSOTILE FROM
THE NATIONAL STOCKPILE

The SPEAKER pro tempore. Under a previous order of the House, the gentleman from New Jersey (Mrs. FENWICK) is recognized for 5 minutes.

Mrs. FENWICK. Mr. Speaker, the Labor Department announced on April 4 that during March, unemployment in the United States increased substantially. Whereas in January and February of this year 8.2 percent of the labor force was without a job, during March the figure jumped to 8.7 percent. This means that 8 million Americans have no jobs. Both the President and the Congress recognize the severity of the economic crisis and are searching for programs which will lead to employment without stirring inflation. Congress has passed, and the President has signed, landmark tax legislation to stimulate the economy and the President has proposed an 18-month extension of unemployment benefits for jobless workers.

I think we all agree that our goal at this time is to get people back on the job. The unemployed from New Jersey who have visited my office are not looking forward to another year or more of unemployment payments. They want productive jobs.

At this time we should do all in our power to see that these unemployment lines do not lengthen. One way Congress can act to save jobs is to authorize the disposal of asbestos chrysotile from the national stockpile. Disposal of this asbestos would prevent the further erosion of jobs and would be one Federal employment program that would cost the taxpayers nothing. Today I am introducing disposal legislation because of the sudden short supply of asbestos chrysotile in the United States.

The United States imports 100 percent of its asbestos chrysotile. Over 96 percent comes from Quebec, Canada. The major Canadian asbestos mine—which is the largest in the free world and is operated by the American-owned Johns-Manville Corp.—suffered a landslide in January 1975, thus effectively eliminating the major U.S. source of this industrial ore. Other supplies of the asbestos ore are not presently available on the world market. In fact, according to the U.S. Bureau of the Mines, there is a worldwide shortage of asbestos mining capacity and consequently a shortage of the ore. The effects of this sudden interruption in supply are obvious. Many of the two dozen major primary producers of asbestos products—who manufacture such articles as textiles, brake linings, fire-protective clothing, roofing, insulation, and other fire-retardant building materials—will be forced to curb production and lay off personnel. Production cutbacks could affect many of the 142 factories in the asbestos products industry throughout the United States, including the Johns-Manville plant located in my own congressional district at Manville, N.J., which employs 2,100 people. Other States which have asbes-

tos products firms include: New Hampshire, 3; Massachusetts, 5; Connecticut, 2; New York, 13; New Jersey, 15; Pennsylvania, 15; Ohio, 8; Indiana, 5; Illinois, 11; Missouri, 5; Virginia, 2; North Carolina, 4; South Carolina, 2; Georgia, 2; Florida, 2; Kentucky, 2; Tennessee, 1; Alabama, 3; Mississippi, 2; Louisiana, 4; Texas, 6; California, 10; and Arizona, 1.

The additional unemployment that will be created is unnecessary for two reasons. First, the demand for asbestos chrysotile has not declined. Unlike in the automobile industry, where demand for new cars has dropped substantially, demand for asbestos products has not slackened with the recession.

Second—and most important to us in Congress—the Federal Government maintains a vast stockpile of asbestos chrysotile for national defense needs. It is, of course, altogether fitting that the Government maintain such a stockpile. Yet, the present 11,000-ton stockpile is far in excess of a prudent supply.

The defense requirements of asbestos chrysotile are quite limited. The major military uses of this kind of asbestos are in the production of certain gaskets for tanks and for hoods of jet engines. The Johns-Manville Corp.—the major defense supplier—estimates that less than 1 percent of its total production is military related.

The General Services Administration has recognized that our defense needs for this natural resource are more than met by the present stockpile. GSA recently completed a thorough review of our requirements for asbestos chrysotile, based on the needs of the first 3 years of a war. GSA determined that 1,100 short tons of the asbestos would be adequate and that 9,900 short tons was in excess of stockpile needs. I think my colleagues will agree that the proximity of the Canadian mines and a 1,100 ton stockpile are sufficient for our defense preparedness.

Mr. Speaker, under present law, our stockpiling system does not provide for disposal when domestic industries are critically in need of short-supply materials. This is the situation in which we now find ourselves: a major U.S. industry is deprived of its supplies of a raw material and consequently faces the prospect of diminished output and unemployment of many of its workers. In the case of asbestos chrysotile, there was no malicious Canadian embargo. The mine was closed by a landslide. The only available source—until the mine can be reopened later this year—is the U.S. stockpile. The only way the domestic asbestos users can get the asbestos they need is through a congressional grant of authority such as the one I am introducing today.

Mr. Speaker, Congress passed similar legislation in 1970 which authorized the disposal of 2,384 tons of asbestos chrysotile from the national stockpile. The asbestos was sold off through an open bid process. This disposal was completed in 1974, and no further asbestos can be sold until Congress authorizes it.

As a concluding note, I would like to point out that asbestos is used in the production of home insulation. I have joined with many of my colleagues who have urged tax deductions and credits for homeowners who insulate their homes

and who thereby aid our energy conservation effort. Unless our manufacturers have the raw asbestos to work with, there will be no asbestos insulation for American homeowners to buy.

Mr. Speaker, we are all serious about putting people back to work and keep present employees on the job and we have here an opportunity to affirm this commitment with prompt and positive action. I ask the support and cooperation of my colleagues in seeing that this legislation is speedily enacted into law.

The text of my bill follows:

H.R. 5683

A bill to authorize the disposal of asbestos chrysotile from the national stockpile and the supplemental stockpile

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Administrator of General Services is hereby authorized to dispose of, by negotiation or otherwise, approximately nine thousand nine hundred short tons of asbestos chrysotile held in the national stockpile established pursuant to the Strategic and Critical Materials Stock Piling Act (50 U.S.C. 59-9) and the supplemental stockpile established pursuant to section 104(b) of the Agricultural Trade Development and Assistance Act of 1954, 68 Stat. 456, as amended by 73 Stat. 697. Such disposition may be made with regard to the requirements of section 3 of the Strategic and Critical Materials Stock Piling Act: *Provided,* That the time and method of disposition shall be fixed with regard to the protection of the United States against avoidable loss and the protection of producers, processors, and consumers against avoidable disruption of their usual market.

CHRYSOTILE ASBESTOS IN THE NATIONAL STOCKPILE
AFFECTED BY H.R. 5683

<u>GRADE</u>	<u>QUANTITY (SHORT TONS)</u>
C & G-1	1628
C & G-1 MIR TYPE 4	761
C & G-2	1258
C & G-2 MIR TYPE 4	170
3K	1200
CRUDE 1	898
CRUDE 1 MIR TYPE 2	71
CRUDE 2	154.4
CRUDE 2 MIR TYPE 2	550
CRUDE 3	2
ASBESTOS LAP 1500 GRAIN	.3
ASBESTOS ROVING 7 CUT	.2
ASBESTOS ROVING 10 CUT	.3
3K MIR TYPE 2	.185
3K MIR TYPE 4	1545
GRADE 2 MIR TYPE 2	429
GRADE 3 MIR TYPE 2	513
3T MIR TYPE 2	501
TOTAL	9866.2

MILLCENT FENWICK
8th DISTRICT, NEW JERSEY

COMMITTEES:
BANKING, CURRENCY AND
HOUSING
SMALL BUSINESS

Congress of the United States
House of Representatives
Washington, D.C. 20515

May 5, 1975

WASHINGTON OFFICE:
1610 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, D.C. 20515
TELEPHONE: (202) 225-7300

DISTRICT OFFICES:
41 NORTH BRIDGE STREET
SOMERVILLE, NEW JERSEY 08876
TELEPHONE: (201) 722-8200

POST OFFICE BUILDING
1 MORRIS STREET
MORRISTOWN, NEW JERSEY 07960
TELEPHONE: (201) 538-7267

Asbestos Information Association
of North America
1660 L Street, N.W.
Washington, D. C.

Gentlemen:

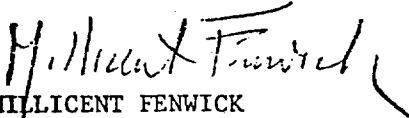
On April 8, I introduced a bill to allow for the release of asbestos chrysotile from the national stockpile. A Canadian landslide has wiped out most of our supply of asbestos and the damage cannot be repaired for many months. The unemployment that could result warrants action by Congress as soon as possible.

I thought that your association might be interested in this legislation and I would like to know your thoughts on the problem--as described in my attached statement--and in the proposed bill. Will a shortage of asbestos affect the firms you represent?

I would appreciate any help you can give me on this subject.

With all good wishes,

Sincerely yours,


MILLCENT FENWICK
Member of Congress

MF:ck

I. H. WEAVER ■
CORPORATE DIRECTOR
ENVIRONMENTAL CONTROL

123 E. STIEGEL STREET, MANHEIM, PENN. 17545

Raybestos  Manhattan

June 10, 1975

Mr. E. W. Drislane
Friction Materials Standards Institute, Inc.
E. 210 Route #4
Paramus, New Jersey 07652

Dear Ed:

Recently I observed a showing of the British Granada TV series film entitled "Asbestos -- Killer Dust." It is well worth showing to any group that has an interest in asbestos or asbestos-related products. It provides good insight regarding the nature and extent of the health controversies that are currently raging in regard to occupational and community exposure to air and water borne asbestos fibers.

I recommend you make arrangements to show this film at the next FMSI Board Meeting and to the entire membership at the next convenient opportunity. I regret that we have not shown it before the Asbestos Study Committee and think we should plan to do this at our next meeting.

I believe Ron Moalli now has R/M's copy of this film and am sure he will be glad to make it available for your use whenever you wish.

Best regards,


I. H. Weaver

grb
cc: Mr. R. R. Moalli -- Trumbull

E-2
(7)

FMSI 03110

June 1975

ASBESTOS STUDY COMMITTEE REPORT

Most industrial managers are well aware of the increasing amount of time they must devote to problems relating to occupational and environmental hazards. In recent years new government agencies have been created which have broad powers to investigate, regulate and control industrial operations. During the same period the mandates of traditional agencies also have been broadened in respect to environmental concerns, and frequently there are duplicate and sometimes conflicting functions. Coincidentally, the scientific community has been producing an increasing volume of evidence regarding hitherto unsuspected health hazards associated with various raw materials, chemicals and manufacturing methods.

Adding further to the burdens these developments place on industrial managers is a far more militant union attitude on occupational health matters. Union spokesmen, such as I. W. Abel, Tony Mazzochi and Sheldon Samuels, freely admit they have been negligent in facing these issues in the past. However, recently a new attitude has been in evidence and it is exemplified by Mazzochi's statement that, "We live in a nation of corporate law breakers." Samuels has not been as charitable; he prefers to use the term "Corporate Murderers."

The present union objective, as stated by Mazzochi, is to "use professionals to educate laborers to understand health hazards" and to "use collective bargaining to get legislation necessary to obtain good occupational health care." The AFL-CIO has an active campaign to use the news media to get the message across to the general public as well as to their members.

The friction materials industry position with respect to the asbestos health issue is almost unique. Few other industries are as heavily dependent upon asbestos for the successful performance of their products, and proper handling of occupational and environmental problems associated with the use of asbestos is essential to the survival of manufacturers of asbestos-based friction materials.

During the past year your Asbestos Study Committee has worked closely with OSHA, EPA, NIOSH and their subcontractors as well as with AIA/NA regarding new standards and regarding changes to existing standards and guidelines for regulation of asbestos as well as other materials. We have sought to keep abreast of new information regarding asbestos health effects, control methods and regulations emanating from the medical/scientific communities, various government offices and other sources. The following highlights should be of interest.

OSHA

Proposed new standards for arsenic and for ketones present new formats with emphasis on the action level concept, on work practices and on improved medical surveillance. Expected revisions to the asbestos standard probably will follow one of these formats. Little or no change is expected in permissible airborne concentrations or in monitoring methods.

The erroneous assumption by OSHA that the friction materials industry could immediately comply with the 2 fpcc standard hopefully has been corrected.

FMSI 03111

Hazardous material labeling is under study by an OSHA advisory committee, and labor members have called for changes in asbestos product labeling.

NIOSH

A new electron microscope laboratory has been provided at Cincinnati and is being used to investigate the quantity and size distribution of asbestos fibers and other aerosols in occupational environments. Emphasis is on submicron particles and fibers less than 5 microns long.

EPA

EPA is undertaking a thorough investigation of the presence of asbestos in all areas of the environment. The work involves contract studies, in-house research and joint activities with other government agencies.

There is considerable concern regarding the effectiveness of the "no visible emissions" standard in protecting the public from airborne asbestos. Pressure is on EPA from labor representatives and medical and environmental groups for a "no detectable level" regulation.

EPA proposed waste disposal restrictions would create problems for some friction materials manufacturers.

FDA

A delay has been imposed on FDA's proposal to ban use of asbestos in filters for beverages and food products until they can conduct experiments to determine if long term exposure to ingested asbestos fibers represent a definitive hazard to human health.

A four million dollar animal feeding study has been approved for determination of health effects from ingesting various doses of various kinds of asbestos.

FTC

Study is in progress in response to a petition from CSPI (Nader group) in regard to labeling of asbestos-containing products.

CPSC

There is no known action by this agency in regard to asbestos at this time.

CDC

This agency of HEW has issued a report indicating adverse effects on pulmonary function due to exposure to asbestos at two locations one of which was a textile based friction material plant in New England.

MEDICAL

Selikoff continues predictions of epidemic of asbestos related death and disease in years to come. He emphasizes the mesothelioma hazard and the fact no known dose level is "safe" and is pointing to the possible health significance of shorter, smaller fibers or particles not now covered by standards.

Selikoff people have been actively promoting hazards associated with asbestos emissions from brake lining wear and from brake service operations.

Acknowledgment of association between asbestos exposure and increased GI cancer has become accepted practice during the past year.

The above and other activities and publicity during recent months offers ample evidence that controversy and concern over asbestos has in no way slackened. Many seem to think the fact that OSHA, EPA, NIOSH and others recently have been devoting considerable attention to other toxic materials has taken some of the heat off asbestos. While this may be true as far as the over-all environmental and occupational health picture is concerned, I see no significant change in the attitude of regulatory agencies, medical researchers, labor, or environmental groups in regard to the hazards of asbestos. Nor do I see any justification for such change.

The friction materials industry should pursue all available means for achieving compliance with the 2 fiber per cubic millileter standard and all other requirements of the OSHA asbestos regulations as promptly as possible. It should be kept in mind the promulgated regulations are a "minimum standard." Wherever possible more protection than that afforded by the standard should be provided for friction materials workers exposed to asbestos dust.

Emphasis should be given to worker instruction and training in methods for reducing airborne dust generation and for minimizing exposure to dust that is generated. Product labeling and other means should be employed to thoroughly informing customers and the public of the dangers associated with improper use, fabrication, handling or disposal of asbestos-containing friction materials. In-plant anti-smoking campaigns would be laudable.

Your committee solicits comments and questions concerning its past and future activities, and will endeavor to follow events in the above mentioned areas and all other aspects of the asbestos/health controversy during the following year.

Respectfully submitted,


I. H. Weaver

Committee Chairman

cnh

FMSI 03113

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

May 29, 1975

To: Asbestos Study Committee

Subject: Changes to Minutes of April 28, 1975 Meeting

Mr. Weaver, Chairman of the Committee, called relative to corrections to the "Unconfirmed Minutes" of subject meeting.

Page 3, Paragraph 2, Line 5

Eliminate "has a plastic bag liner"

Page 3, Paragraph 2, Line 15

Should say: "(3) The Nilfisk or other high quality
vacuum cleaner..."

Page 3, Paragraph 3, Lines 5,6

Change sentence to read: "In some cases these could
be counted by inexperienced operators as asbestos
fibers."

A new copy of Page 3 is enclosed. Please destroy old page 3 and
replace with this corrected page 3.

END/erc
Enclosure:

S
E. W. Drislane
Executive Director

FMSI 03114

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

May 22, 1975

To: Asbestos Study Committee

Subject: Recent Distributions--Relative to OSHA Asbestos Standard

At the April 28, 1975 meeting, your Chairman, Mr. Weaver volunteered to send in data on the Nilfisk Industrial Vacuum Cleaner and the recent AIHA- ACGIH paper on the membrane filter method. This paper included two pages on a guard or shroud attached to the filter holder to protect the filter from picking up fibers from the wearer's clothing or from a falling fiber that would ordinarily not be breathed into the respiratory tract.

These two items are important for (1) cleaning up the workplace to reduce airborne fiber concentrations and (2) to more accurately pick up fibers for purposes of counting. Copies of the literature forwarded by Mr. Weaver are included with this memo.

In addition, I prepared a BULLETIN NO. 533 to the Membership and there will be some enclosures with that bulletin. I will try not to duplicate the enclosures.

In addition, I am forwarding two articles which may be of interest to the Committee. These also were sent in by Mr. Weaver:

"Insulation Hygiene Progress Reports", a
publication from Mt. Sinai (I. J. Selikoff, M. D.)
The main article is "Asbestos Disease
can Spread to Workers' Families".

"The Regulated and the Regulator" by Leo Teplow
of Organization Resources Counselors, Inc.
In particular, please note his section
entitled "What the Manager Can Do in
Industrial Safety and Health...Before
the Doctor Comes".

The foregoing is for your information.

EWD/erc
Enclosure:

E. W. Drislane
Executive Director

FMSI 03115

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

June 4, 1975

To: Asbestos Study Committee

Subject: Assorted articles, reports on asbestos

Your Chairman, Mr. Weaver, has sent along several items concerning asbestos which he felt would be of interest to members of the Committee.

- (1) Textile World News, May 1975 Article entitled: "Will OSHA Feasibility Kayo Marginal Plants?" Article headed: "OSHA Using Personal Dust Samplings."
- (2) American Industrial Hygiene Association Journal, May 1975: "Counting Asbestos Fibers by the Probable Number Method," by P. C. Reist.
- (3) Letters J. H. Marsh, Raybestos-Manhattan, Inc., re Dr. Selikoff meeting with Chief Industrial Hygienists of Ford, Chrysler, GM. Includes report by Dr. Nicholson of Mount Sinai from data given by Dr. Selikoff: "Asbestos Exposure During Brake Lining Maintenance and Repair."
- (4) Letter J. H. Marsh, Raybestos-Manhattan, Inc., relative to WCVB-TV of Boston Television "Awards Special" titled "Asbestos Related Deaths at Two Massachusetts Factories."

Copies of these articles are enclosed for your information.

EWD/erc
Enclosure:

E. W. Drislane
Executive Director

FMSI 03116

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

BULLETIN

NO. 533

May 21, 1975

REPORT ON ASBESTOS STUDY COMMITTEE MEETING

In late April, the Asbestos Study Committee met and discussed several subjects -- with emphasis on asbestos in the work place. One of the agenda items was entitled: "The OSHA Regulations and the Membrane Filter Method for Measurement."

Excerpts of the minutes of this meeting on the above agenda item are enclosed. These excerpts indicate our industry's problems with the reliability of the membrane filter method for measuring airborne asbestos concentrations, and they emphasize the Members' concern where this procedure will be used for enforcement.

We are making additional enclosures with the copies being sent to the individual listed below:

These additional enclosures include:

1. Price Sheet on Nilfisk Industrial Vacuum Cleaner Models GA-71, GA-72, GA-73.

Nilfisk of America, Inc.
706-8 Buncombe Street
P. O. Box 143
Greenville, S. C. 29602

2. Report of Joint AIHA-ACGIH Aerosol Hazards Evaluation Committee: "Recommended Procedures for Sampling and Counting Asbestos Fibers."

This article is copyrighted and reprints are available as indicated on the first page (Page 83)

Note: In the first two pages, a guard or shroud is attached to the filter holder. This may help in eliminating sporadic high counts.

E-3
(5)

Reasons for two enclosures are given in the excerpts from the Asbestos Study Committee meeting: (1) The Nilfisk Cleaner has helped in cleaning up the workplace, when used in addition to a good central collecting system; (2) Use of the shroud may be of help in reducing the sporadic high counts from asbestos that ordinarily would not be taken into the respiratory tract.

The foregoing information is sent for use by those responsible for compliance with the OSHA Regulations.

EWD/erc

Enclosures:

cc- Active Members

Regional Members (U.S. Copyright)
Asbestos Study Committee

E. W. Drislane

Executive Director

EXCERPTS FROM APRIL 28, 1975 MEETING
OF ASBESTOS STUDY COMMITTEE

The OSHA Regulations and the Membrane Filter Method for Measurement

Originally this subject was to be two items on this agenda: (1) The Membrane Filter Method for measuring airborne asbestos concentrations, (2) The OSHA standards with emphasis on the July 1, 1976 two fibers/cc limit. In discussing these subjects it was found difficult to separate the membrane filter technique from the OSHA standards. They are being combined for purposes of these minutes.

It was suggested that with the current economic climate that perhaps there might be some de-emphasis in OSHA regulations. There has been de-emphasis on seat belts, and bumpers, emissions control and it was suggested that perhaps OSHA might ease off on their regulations. One Committee member said that it was most unlikely that there would be backtracking on the OSHA regulations. If anything they might be stiffened. One member stated that there were five different types of asbestos and that some were more harmful than others. It was suggested that while this might be so, all asbestos is apparently linked with lung cancer and asbestosis. It would be difficult to win an argument that there are some types of asbestos that are not harmful to the respiratory tract.

At this point the method for counting fibers was discussed. It was stated by one member that originally a fiber would be counted if it was not totally within the field. This was from Johns-Manville course on the use of the membrane filter technique. It was stated now that anything that is in the top or the left hand borders of the sample, even if only partly in the field, are to be counted. Another member indicated that when he took the NIOSH course at Cincinnati that this was the way that he was told to count: any fiber on the left hand or top border, even if not fully within the field being counted, would be counted in that field.

It was stated that the crystallization of the solvent used on the slide could sometimes make it appear to be an asbestos fiber. There is a method of preparing the slides so that the formation of crystals will not appear similar to asbestos fibers for counting purposes. This method is apparently used by most companies doing their own counting of the fibers. It was pointed out also that slides should not be re-used. Re-used slides may accelerate crystallization of the solvent.

It was stated there is as much variation in readings of fiber count as there are people making readings. One member suggested that he used the NIOSH manual as a Bible. It was stated that this manual was subject to wide interpretation. A member indicated that he exchanged samples with NIOSH in Cincinnati and has had decent correlation with their counts. It was stated that on the lower counts that three different readings would come out plus or minus 10% on the count. However, when higher counts were read, the three different readings would come out with plus or minus 50% in the count. Over how long a period were these samples collected? One member stated that OSHA takes 8-hour samples. Another states that they took samples for a minimum 3-hour period with a 30-minute cycling. Another had three one-hour periods for collecting samples using one filter. As regards differences, it was stated by two members that the OSHA inspectors have actually picked up lower counts than some of the members. It was stated that there were differences in results depending upon whether the counts were done in house, by outside organizations or by government people. With these differences in fiber count, a question was raised

as to how can one solve a problem when they don't know how severe the problem is. In response to a question as to what this Committee could recommend it was suggested that members should at least test each operation every six months.

In attempting to get counts down to the 5 fiber limit and eventually down to two fibers a member stated that good housekeeping is required. Several members mentioned the Nilfisk vacuum cleaner. This particular vacuum cleaner can be used for getting into places that a central unit cannot reach. It has a plastic bag liner and runs on a 15 amp circuit. Of the movable type vacuum cleaner the members seem to prefer this Nilfisk. This is a Swedish make vacuum cleaner. More information will be gathered on this vacuum cleaner for distribution to the members. In addition it was suggested that one must have a good central collection system. One that was mentioned was the JM modified central vacuum system, which utilizes the main duct system as a central vacuum system. Several members stated that good-housekeeping was one of the main things that must be taken care of in order to bring the fiber count down. It was suggested that there are three points for good housekeeping: (1) Good shrouding and good dust collection; (2) There should be a central cleaning system for the work area; (3) The Nilfisk vacuum cleaner should be used for general housekeeping in the work area. In addition it was stated that there should be no dry sweeping in the work area.

It was suggested that the friction materials business is different from regular asbestos manufacturing. In addition to asbestos, we have other materials in the product such as resins, carbon blacks, friction dust and various minerals. It is possible that some of these may be picked up during the sample gathering before the count. In some cases these will be counted by operators as being asbestos fibers. In essence it is more difficult to count asbestos in a friction material environment than it is in a textile environment. It is felt that there may be greater difficulty in getting consistent readings on fiber counts in the friction materials business. For that reason friction material manufacturers would prefer a work practices oriented standard.

It was stated that the membrane filter method should not be abandoned as it is the only tool for measurement. However, reliance on this tool for enforcement may be almost unbearable in friction materials factories. It was suggested that OSHA be advised of our industry's concern with the wide variation in fiber counts. Based on the fact that materials other than asbestos might be involved, it is necessary that the counts be interpreted realistically. In other words, while the membrane filter method may be the only method that is available currently for measuring airborne asbestos, and it is not felt that there is another method that can take its place, it is a tool that should be used by manufacturers only in trying to clean up their areas. It is not felt that this tool is accurate enough to be used for enforcement purposes. It is suggested that OSHA inspectors must realize this before factories are closed down and fines are levied when there is doubt as to how accurate the measurement is. Because of the wide variation in results there is concern among members as to the millions of dollars now being put into control methods. Even with these expenditures, there is no way of knowing positively whether industries are getting their counts down to required levels. Various words were used to describe the reliability of the membrane filter method for enforcement: One indicated that it was "unreliable," and another indicated that it was "inadequate". The emphasis was that it is the only tool now available but it is not the proper tool for enforcement.

Ironically, it had been suggested by some government people in the past that the friction material industry would be the first to comply with the OSHA standards. NIOSH felt that the friction materials business could most readily meet these standards. At this meeting, industry members are indicating that it may be more difficult for the friction materials business to meet the levels because of the difficulty in counting fiber samples. It was suggested that if we're having difficulty

meeting the 5 fibers/cc limit currently, it would be near impossible to meet the 2 fibers/cc limit due July 1, 1976. It was suggested that the Industry should oppose this change.

It was stated that realistically it is unlikely that OSHA will not go to the 2 fiber/cc limit on July 1, 1976. The only question is will they go lower than the 2 fiber limit? Dr. Selikoff has spoken of a 1 fiber/cc limit and has even said no fibers. It was stated that the Asbestos Information Association had circulated information concerning the NIOSH suggestion that the friction materials business would come under the standard now. Such literature was never received by the Institute. Most members on the Committee were unfamiliar with this NIOSH suggestion.

As had been suggested earlier, it is necessary to make the counts as accurate as possible. For this reason suggestions on counting procedures, possible crystallization of solvents, and a prohibition on the re-use of slides are important. Mr. Weaver pointed out that in a recent publication he noted that a plastic shroud is placed about the entrance to the pump being worn at the work place, in order to keep large particles of asbestos from getting pulled in to the filter. This shroud would prevent material from being taken from a worker's clothes as well as from some large pieces that would ordinarily fall to the floor without being inhaled. He stated that Turner Brothers has been using such a shroud. The unit is completely open on the front and it is felt that this technique gets rid of some sporadic high counts. Mr. Weaver will get a copy of this and distribute it to the members. This could be another possible improvement in the sampling technique which might make the membrane filter method more palatable. It was suggested that this be considered and perhaps a proposal be made to OSHA for its use. The problem is twofold: (1) Improving the reliability of the membrane filter technique, and (2) The use of the membrane filter as a tool for enforcement with its lack of reliability.

This subject has been fairly well covered. There was some agreement about the problems in using this technique as a tool for enforcement of the OSHA regulations. The question was what should be done about it? One member stated that the Committee would be remiss if it did not advise the members of these difficulties. It was suggested that the Board of Directors be advised that there is a problem and that there is going to be more of a problem when the 2 fiber limit is put into effect. To repeat the problem: while we need the membrane filter method as a tool for measurement, this tool is not suitable for enforcement purposes. It is suggested that when the 2 fibers/cc limit takes effect that this will become a most serious problem.

Recommendations should be put into effect on instructions to employees, the use of vacuum cleaners, the use of dust collecting systems, disposal, etc. When these work practices are put into effect the area will be cleaner. It was suggested that the Institute contact the Asbestos Information Association concerning the use of the membrane filter technique for enforcement. (See later section of these minutes concerning Asbestos Information Association). The Industry must concentrate on collecting, cleaning and housekeeping, using the membrane filter as a tool to see how the levels are being reduced.

One member brought along a work sheet with target dates for completion of various items that will help in meeting the OSHA standards. This is essentially a schedule with dates projected for each step which will move their factory nearer to compliance. The aim is to have the factory at the 2 fiber limit by July 1, 1976. Various critical areas are covered with detailed steps projected to clean up each area. It was suggested that this was almost necessary for control and would certainly help in proving intent to comply with the regulations.

I. H. WEAVER
CORPORATE DIRECTOR
ENVIRONMENTAL CONTROL

123 E. STIEGEL STREET, MANHEIM, PENN. 17545

Raybestos ^R_M Manhattan

May 5, 1975

Mr. E. W. Drislane
Friction Materials Standards Institute, Inc.
E. 210 Route #4
Paramus, New Jersey 07652

Dear Ed:

The enclosed abridgement of a lecture given by Leo Teplow at the Industrial Health Foundation is well worth reading. This clearly defines the struggle between NIOSH and OSHA over the zero TLV approach by NIOSH (particularly Joe Wagonner) and the need for OSHA to consider "feasibility" in developing standards.

Also please note particularly the column headed "What the Manager Can Do in Industrial Safety and Health...Before the Doctor Comes."

This may be worth circulating to Asbestos Study Committee members.

Yours very truly,

IKE
I. H. Weaver

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FMSI 03122

Recommended Procedures for Sampling and Counting Asbestos Fibers

Procedures for the Evaluation of Occupational Exposures to Airborne Asbestos

Joint AIHA-ACGIH Aerosol Hazards Evaluation Committee

FIBROUS ASBESTOS HAS BEEN IDENTIFIED as the causative agent of asbestosis and has been associated with an increased cancer incidence. The American Conference of Governmental Industrial Hygienists (ACGIH) has established (1974) a Threshold Limit Value (TLV) for asbestos of 5 fibers greater than 5 micrometers in length per milliliter of air. A TLV footnote specifies the determination shall be made by the membrane filter method at 400× to 450× magnification and with phase contrast illumination. These procedures define a standard of sampling and of processing the collected samples in order to evaluate occupational exposure to asbestos fibers.

Sampling

Airborne samples of asbestos must be collected on membrane filters which retain at the surface essentially all of the particles in excess of 0.5 μm in diameter. The filter must be rendered transparent by the mounting medium. The filter should be packed in a sealed holder which is capable of being readily opened for sampling purposes and of being resealed after the sample has been collected. The filter must be fully exposed during sampling. (Recommended filters and filter holders are listed under **Supplies**). The filter must be practically dust-free with an average background count of less than 25

fibers per square centimeter. At least 2% to 4% of the filters intended for collecting samples should be set aside to determine the background count. (See **Counting and Calculations** sections). In addition, the filter resistance should not exceed 3 mm of mercury when filtering air at the rate of 0.3 liters per minute (lpm) per square centimeter of filter.

When collecting the sample, care must be taken to prevent dust from falling or from being projected onto the open filter. This may be accomplished by pointing the filter head downward. A guard or shroud should be attached to the filter holder to further protect the open filter from contamination as well as optimize uniform deposition on the filter. Its diameter should be about the same as the holder so that it can be attached tightly to it and it should project at least 1½ times the filter diameter in front of it. A protective device is particularly important if the filter head is to rest on contaminated clothing. (See Figure 1.) The filter holder may be stored for a limit of six months once it is resealed.

The sample should not be too dense, since samples in which particles overlap must be rejected as uncountable. Similarly, a large enough volume of air should be sampled so that there are sufficient numbers of fibers in each field. Experience indicates that more than 150 particles per field, including non-fibrous background, may interfere with counting the sample. It is desirable that there be no more than 10 fibers per field. Two or three samples should be collected at each sampling location. The results should

Reprints of this article are available for purchase from either the American Industrial Hygiene Association, 66 South Miller Road, Akron, Ohio 44313 or the American Conference of Governmental Industrial Hygienists, P.O. Box 1937, Cincinnati, Ohio 45201. The cost is \$1.00 per copy.

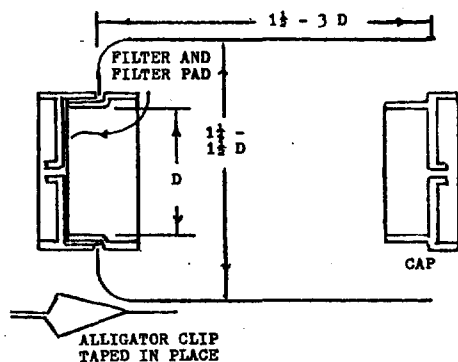


Figure 1. Diagram of shroud for membrane filter holder. The shroud may be constructed from a plastic bottle by cutting off the neck and drilling a hole in the bottom. To use, push the filter holder through the hole and reach in through the top to remove the holder cap. To remove the holder, replace the cap and push the filter holder forward through the hole.

be averaged to obtain the fiber concentration.

Breathing zone samples should reflect the worker's entire normal work day. They must be collected as close to the worker's nose and over as long a time period as possible. Calibrated battery powered personal pumps (see Appendix III, Pump Calibration) are satisfactory air movers. They can be worn by the worker and supported at the belt by means of a clip. The sampling head, which can be pinned to the collar, is connected to the pump by flexible tubing. Such pumps can be operated continuously for about eight hours and recharged overnight.

If a 37-mm filter is used to collect the sample, the pump should be adjusted to sample between 1 and 2 liters per minute. The volume of air sampled should be adjusted so that an optimum density of dust is collected on the filter. Since the dust concentration is not known before sampling, the optimal sampling period must be determined by trial and error. It is suggested that, unless experience indicates otherwise, the first sample should be collected from 20 liters of air, the second from 40 and the third from 80

liters. If a filter other than 37-mm is used, the volume of air sampled should be altered in direct proportion to the open filter area. Samples collected during short periods of exposure should be collected at a high flow rate and if necessary, for the entire exposure period. In all cases the count should be adjusted with regard to time, so that the exposure is expressed as an 8-hour time-weighted average exposure. For compliance evaluations with short term exposures, 37-mm filters samples should be collected for 15 minutes at a minimum of 2 lpm.

Sample Preparation

A solution one-to-one by volume of dimethyl phthalate and diethyl oxylate in which has been dissolved 50 milligrams of membrane filter material per milliliter of solution is the preferred counting medium. The chemicals used to prepare the medium should be examined microscopically to be certain that they are dust free. The fiber material to be dissolved should not be marked and should have a maximum background count of 25 fibers per square centimeter of filter. The counting medium may be stored in a wide-mouthed Wheaton Balsam bottle and should be applied with a glass rod. The counting medium has a refractive index of 1.461 at 25°C. The medium should be made in small quantities since it has a 6 month shelf life.

Asbestos fibers are counted on wedge shaped sections cut from the filter. The wedge should be reasonably sized so that it can be mounted on a 25 x 75 mm (1 x 3 inch) glass microscope slide. The slide should be cleaned of dust before it is used. A drop or two of counting medium is placed on the slide and the filter wedge is placed dust side up on top of the medium. The wedge is covered by a No. 1 1/2 coverslip. Care must be taken while lowering the coverslip to avoid trapping air under it. Air bubbles may be forced out by exerting slight pressure on the cover slip with a pencil eraser. Extreme care must be taken to avoid

too much pressure, since this causes distortion and stretching in the filter.

The wedge is usually cleared within 15 minutes; however, a residual background granularity may be noted. This will disappear within a day. Counts must be completed within two days since there is a tendency for fiber migration and crystal growth. The prepared medium should be checked periodically for a background count. (See **Counting and Calculations** sections.)

An alternate medium may be used when the samples must be counted immediately. It is prepared in the same manner as the preferred viscous medium, except that the added membrane filter is omitted. Since this medium is much less viscous it should be stored in narrow-mouthed bottles. This medium is applied with a glass dropper after the filter wedge has been placed dust side up on the slide. However, a drop should be placed on the slide adjacent to but not on top of each corner of the wedge. This medium acts very rapidly and the No. 1½ coverglass should be lowered within a minute. Slides made up with this "alternate medium" are ready for counting within five minutes and the count must be completed within two hours after preparation.

Filters which have been used to collect samples and which have been resealed in a holder should be removed only in a clean environment. They should not be held with the fingers. They may be held with tweezers and cut with either a scalpel or scissors. Bottles containing media must be tightly closed except during use. All bottles, tools used for handling and cutting filters, and containers used for storing tools must be thoroughly cleaned and dried. Tweezers, scissors, scalpels, etc. should be set aside for this purpose exclusively. Although slides and coverslips are purchased pre-cleaned, they should be wiped lightly with clean lens tissue to remove traces of dust. Do not attempt to reuse slides or coverslips.

Microscope

A microscope equipped with a phase con-

trast substage condenser, a 4 mm "high dry" phase-contrast objective (40× to 45×) and a 10× eyepiece is used to count the sample. It should have either a pre-focused built-in illuminator supplied with an iris diaphragm or be lighted by a separate bright illuminator-flat mirror combination. If a separate illuminator is used it should be equipped with a condensing lens, iris diaphragm, and means for adjusting both the illuminator level and the distance between the condensing lens and the bulb. Zoom microscopes may be used for counting asbestos fibers, provided that the total magnification is within the 400-450× range.

The illuminator should be equipped with an adjustable constant voltage transformer. Both the microscope condenser and stage require close adjustment and both should be rack and pinion mounted. The stage must move along two perpendicular axes in a horizontal plane, while the condenser must move up and down in a vertical plane. Lighting must be adjusted for optimum balance. The Kohler method of illumination is recommended. (See Appendix I for procedures required to establish Kohler illuminator.)

The counting field is defined by a reticle mounted at the level of the field-limiting diaphragm in the 10× eyepiece. The Porton reticle (Figure 2) is recommended. However, any reticle which contains markings which, in addition to outlining an area of about 0.005 square millimeters, as determined by

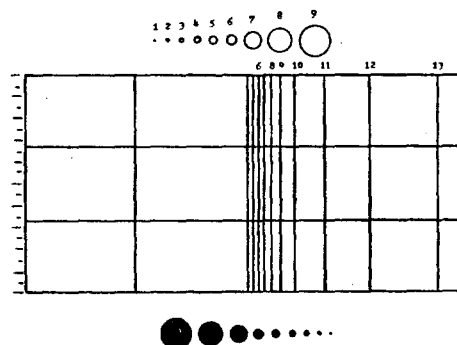


Figure 2. Porton reticle.

the combination of eyepiece and objective, and which defines linear distances that may serve as measuring aids, is satisfactory. The reticle must be calibrated prior to use and recalibrated each time it is removed from the microscope eyepiece or when the microscope tube length or interpupillary distance is changed. Zoom microscopes must be recalibrated each time the zoom position is changed. (See Appendix II for recommended calibration procedures.)

Counting

A fiber is defined as a particle whose length is at least three times greater than its diameter. All fibers longer than $5\ \mu\text{m}$ within the area delineated by the reticle, or which enter it from either of two adjacent sides, are counted. Fibers entering the area from either of the other two sides, *i.e.*, those not arbitrarily chosen as "counting" sides are not counted, nor fibers in excess of $5\ \mu\text{m}$ in diameter. Touching fibers, *i.e.*, one of whose ends touch another fiber regardless of the resulting angle, are considered as one. Fibers that cross each other are counted individually. Fibers that pass through the delineated area are counted provided that they cross at least one of the arbitrarily chosen "counting" sides. (See Figure 3.)

Fiber length should be determined by measuring against standards such as a circle or a space defined by markings on the calibrated reticle. If the fiber is curved or wavy the total length should be estimated by measuring along the curve. Once sufficient experience has been gained in judging length, only fibers whose length or diameter are in question need be measured.

A routine for choosing counting fields must be selected so that fields are not counted more than once and that a representative fraction of the total filter area is viewed. A convenient procedure which may be used is to select a series of microscope viewing fields along a radial line extending from the apex of the filter to the outer edge of the sample wedge. The viewing fields must be

chosen without preference to a particular area and should be approximately equally spaced along the line. The first field should be located a little bit in from the point at which matter is deposited on the filter. If the required number of viewing fields cannot be located on a single radial line, additional lines parallel to the first should be chosen.

Preferably 100 fibers should be counted but all the fibers in 20 fields should be counted even if there are more than 100 fibers. The counting may be terminated after 100 fields have been searched even if 100 fibers have not been counted.

Calculations

The concentration of asbestos fibers in air can be expressed as:

$$\text{Asbestos Conc.} = \frac{\text{Fibers} \times R}{\text{Fields} \times \text{Vol}}$$

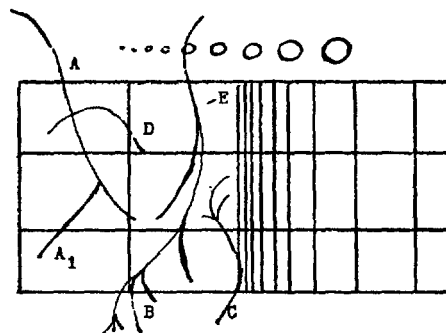


Figure 3. Illustration of fiber counting with a Porton reticle. The top and left side of the large box have been chosen as "counting sides". Circle 6 is $5\ \mu\text{m}$ in diameter. (A) Fiber A crosses the top of the box and is counted, therefore. One end of Fiber A₁ touches Fiber A and thus is considered as part of it and is not counted separately. (B) Fiber B is a bundle containing many spikes. It passes through the box crossing bottom and top. It is counted as one fiber. (C) Fiber C passes through the box but it crosses the right side and bottom. It is not counted. (D) Fiber D is entirely within the box and crosses over Fiber A. It is not part of Fiber A, therefore it is counted as a separate fiber. (E) Fiber E is less than $5\ \mu\text{m}$ in length. It is not counted.

where:

Fibers = total number of fibers counted

Fields = total number of fields counted

$$R = \frac{\text{filtration area}}{\text{area of a counting field}}$$

$$\text{Vol} = \frac{\text{sampling rate (lpm)} \times \text{time (min)}}{10^3}$$

= sample volume in ml of air

Since both the filtration area on the membrane filter and the area of the counting field are normally constant, the ratio of areas, R , is constant for the given conditions.

To illustrate: Air is sampled at 1 liter/minute for 50 minutes on a 37-mm membrane filter (filtration area 855 mm²). A total of 60 fibers each longer than 5 μ m are counted in 100 fields each 0.003 mm² in area:

$$R = \frac{855 \text{ mm}^2}{3 \times 10^{-3} \text{ mm}^2} = 2.8 \times 10^5$$

and

$$\begin{aligned} \text{Asbestos Conc.} &= \frac{2.8 \times 10^5 \times 60 \text{ Fibers}}{100 \text{ Fields} \times \frac{1 \times 10^3 \text{ ml}}{\text{min}} \times 50 \text{ min}} \\ &= 3.4 \text{ Fibers/ml} \end{aligned}$$

Since the precision of this method is limited, the averaged results of the several samples should be reported to the nearest significant figure.

Appendix I

Recommended Procedure for Establishing Kohler Illumination

The microscope is set on a level surface at a convenient height and in such position that sighting through the eyepieces is possible without undue strain or discomfort.

The illuminator is placed directly in front of and aligned with the microscope. If the illuminator is equipped with a coil filament bulb, its iris should be ten inches from the mirror. If a ribbon filament bulb is used, the front of the filter holder should be at least seven inches from the mirror. Only the plane surface of the mirror should be used. All filters should be removed from

the system except that if desired, neutral density filters may be used to reduce the light intensity. If the microscope is equipped with a built-in illuminator, proper illuminator positioning has already been accomplished and need not be of further concern.

Fix a mounted sample on the stage and recheck the alignment. Raise the substage condenser until it nearly touches the bottom of the slide. Turn on the illuminator and use the tilt controls to direct the light to the center of the mirror. Tilt the mirror, directing the beam upward into the stage condenser. Close the microscope substage iris and the illuminator iris. Use the illuminator focus control to focus the image of the filament on the bottom of the substage iris. The reflection of the iris may be viewed in the mirror by leaning over the microscope.

After adjusting the illuminator condenser so that there is a sharp image of the filament on the substage iris, open it about halfway. Recheck proper position of the mirror and then put the objective in place and focus sharply on the sample. It may be necessary to open the substage iris during focusing.

After the sample is in focus, fully close the iris. Readjust the condenser height so that the edge of the iris leaves are in sharp focus and there is a bright spot within the iris. Readjust the mirror to obtain maximum brightness. If the color around the iris is not uniform, recheck the illuminator tilt and focus. If the color is uniform and maximum brightness has been achieved, open the field iris until the blades just pass out of the field of view.

The proper phase stop is inserted or rotated into place in the substage condenser. The phase objective is rotated into place. The eyepiece is replaced with the phase ring centering telescope. The telescope is adjusted for sighting. The location of the phase ring is observed through the telescope. It may be adjusted by using the two rotating shafts provided with the phase condenser. When the ring is centered it appears as a bright annular ring mounted on top of a

grey ring. The center is black. There should be no overlap of the bright ring into the center. When the phase stop is centered the telescope is removed and the eyepiece is replaced. The microscope is now ready for use.

Appendix II

Recommended Procedures for Calibrating Reticle

The reticle must be slightly smaller in diameter than the eyepiece in which it is to be used. It fits into the tube and is held in place at the eyepiece focal point by spring pressure. The focal point is marked by an internal collar which prevents the reticle from passing further into the tube. Some manufacturers locate the focal point just below the collar while others prefer a point immediately above it. Thus it may be necessary to insert the reticle between the lens and the collar on one microscope and below the collar on another. In either case the projected image of the reticle on the field must be clear and sharp.

The reticle must project a constant counting area as well as provide markings for sizing. Many types of reticles are satisfactory. The Porton reticle illustrated in Figure 2 is recommended. It outlines a large rectangle that fits easily within the field of vision. The rectangle is divided into two equal squares. The left square is further divided into six rectangles. Each side of each square has a length equal to 100 L , then the large rectangle is 200 L units long and the small ones 50 L units long and $33\frac{1}{3}$ L units high. To the left of the left square is a scale which divides the side into 20 equal increments of 5 L units each. The right square is divided horizontally in thirds corresponding to the small rectangles and vertically into a series of increasing spaces. The distance between each vertical line and the center of the large rectangle corresponds to the diameter of a circle. Circles of sizes 1 through 9 are located above and below the large rectangle. The diameter of each circle

is related in terms of L units of length in accordance with the formula:

$$D = L \sqrt{2N}$$

where D is the diameter of the circle or the width of the space and N is the number of the circle, or space.

The unit L is determined by measurement. A stage micrometer is the primary ruler. Any one or more of the definitive linear dimensions may be measured. If the length of the large rectangle is measured then L equals 1/200th of that value.

If the stage micrometer is marked in hundredths of millimeters the value of L is in hundredths of millimeters. If the left square is used as a counting area, its area is equal to

$$(100 \times 0.01 L)^2 \text{ mm}^2$$

The filtering area of a 37-mm filter is 855 mm^2 and thus

$$R = \frac{855}{L^2}$$

If other areas are used as counting fields or other sized filters are used, the value of R must be calculated for the individual condition.

It is wise to prepare a chart showing each linear dimension and area for ready reference while counting.

Appendix III

Pump Calibration

Personal sampling pumps should be calibrated for flowrate frequently. They may be calibrated against a primary meter such as a spirometer or against a previously calibrated secondary standard such as a wet gas meter or dry gas meter. The train should be arranged so that the pump is operating against the same resistance it would normally operate against, and that the calibrating meter is at atmospheric pressure. Figure 4 illustrates the recommended arrangement. Air flow through the filter may be limited by both restricting the air flow to the pump as well as by admitting secondary air into

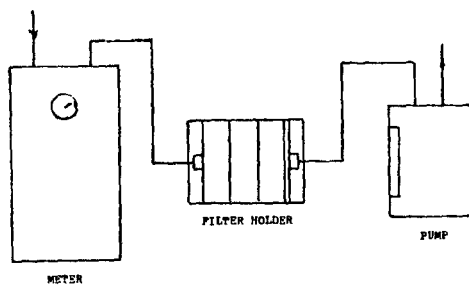


Figure 4. Diagram of set-up for calibration of pump.

the pump. Most personal pumps are constructed with adjustment valves that permit both actions. Calibration should be repeated after each 24 to 36 hours of pump use. If the pump has not been used for a prolonged period of time it should be recalibrated. Temperature and altitude corrections should be made.

Personal sampling pumps should not be used to such an extent that the batteries are allowed to run down below normal operating voltage. Since battery life varies, it is wise to occasionally check the life of the battery by allowing the pump to run down to the first indicated change in voltage under timed simulated conditions.

Supplies

Filters and Filter Holders

Millipore Corp.^a Field Monitor filter holders preloaded with 37-mm Type AA filters, either white plain (catalog #MAWPO37AO) or gridded (#MAWGO37AO) are recommended. These are sold with a guaranteed average particle background and can be used without additional background checks.

It is less expensive to purchase unloaded field monitors (#MABGO37AO) to be loaded with plain or gridded filters purchased separately in packages of 100 (#AAWPO3700, and AAWGO3700). The field monitor can then be reloaded after each use. However, it is necessary to carefully clean the empty monitor and to check the background count on filters in the reloaded monitor.

Type AA filters can be used in any diameter in any non-leaking open-type filter holder, as long as proper adjustment is made in the calculations for the change in filtering area, and periodic background checks are made.

Membrane filters of other types and manufacturers cannot be recommended at this time, either because they do not become optically clear in the mounting medium or because of excessive particle background.

Personal Battery Powered Sampling Pumps

- (1) Casella^b MK II or MK III Personal Sampler
- (2) MSA^c Monitaire Sampler, Model G.
- (3) Bendix^d VM 22 or Micronair Personal Sampler or C-115.

Microscopes: Phase Equipped

- (a) microscope body with a fine focus accuracy of 0.006 mm;
- (b) 10× eyepiece;
- (c) mechanical stage;
- (d) illuminator (preferably built in and having provisions for adjusting light intensity);
- (e) 40× to 45× (0.65 N.A. at least) positive (bright field) phase-contrast objective;
- (f) annular ring condenser diaphragm (corresponding to the objective); and
- (g) phase ring centering telescope.

(Note: Most manufacturers sell a basic body unit and built-in illumination system as a unit. Phase-contrast accessories can usually be purchased as a kit consisting of 10×, 40× and 90× phase objectives, a phase condenser containing appropriate annular ring diaphragms, a phase ring centering telescope, and a green filter. It is to the microscopist's advantage to purchase the kit.)

A list of manufacturers of phase-contrast microscopes^e and reticles^f is given below to aid in selecting a proper instrument.

^a Millipore Corp., Bedford, Mass. 07130.

^b Wilson Products Div., P.O. Box 622, Reading, Penna. 19603. C. F. Casella & Co. Ltd., Regent House, Britannia

Walk, London, N.I, England.

* Mine Safety Appliance Co., 201 Braddock Ave., Pittsburgh, Penna. 15208.

* Bendix—NEI, P.O. Box 590, Fall River, Mass. 02722.

* Bausch and Lomb, Scientific Instrument Division, 72624 Bausch Street, Rochester, N.Y. 14602.

Olympus Microscopes, Micro Optics Company, 28165 Greenfield, Southfield, Mich. 48075.

American Optical Corporation, Reichert Products, Buffalo, N.Y. 14215.

E. Leitz Inc., Rockleigh, N.J. 07647.

Nikon Inc., Instrument Division, Garden City, N.Y. 11530.

Unitron Instrument Company, Microscope Sales Division, 66 Needham Street, Newton Highland, Mass. 02161.

Carl Zeiss, 444 Fifth Avenue, New York, N.Y. 10018.

* Edmund Scientific Co., 701 Edsorp Building, Barrington, N.J. 07007.

BGI, Incorporated, 58 Guinan St., Waltham, Mass. 02154.

Joint AIHA-ACGIH Aerosol Hazards Evaluation Committee

AIHA

Morton Lippmann, Ph.D., Chairman
J. LeRoy Balzer, Ph.D.
Douglas K. Craig, Ph.D.
Graham W. Gibbs, Ph.D.
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Harry J. Ettinger
Murray Jacobson
Geoffrey Knight
Jeremiah R. Lynch
G. Major
Owen Moss
Milton Scheinbaum
Glen W. Sutton

Industrial Hygiene Training in Israel

Medical and engineering students at Tel Aviv University will be obligated in the future to undertake training in occupational safety, hygiene and health to inspire them with an awareness of their obligations for the maintenance of the health of the worker and for the prevention of ill effects from work on man.

This has been made possible by the establishment in 1974 by the Faculties of Medicine and Engineering of the University, in collaboration with the Ministry of Labor, of the National Insurance Institute and the Workers Health Insurance (Kupat-Holim) of a Center for Occupational Safety, Hygiene and Health, with four major departments—Physiology of Work and Rehabilitation, Occupational Toxicology, Occupational Hygiene, and Safety Engineering. It comes to fill long-standing gaps in the promotion of safety and health of the working population in Israel and the absence of training facilities for specialists in these fields.

The new Center will immediately provide refresher courses for physicians and nurses, but curricula for the training of Occupational Toxicologists, Hygienists and Physiologists are in preparation. Ultimately the Occupational Health Physician will also be trained at the Center.

Due to lack of suitable personnel in the country the Center is seeking to recruit specialists from abroad.

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

March 10, 1975

To: Asbestos Study Committee

Subject: Various Papers Concerning Asbestos

Mr. I. H. Weaver, Chairman, forwarded three papers concerning the asbestos problem which he suggested I send on to the Committee.

Internal Raybestos Report by I. H. Weaver 3/4/75

This concerned a meeting at Rutgers University for the Occupational Health Conference. The safety of the 2 fiber/cc limit (June 1976) was questioned. Also concern was expressed for fibers less than 5 microns in length.

Industrial Hygiene Progress Reports

Dr. Selikoff is Program Director for these Reports. In it is a fairly strong push for reducing the standard to 1 fiber per cc or less.

Mesotheliomata in Rats - - - -

This is a British paper that indicated mesotheliomata was observed in a considerable proportion of animals with all the samples of asbestos. Mr. Weaver indicated that this was bad news for those hoping that chrysotile would be proven not to be associated with mesothelioma.

The foregoing is for your information.

EWD/erc
Enclosure:

E. W. Drislane
Executive Director

E-5
(4)

FMSI 03131

Manheim, Pa.

Mr. J. H. Marsh -- Trumbull

March 4, 1975

Occupational Health Conference, Rutgers University

On Tuesday, February 25th, I attended an Occupational Health Conference at Rutgers University in Brunswick, New Jersey, sponsored by the Department of Environmental Science of Cook College at Rutgers, and the American Lung Association of New Jersey. The morning program was devoted to a panel discussion and question and answer period on current health regulations, enforcement problems, and review of current research findings and their potential application to future policies and standards.

Much of the morning discussion concerned relative merits of State versus Federal program control. The recent decision to turn over responsibility for the occupational health in New Jersey to the federal government was severely criticized. James Conlin, New Jersey's Department of Labor Deputy Director, outlined features of the General Factory Act of 1885 that still are being violated in New Jersey and expressed disdain of purported need for additional legislation in the occupational health field. He feels there is plenty of legislation that has not been enforced effectively and cited lack of communication as the major problem in improving occupational health conditions.

New Jersey has operated a program that is far from adequate in the opinion of many, but better than is likely under federal control. A major problem is that labor sees the OSHA Act as a worker's bill of rights and wants to wipe out state plans under the impression their interests will be better served by federal programs. In most cases they are badly misguided, as it appears very unlikely that the federal government will be in a position to improve on the better administered state programs that have been in effect for some time, many of which are being upgraded.

Mary Louise Brown, Regional Consultant to OSHA Region II, estimated the Department of Labor would require as many employees as are now employed by the entire federal government to enable OSHA to accomplish what congress intended when it passed the OSHA Act. Since less than one-tenth of a percent of the federal budget now is applied to occupational safety and health, it is discouragingly evident that we are an extremely long way from achieving what congress mandated.

The afternoon sessions consisted of six workshops covering various hazards. I attended those concerning lead and asbestos. Dr. William Wilentz, former Chief Medical Examiner for Middlesex County, New Jersey, presented an impassioned dissertation on the hazards of lead exposure. He characterized lead as an insidious, slow poisoner that is capable of making people sicker than anything else he knows. He emphasized the following points:

1. No one with any chronic ailment should ever be placed in lead exposure. A very thorough pre-employment physical should be given to discern chronic ailments in candidates for work in lead exposure areas.
2. Most lead sickness occurs in young and in old employees. Propensity of the young to contract lead sickness may be attributable to carelessness.
3. Once a person contracts lead poisoning -- don't permit re-exposure!
4. Too much emphasis is placed on blood lead analysis. Monthly tests for blood lead, urine lead, hemoglobin count, porphorine and stippling should be required for all workers exposed to lead.
5. Lead poisoning is best treated in the hospital by intravenous therapy.

Professor Norbert Bikales of Rutgers spoke briefly on various non-industrial sources of lead exposure and recent research on effects of lead on health. He said the principle source of lead in human environment is from naturally occurring lead in food sources. Recent work indicates smoking aggravates the effects of exposure to lead.

Dr. Arthur Langer of Mt. Sinai reviewed their studies of New Jersey asbestos insulation workers and cited their dismal health picture. He mentioned additional studies conducted in rural areas to eliminate possible etiological effects of exposure to air pollution in the New Jersey industrial megalopolis and said that conclusions from these again related excessive cancer with asbestos exposure. Tyler, Texas also was reviewed, and the Newhouse and Thompson neighborhood exposure study also was mentioned. Mt. Sinai has studied effects of neighborhood and secondary (conjugal) exposure in the Patterson, New Jersey area. In the first 130 people checked, 50% have chest abnormalities.

Langer stated pleural plaques are occurring abroad more in non-asbestos workers in certain industries, notably ship building and construction, than they do in asbestos workers. This is attributed to the fact that the non-asbestos workers do their jobs without respiratory protection but near enough to the asbestos work to breathe contaminated air. The asbestos workers wear respirators.

The safety of the OSHA 20 fiber per cc limit was questioned. Langer and his associates are particularly concerned about exposure to fibers in the sub 5 micron range. He mentioned fibers of specific origin such as the Coalinga area in California, which characteristically contain few fibers greater than 5 microns in length. Under the present standards, it would be possible to have workers exposed to very high concentrations of this type of dust on a mass basis without exceeding the 5 fibers per cc greater than 5 microns in length parameter. A better index of exposure or hazard is badly needed for this type of material, as it is well known to cause problems. The German ~~konimeter~~ mass basis was mentioned as a possible alternate monitoring method, but it is recognized many difficulties would exist and that some operators who are now okay at the 2 or 5 fpcc standard would become in violation on a mass basis.

Mt. Sinai is extremely wary of smaller fibers and considers them very suspect in respect to mesothelioma and lung CA. They question the effectiveness of existing respirators for protection against mesothelioma and lung CA and are not at all willing

to dismiss them as being biologically insignificant. They have found sub light microscopic fibers by electron microscopy in the tissue of virtually all major body organs of asbestos workers. Additional tests are being made to determine quantity and size distribution of fibers in tissue of the general public.

While they consider the burgeoning use of asbestos worrisome, Mt. Sinai recognizes the need for it and recommend it be used wherever needed provided it can be sealed in so it doesn't become airborne. Langer cited good relationships with J-M contrary to popular opinion and expressed high regard for Dr. Kotin. He quoted Kotin as saying J-M would "ban" asbestos if they can't control it.

Langer spoke to the immunity of some individuals to asbestos disease, but said others also seem to be hypersusceptible. No one knows what level is "safe" if any! The Selikoff/Lewinsohn controversy was mentioned. Langer referred to Mt. Sinai's "spys" in Great Britain and said they believe incidence of asbestos disease to exposure is 70% versus 2% previously reported. He mentioned the "tremendous furor" that was raised in Lynn during the recent international conference and predicts there will be a similar furor here when OSHA reopens hearings on the asbestos standard. He very much questions whether the 2 fpec TLV will stand in light of the severe criticism to which it will be subjected.

Dr. Rohl of Mt. Sinai briefly discussed results of their studies in brake repair shops in New Jersey and the New York area. He had intended to show slides and present a longer talk, presumably similar to the one he gave at the ACGIH conference in Miami, but the slide machine broke down and Dr. Langer preempted most of the time that was available. Rohl mentioned many light microscope counts of membrane filter samples yielding 3 to 5 fibers per cc up to 20 ft. from the service area when brake drums were blown off with air hoses. However, he was much more concerned about the relatively large number of sub 5 micron and sub light microscopic fibers found up to 75 ft. away from this operation 15 minutes and longer after the blowing was performed.

I. H. Weaver

grb

INTER ORGANIZATION COMMUNICATION

Raybestos Manhattan

Manheim, Pa.

DIVISION and LOCATION

TO: Messrs. H. F. Anspach R. T. Matthew DATE: March 6, 1975
P. J. Bonitatebus M. E. Schumann, Jr.
H. P. Haberstroh L. C. Williams
C. A. Kennedy

SUBJECT:

The attached report is of no comfort to those of us who are struggling to achieve compliance with the current 5 fiber standard and the scheduled 2 fiber standard.

This can be considered one more stroke in Mt. Sinai's campaign to seal the coffin of the current asbestos TLV.

They really are pushing to get the standard reduced to 1 fiber per milliliter or less.

I. H. Weaver

grb
att.

cc: Mr. E. W. Drislane

E-6
(2)

FMSI 03135

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

February 13, 1975

To: Asbestos Study Committee

Subject: Health Policy Advisory Center Bulletin

Mr. I. H. Weaver, Chairman, passed along the enclosed article on "Asbestos Research" as published in the Health PAC Bulletin of November/December 1974. It is an article most critical of industry, alleging a cover-up helped along by some scientists.

This article might be considered another part of the move to reduce the occupational exposure level from 2 fibers per cc which is to go into effect on July 1, 1976.

Enclosed also is another article by Sprout Waldron, concerning wetting down dust in their new DA Mixer. This article is also sent at the suggestion of Mr. Weaver.

EWD/erc
Enc.

E. W. Drislane
Executive Director

FMSI 03136

BULLETIN

N O. 5 1 6 C

December 4, 1974

PROPOSED AMENDMENTS TO EPA EMISSIONS STANDARDS

We have issued earlier Bulletins 516, 516A, and 516B concerning the proposed amendments to the EPA emissions standards. While we had a few verbal comments on these proposals there was no written comment sent to the office that we could incorporate into a letter to the EPA.

The cut-off date for comments was December 5, 1974. After discussion with Mr. I. H. Weaver, Chairman of our Asbestos Study Committee, I prepared the attached memo to EPA, and sent it on its way yesterday.

In addition to the waste disposal problem, an area for concern is that some of your customers ("fabricators" in the proposed amendments) who do subsequent drilling, grinding or cutting of friction materials are covered by these proposed revisions to the national emissions standards.

1. When an assembler grinds or drills or cuts
2. When a debonder burns off the linings
3. When any assembler, debonder or other disposes of friction material waste.

Without any comments from the manufacturers or fabricators, these proposed amendments will become the standards. If your customers are not aware of the problem, perhaps they, or the EPA, will fault the manufacturers for not having alerted them.

The following notices in the Federal Register cover these national emissions standards for asbestos:

April 6, 1973	National Emissions Standards
May 3, 1974	Clarifying Revisions
October 25, 1974	Proposed Amendments

If you wish a copy of any of these notices, we will be happy to send you a copy. In the meanwhile, it is felt that your customers who do subsequent work on these products should be advised on the scope of these proposed amendments.

EWD/erc
Enclosure:

E. W. Drislane
Executive Director

E-7
(6)

FRICITION MATERIALS STANDARDS INSTITUTE, INC.

BERGEN MALL OFFICE CENTER

E. 210 ROUTE 4

PARAMUS, N. J. 07652

December 3, 1974

Emissions Standards and Engineering Division
Environmental Protection Agency
Research Triangle Park
North Carolina 27711

Attention: Mr. Don R. Goodwin

Gentlemen:

The Friction Materials Standards Institute, Inc. is a trade association representing most of the manufacturers of brake linings and clutch facings in the United States, and we serve several manufacturers outside of the United States.

We wish to comment on the proposed amendments to the National Emissions Standards for asbestos, as published in the Federal Register on October 25, 1974. There are items in these proposed amendments which will have considerable impact on customers of our members (fabricators of friction products) and on land-fill operators who provide our members with waste disposal services.

61.22 (h) (2) Inclusion of fabricators of friction products in the requirements of the emissions standards

While we can understand the Administrator's reasons for including fabricators of asbestos friction products in the emissions standards, we do not feel that these fabricators are sufficiently aware of the impact of these proposed amendments on their operations, particularly in the waste disposal area. We feel your December 5, 1974 cut-off for acceptance of relevant comments was too early to get satisfactory input from those most affected by the proposed amendments. We suggest that this paragraph be postponed until fabricators of friction products have the opportunity to consider the impact of these proposed amendments on their operations.

61.22 (1) (2) The requirement for warning signs on inactive waste disposal sites

This affects individuals and companies who service our members. There may be a reaction on the part of such operators which could make waste disposal sites unavailable to both manufacturers and fabricators. Many operators and developers plan their land use with the intention of later re-sale. These warning signs could be required forever on inactive waste disposal sites and this would effectively remove them from future development. We recommend this requirement for warning signs at inactive waste disposal sites be reconsidered.

Sincerely,

FRICITION MATERIALS STANDARDS INSTITUTE

EWD/lmc

E. W. Drislane
Executive Director

FMSI 03138

BULLETIN

NO. 516B

November 15, 1974

PROPOSED AMENDMENTS TO EPA EMISSIONS STANDARDS

On October 29, 1974 and November 5, 1974 we issued Bulletins 516 and 516A concerning the proposed amendments to the EPA Emissions Standards. The impact of these proposed amendments may not be fully understood, but they are quite far-reaching, and they may create problems in the solid waste disposal area.

FENCING

First, I must correct Bulletin No. 516A, where it stated that "--- all such sites must be fenced."

1. In the case of active waste disposal sites, fencing is not required provided 6" (15cm.) of compacted non-asbestos containing cover is applied at least once every 24 hour period.
2. In the case of inactive waste disposal sites, fencing is not required provided:
 - (A) 6" (15cm.) of compacted non-asbestos containing cover is applied with a cover of vegetation, or
 - (B) 2' (60cm.) of compacted non-asbestos containing cover is applied without a vegetation cover.

"NO VISIBLE EMISSIONS"

The proposed standards state "no visible emissions" during the disposal - collecting, packaging, transporting or dumping (unless either the specified wetting or pelletizing methods are used).

Where they say "no visible emissions" at the disposal site, they interpret this to mean not just the borderline but anywhere in the dump.

DE-BONDING OPERATIONS

De-bonding operations by re-builders are considered fabricating operations and the materials removed must be disposed of in accordance with the procedure for manufacturers and fabricators. The re-builders with de-bonding operations are fabricators and it is proposed that they be covered.

THE EXCEPTION FOR BRAKE SHOE RADIUS GRINDING

Where the EPA is making an exception (ie, not covering) brake shoe radius grinding, that is only when brake shoe radius grinding is done at the garage or shop actually installing the shoes on a vehicle. Where brake shoe radius grinding is done by a manufacturer or fabricator, that operation is not an exception.

November 15, 1974

WASTE DISPOSAL SITE SIGNS - INACTIVE SITES

There will be a problem where a site has been filled by a developer and the inactive site must have Asbestos Waste Disposal Sign posted thereon. This may make it difficult for a developer to market the property and in turn make it impossible for a manufacturer or fabricator to use this disposal site.

ACTION

There are many problems for asbestos friction materials manufacturers with these proposed amendments, particularly on disposal of solid waste. It is suggested that the Standards (sent with Bulletin 516) be reviewed by those responsible for asbestos control in the factory, and that comments be sent (in triplicate), not later than December 5, 1974, to:

Emissions Standards and Engineering Division
Environmental Protection Agency
Research Triangle Park, North Carolina 27711
Attention: Mr. Don Goodwin.

If you need additional copies of the proposed amendments please let me know. If you would rather have FMSI respond, please send your written comments to the Institute to arrive no later than December 2, 1974.

EWD/erc
cc- Delegates, Alternates
Asbestos Study Committee

E. W. Drislane
Executive Director

BULLETIN

NO 516 A

November 5, 1974

PROPOSED AMENDMENTS TO EPA EMISSIONS STANDARDS

On October 29, 1974 we issued Bulletin No 516 concerning the EPA Emissions Standards and we sent one copy of the notice as it appeared in the Federal Register to one person for each Member. Mr. I. H. Weaver, Chairman of our Asbestos Study Committee, has condensed the more important items of concern to friction materials manufacturers and his comments follow:

It is proposed to extend coverage of the standard to fabrication of friction products, except those operations that primarily install asbestos friction materials on motor vehicles. Brake shoe radius-grinding is specifically ~~excepted~~ in the rationale on Page 38065.

Waste disposal requirements are spelled out in considerable detail. It appears that if there are no visible emissions with existing waste disposal methods, no change will be required. However, if existing methods entail visible emissions, then one or the other of two alternates must be pursued:

- a. Wetting with water and sealing the wetted waste into impermeable containers labeled to provide notice that a hazardous material is contained, and depositing the filled containers at a disposal site.
- b. Pelletizing into non-friable pellets and depositing at a disposal site.

Incineration of containers such as paper or plastic bags that previously contained asbestos will be prohibited.

Warning signs will be required at waste disposal sites to alert the public of the potential asbestos hazard, and all such sites must be fenced.

In the event there are visible emissions from waste disposal sites, one of the following alternates must be followed:

- a. Cover with 15 centimeters of non-asbestos-containing material, and establish cover of vegetation adequate to control erosion.
- b. Cover with 60 centimeters of non-asbestos-containing material and maintaining such cover in an erosion-free condition.

EWD/erc
cc-Delegates, Alternates
Asbestos Study Committee

E. W. Drislane
Executive Director

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

BULLETIN

N O. 5 1 6

October 29, 1974

PROPOSED AMENDMENTS TO EPA EMISSIONS STANDARDS

On October 25, 1974 the EPA published proposed amendments to their National Emissions Standards. To avoid confusion: these are EPA proposals (not OSHA). They concern the requirements of "no visible emissions" into the environment.

While these proposed amendments are concerned primarily with the demolition and removal of "friable asbestos materials", there are at least two proposals affecting the friction materials business.

One is that fabricators of friction products (such as re-builders) would come under the provisions of these regulations, whereas currently the manufacturers are covered. A more important item is that proposals are made in the solid waste disposal area which should affect all manufacturers.

A copy of these proposed amendments for your company is being sent to:

The foregoing is for your information.

EWD/erc
co-Delegates, Alternates
Asbestos Study Committee

E. W. Drislane
Executive Director

Dr. S. C.

October 24, 1974

Mr. E. M. Fenner, Director
Technical Relations
Environmental Affairs Dept.
Johns-Manville Corp.
P. O. Box 5108
Denver, Colo. 80217

Dear Ed:

Attached is copy of revised draft of the Asbestos Friction
Materials Work Practices and a marked up copy of the original
to indicate changes, all of which I consider minor.

Best regards,

I. H. Weaver
w

attach.

cc-Messrs. J. Marsh
E. Drislane ✓
C. Clarke

E-8
(8)

FMSI 03143

Recommended Work Practices for Users and Fabricators of
Asbestos Friction Materials

This recommendation of "Work Practices" is prepared by the Standards and Technical Committee of the Asbestos Information Association/North America. The intent is to advise manufacturers and fabricators, who use asbestos friction materials, of Work Practices best suited to maintaining a working environment within the levels required by 1910.93a of the OSHA Standards (copy attached).

1. Asbestos Friction Material Products covered by this work practice recommendation:

- 1.1 Clutch Facings
- 1.2 Brake Lining Segments
- 1.3 Brake Blocks
- 1.4 Disc Brake Pads
- 1.5 Brake Band Materials
- 1.6 Automatic Transmission Discs

2. Operations to which the recommended work practices may apply:

- 2.1 Clutch Assembly and Rebuilding Operations
- 2.2 Brake Assembly and Relining Operations
- 2.3 Automatic Transmission Assembly and Rebuilding Operations

3. Requirements of OSHA 1910.93a.

- 3.1 The Asbestos Standard (1910.93a) applies to any manufacturing, fabrication or handling process or operations involving articles or materials composed wholly or in part of asbestos fibre.
- 3.2 It is the employer's responsibility to maintain "Exposure to airborne concentration of asbestos fibres" at or below the levels described in 1910.93a. Exposure levels may be controlled by isolation, enclosure, exhaust ventilation and dust collection. Standard 1910.93a does not limit the means used to maintain compliance.
- 3.3 Particular tools - All hand or power operated tools which may cause the release of asbestos fibre to become airborne at levels in excess of the standard shall be provided with exhaust ventilation.
- 3.4 Wet Methods - When practicable asbestos products shall be processed wetted sufficiently to prevent emission of dust to the atmosphere. (Limited or not required where wetting would reduce end efficiency of the product.)
- 3.5 Protective Equipment and Clothing - Whenever it is necessary for employees to perform their normal work in an environment where airborne concentration of asbestos fibre exceeds the allowable level of Standard 1910.93a, the employer must provide respiratory protection and clothing in compliance with the standard. The employer must also provide change rooms and separate lockers for work clothes and street clothes.
- 3.6 Air Sampling and Monitoring - The employer is responsible as described in 1910.93a.

- 3.7 Storage and Handling - It is recommended that asbestos-containing products be stored in sealed containers. Handling of asbestos-containing products shall be done in a manner to minimize generation of airborne asbestos dust.
- 3.8 Caution Signs and Labels - The employer shall use caution signs and labels in accordance with provision of Standard 1910.93a.

4. Exhaust and Dust Collection Systems

- 4.1 Wherever exhaust and dust collection systems are used to attain concentrations of airborne asbestos fibre below the levels allowed in Standard 1910.93a, the systems shall be inspected and cleaned at least weekly.
- 4.2 Design, installation and maintenance of exhaust and dust collection systems shall be in accordance with American National Standard Fundamentals Governing Design and Operation of Local Exhaust Systems (ANSI Z9.2) or equivalent standard.

5. Housekeeping in Manufacturing and Fabrication Areas:

- 5.1 All surfaces, machinery, equipment, etc. shall be kept free of accumulation of asbestos dust, preferably by vacuum cleaning or other method that will prevent asbestos dust or fibre from becoming airborne. Vacuum cleaners should be equipped with a disposable collection bag and a microfilter.
- 5.2 Waste and scrap material, such as dust, chips, off-cuts, edge trimmings and broken pieces shall be placed in sealed containers in preparation for disposal.
- 5.3 Containers used to store or dispose of asbestos-containing materials shall be labeled in a manner to comply with Standard 1910.93a.

6. Recommended Procedures for Manufacturing and Fabrication Operations Involving Asbestos Friction Materials:

- 6.1 Wherever feasible, friction materials that are specially treated to reduce dust emission should be used.
- 6.2 Materials should be removed from containers gently and handled with care to avoid unnecessary generation of airborne dust. Care should be taken not to disturb dust remaining in containers and packaging materials. Such dust should be removed by vacuum cleaning wherever feasible.
- 6.3 Wherever feasible, materials should be obtained from the manufacturer cut, machined and/or drilled to suit final requirements to avoid necessity for additional fabrication operations.
- 6.4 On large volume operations with fixed working points or machines, local exhaust systems should be installed in accordance with American National Standard ANSI Z9.2 or equivalent standard.
- 6.5 When cutting, drilling, grinding or machining operations are of short duration, portable dust exhaust units may be suitable. Vacuum cleaning equipment sometimes may be adapted for this purpose, provided the filter system is of adequate efficiency.

- 6.6 Where dust control by means of local exhaust is not feasible, flooding of the work and the tooling with water or other liquid may be effective in suppressing dust emission.
- 6.7 Fragments and dust should be removed regularly, preferably by vacuum methods, and must be disposed of in accordance with paragraphs 5.2 and 5.3.
- 6.8 If surface dust is present on materials, it may be necessary to remove it by wiping with a damp cloth or mop or by vacuum cleaning with a brush head. attachment prior to performing secondary operations such as riveting, bonding, branding, inspection, etc.
- 6.9 Where it is impractical to control airborne dust by means of an exhaust system or by wet processing, workers must be protected by approved respirators and protective clothing.

7. Personal Protection

- 7.1 Develop good personal hygiene practices. Washing thoroughly before eating will prevent ingestion of foreign matter. Food should not be stored or eaten in the work area.
- 7.2 It is well documented that smoking is injurious to your health. The ill effects of smoking may be accentuated for those working where airborne asbestos dust may be encountered. Smoking should be avoided!
- 7.3 Use of approved respirators shall be mandatory when required by OSHA Standard 1910.93a. Protective clothing shall be provided and worn wherever employees are exposed to ceiling levels exceeding those prescribed in Standard 1910.93a. Employees must be given thorough instruction in proper use, care and maintenance of personal protection equipment.
- 7.4 No person shall be assigned to perform any work for which respiratory protective equipment is needed unless he has been medically examined and determined fit.
- 7.5 Care should be taken to minimize dust generation and transfer of dust to the person or his clothing. Clothing not worn during working hours must be stored away from contamination, and contaminated work clothing shall be specially handled to prevent exposure to asbestos dust, as prescribed in Standard 1910.93a.

~~NOT FOR CIRCULATION~~
NOT FOR CIRCULATION

Recommended Work Practices for Users and Fabricators of
Asbestos Friction Materials

late

~~Introduction~~

This recommendation of "Work Practices" is prepared by the Standards and Technical Committee of the Asbestos Information Association/North America, ~~working with the Occupational Safety and Health Department, Office of Health Standards.~~ The intent is to advise manufacturers and fabricators, who use asbestos friction materials, in manners of Work Practice best suited to ~~the~~ maintaining a working environmental atmosphere within the levels required by 1910.93a of the OSHA Standards (copy attached, attached).

1. Asbestos Friction Material Products covered by this work practice recommendation:

Brake Blocks

- 1.1 Clutch Facings
- 1.2 Brake Lining Segments
- 1.3 Disc Brake Pads
- 1.4 Brake Band Materials
- 1.5 Automatic Transmission Discs

2. Manufacturing Operations ^{to which} ~~wherein~~ the recommended work practices may apply:

- 2.1 Clutch Assembly and Rebuilding Operations
- 2.2 Brake Assembly and Relining Operations
- 2.3 Automatic Transmission Assembly and Rebuilding Operations
- 2.4 ~~Field Assembly of Industrial and/or Construction Equipment~~

3. Requirements of OSHA Standard 1910.93a

3.1 The Asbestos Standard (1910.93a) ^{OR OPERATION INVOLVING OR MATERIALS} applies to any manufacturing, fabrication or handling process ~~etc. wherein an article composed~~ wholly or in part of asbestos fibre is ~~concerned~~.

3.2 It is the employer's responsibility to maintain "Exposure to airborne concentration of asbestos fibres" at or below the levels described in 1910.93a. Exposure levels may be controlled by Isolation, enclosure, exhaust ventilation and dust collection. ~~The~~ Standard 1910.93a does not limit the means used to maintain compliance.

3.3 Particular tools - All hand or power operated tools which may cause the release of asbestos fibre to become airborne at levels in excess of the standard shall be provided with exhaust ventilation.

3.4 Wet Methods - ^{2.} When practicable asbestos ~~friction material~~ ^{of dust} products shall be processed, wetted sufficiently to prevent emission to working atmosphere. (Limited or not required where wetting of the product would reduce end efficiency of that product.)

3.5 Protective Equipment and Clothing - ^{the} ~~At such times that~~ ^{WHENEVER} it is necessary for employees to perform their normal work in an environment wherein the airborne concentration of asbestos fibre exceeds the allowable level of Standard 1910.93a, the employer must provide

respiratory protection and clothing in compliance with the standard. The employer must also provide change rooms and separate lockers for work clothes and street clothes.

3.6 Air Sampling and Monitoring - The employer is responsible as described in 1910.93a.

3.7 Storage and Handling - It is recommended that asbestos-containing products be stored in sealed containers, ~~etc.~~ ^{HANDLING OF} During periods of time that it is necessary to handle asbestos-containing products, ~~the~~ ^{MINIMIZE GENERATION} handling shall be done in a manner to create the least amount of airborne asbestos dust.

Signature
Label
3.8 Caution Signs and Labels - The employer shall use caution signs and labels in accordance with provisions of Standard 1910.93a.

4.1 ^{WHEREVER} Wherein exhaust and dust collection systems are used to attain concentrations of airborne asbestos fibre below the levels allowed in standard 1910.93a, the systems ~~should~~ ^{shall} be inspected and cleaned weekly.

4.2 ^{INSTALLATION AND MAINTENANCE?} The design, of exhaust and dust collection systems (~~installation and maintenance~~) shall be in accordance with American National Standard ~~(ANSI Z-9.2)~~ ^{Fundamentals Governing Design and Operation of Local Exhaust Systems, or equivalent standard.}

OK
5. Housekeeping, in Manufacturing and Fabrication areas.

5.1 All surfaces, machinery, equipment etc. shall be kept free of ~~any~~ accumulation of asbestos dust, lint ~~and waste~~, preferably by vacuum cleaning ~~methods~~ or other method that will prevent asbestos dust or fibre from becoming airborne. Vacuum cleaners should be equipped with a disposable collection bag and a microfilter.

Label?
5.2 Waste and scrap material, such as dust, chips, off-cuts, edge trimmings and broken pieces shall be placed in ~~highly~~ ³ sealed containers in preparation for disposal.

5.3 Containers used to store or dispose of asbestos-containing materials shall be labeled in a manner to comply with Standard 1910.93a.

6. Procedure recommendations for manufacturing and fabrication operations involving asbestos friction materials.

6.1 ^{FEASIBLE} Wherever possible, friction materials that are specially treated to reduce dust emission should be used.

6.2 Materials should be removed from containers gently and handled with care to avoid unnecessary generation of airborne dust. Care should be taken not to disturb dust remaining in containers and packaging materials. Such dust should be removed by vacuum cleaning wherever possible.

^{FEASIBLE}

7.5 Care should be taken to minimize dust generation and transfer of dust to the person or his clothing. Clothing not worn during working hours must be stored away from contamination, and contaminated work clothing shall be specially handled to prevent exposure to asbestos dust.

6.3 ^{FEASIBLE} Whenever possible, materials should be obtained from the manufacturer cut, machined and/or drilled to suit final requirements to avoid necessity for additional fabrication operations.

6.4 On large volume operations with fixed working points or machines, local exhaust systems should be installed in accordance with American National Standard ANSI Z9.2 or equivalent.

6.5 When cutting, drilling, grinding or machining operations are of short duration, portable dust exhaust units may be suitable. Vacuum cleaning equipment sometimes may be adapted for this purpose, provided the filter system is of adequate efficiency.

6.6 Where dust control by means of local exhaust is not feasible, flooding of the work and the tooling with water or other liquid may be effective in suppressing dust emission.

6.7 ^{FRAGMENTS} Swarf and dust should be removed regularly, preferably by vacuum methods, and disposed of in accordance with paragraphs 5.2 and 5.3.

6.8 If surface dust is present on materials, it may be necessary to remove it by wiping with a damp cloth or mop or by vacuum cleaning with a brush head attachment prior to performing secondary operations such as riveting, bonding, branding, inspection, etc.

6.9 In ~~exceptional cases~~ where it is impracticable to control airborne dust by means of an exhaust system or by wet processing, workers must be protected by approved respirators and protective clothing.

7. Personal Protection.

7.1 Develop good personal hygiene practices. Washing thoroughly before eating will prevent ingestion of foreign matter. Food should not be stored or eaten in the work area.

7.2 It is well documented that smoking is injurious to your health. ~~When coupled with asbestos dust problems, the effects are accentuated.~~ Smoking should be avoided!

7.3 Use of approved respirators should be encouraged wherever measurable airborne asbestos dust concentrations exist, and use of such respirators shall be mandatory wherever airborne fibre limits ^{when required by} exceed those prescribed in Standard 1910.93a. Protective clothing shall be provided and worn wherever employees are exposed to ceiling levels exceeding those prescribed in Standard 1910.93a. Employees must be given thorough instruction in proper use, care and maintenance of personal protection equipment.

7.4 No person shall be assigned to perform any work for which respiratory protective equipment is needed unless he has been medically examined and determined fit.

*Will effect of
which may be
contacted for the
risk where airborne
asbestos dust may
be encountered.*

OX+4

October 11, 1974

Mr. E. M. Fenner, Director
Technical Relations
Environmental Affairs Dept.
Johns-Manville Corp.
P. O. Box 5108
Denver, Colorado 80217

Dear Ed:

Attached is copy of rough draft of recommended work practices for users and fabricators of asbestos friction materials following the format used by Larry Moody in preparing similar work practices for asbestos textiles.

This is being reviewed by other members of the Friction Materials Standards Institute Asbestos Study Committee, which I hope will provide further input for the revised draft of this list of recommendations.

The actual work practices are included in Sections 5 and 6, items 3,4 and 7 and would be practically the same for all asbestos products.

Please review the attached and advise me by Wednesday, October 16, if any change should be made in this format before I prepare the revised draft of the Friction Materials Work Practices and the practices for other products I am supposed to mail to you Friday, the 18th.

Best regards,

I. H. Weaver
W

cc-Memors. J. H. Marsh
C. Clarke, Bendix Corp.
E. A. Drislane, FMSI /

attach.

E-9
(6)

FMSI 03151

ROUGH DRAFT
NOT FOR CIRCULATION

Recommended Work Practices for Users and Fabricators of
Asbestos Friction Materials

Introduction

This recommendation of "Work Practices" is prepared by the Standards and Technical Committee of the Asbestos Information Association/North America, working with the Occupational Safety and Health Department, Office of Health Standards. The intent is to advise manufacturers and fabricators, who use asbestos friction materials, in manners of Work Practice best suited to the maintaining a working environmental atmosphere within the levels required by 1910.93a of the OSHA Standards.

1. Asbestos Friction Material Products covered by this work practice recommendation.
 - 1.1 Clutch Facings
 - 1.2 Brake Lining Segments
 - 1.3 Disc Brake Pads
 - 1.4 Brake Band Materials
 - 1.5 Automatic Transmission Discs
2. Manufacturing Operations wherein the recommended work practices may apply.
 - 2.1 Clutch Assembly and Rebuilding Operations
 - 2.2 Brake Assembly and Relining Operations
 - 2.3 Automatic Transmission Assembly and Rebuilding Operations
 - ~~2.4 Field Assembly of Industrial and/or Construction Equipment~~
3. Requirements of OSHA Standard 1910.93a
 - 3.1 The Asbestos Standard (1910.93a) applies to any manufacturing, fabrication or handling process etc. wherein an article composed wholly or in part of asbestos fibre is concerned.
 - 3.2 It is the employer's responsibility to maintain "Exposure to airborne concentration of asbestos fibres" at or below the levels described in 1910.93a. Exposure levels may be controlled by, Isolation, enclosure, exhaust ventilation and dust collection. The Standard 1910.93a does not limit the means used to maintain compliance.
 - 3.3 Particular tools - All hand or power operated tools which may cause the release of asbestos fibre to become airborne at levels in excess of the standard shall be provided with exhaust ventilation.
 - 3.4 Wet Methods - When practicable asbestos friction material products shall be processed, wetted sufficiently to prevent emission to working atmosphere. (Limited or not required where wetting of the product would reduce end efficiency of that product.
 - 3.5 Protective Equipment and Clothing - At such times that it is necessary for employees to perform their normal work in an environment wherein the airborne concentration of asbestos fibre exceeds the allowable level of standard 1910.93a, the employer must provide

respiratory protection and clothing in compliance with the standard. The employer must also provide change rooms and separate lockers for work clothes and street clothes.

3.6 Air Sampling and Monitoring - The employer is responsible as described in 1910.93a.

3.7 Storage and Handling - It is recommended that asbestos-containing products be stored in sealed containers, etc. During periods of time that it is necessary to handle asbestos-containing products, the handling shall be done in a manner to create the least amount of airborne asbestos dust.

4. Exhaust and Dust Collection Systems.

4.1 Wherein exhaust and dust collection systems are used to attain concentrations of airborne asbestos fibre below the levels allowed in standard 1910.93a, the systems should be inspected and cleaned weekly.

4.2 The design of exhaust and dust collection systems (installation and maintenance) shall be in accordance with American National Standard (ANSI Z 9.2) *Fundamentals Governing Design and Operation of Local Exhaust Systems, or equivalent standard.*

5. Housekeeping, in Manufacturing and Fabrication areas.

5.1 All surfaces, machinery, equipment etc. shall be kept free of any accumulation of asbestos dust, lint and waste, preferable by vacuum cleaning methods or other method that will prevent asbestos dust or fibre from becoming airborne. Vacuum cleaners should be equipped with a disposable collection bag and a microfilter.

5.2 Waste and scrap material, such as dust, chips, off-cuts, edge trimmings and broken pieces shall be placed in tightly sealed containers in preparation for disposal.

5.3 Containers used to store or dispose of asbestos-containing materials shall be labeled in a manner to comply with standard 1910.93a.

6. Procedure recommendations for manufacturing and fabrication operations involving asbestos friction materials.

6.1 Wherever ^{FEASIBLE} possible, friction materials that are specially treated to reduce dust emission should be used.

6.2 Materials should be removed from containers gently and handled with care to avoid unnecessary generation of airborne dust. Care should be taken not to disturb dust remaining in containers and packaging materials. Such dust should be removed by vacuum cleaning wherever possible.

^{FEASIBLE}

6.3 Whenever ^{FEASIBLE} possible, materials should be obtained from the manufacturer cut, machined and/or drilled to suit final requirements to avoid necessity for additional fabrication operations.

6.4 On large volume operations with fixed working points or machines, local exhaust systems should be installed in accordance with American National Standard ANSI Z9.2 or equivalent.

6.5 When cutting, drilling, grinding or machining operations are of short duration, portable dust exhaust units may be suitable. Vacuum cleaning equipment sometimes may be adapted for this purpose, provided the filter system is of adequate efficiency.

6.6 Where dust control by means of local exhaust is not feasible, flooding of the work and the tooling with water or other liquid may be effective in suppressing dust emission.

6.7 Swarf and dust should be removed regularly, preferably by vacuum methods, and disposed of in accordance with paragraphs 5.2 and 5.3.

6.8 If surface dust is present on materials, it may be necessary to remove it by wiping with a damp cloth or mop or by vacuum cleaning with a brush head attachment prior to performing secondary operations such as riveting, bonding, branding, inspection, etc.

6.9 In exceptional cases where it is impracticable to control airborne dust by means of an exhaust system or by wet processing, workers must be protected by approved respirators and protective clothing.

7. Personal Protection.

7.1 Develop good personal hygiene practices. Washing thoroughly before eating will prevent ingestion of foreign matter. Food should not be stored or eaten in the work area.

7.2 It is well documented that smoking is injurious to your health. When coupled with asbestos dust problems, the effects are accentuated. Smoking should be avoided!

7.3 Use of approved respirators should be encouraged wherever measurable airborne asbestos dust concentrations exist, and use of such respirators shall be mandatory wherever airborne fibre limits exceed those prescribed in Standard 1910.93a. Protective clothing shall be provided and worn wherever employees are exposed to ceiling levels exceeding those prescribed in Standard 1910.93a. Employees must be given thorough instruction in proper use, care and maintenance of personal protection equipment.

7.4 No person shall be assigned to perform any work for which respiratory protective equipment is needed unless he has been medically examined and determined fit.

7.5 Care should be taken to minimize dust generation and transfer of dust to the person or his clothing. Clothing not worn during working hours must be stored away from contamination, and contaminated work clothing shall be specially handled to prevent exposure to asbestos dust.

FRICION MATERIALS STANDARDS INSTITUTE, INC.

BERGEN MALL OFFICE CENTER
E. 210 ROUTE 4
PARAMUS, N. J. 07652

October 16, 1974

Mr. I. H. Weaver
Raybestos-Manhattan, Inc.
Manheim, Pa. 17545

Subject: Work Practices for Users and Fabricators of
Asbestos Friction Materials.

Dear Ike:

I have reviewed your recommended work practices. You have done a very complete and to-the-point job. Confirming our phone conversation, I wish to make the following suggestions:

1. Add "Brake Blocks" as 1.3, and then re-number others to 1.6.

3.7 After "... stored in sealed containers, etc." Remove "etc."

3.8 New section, add:

Caution Signs and Labels - The employer will use caution signs and labels in accordance with provisions of standard 1910.93a.

5.2 Where it says "... placed in tightly sealed containers ...," remove the word "tightly."

6.7 I am not familiar with the word "swarf." It is not in my dictionary.

7.2 Reword this section to remove possible hint that smoking while working is the problem. Suggest:

It is well documented that smoking is injurious to your health. The ill effects of smoking may be accentuated for those working where asbestos dust may be encountered. Smoking should be avoided!

The forgoing are my comments and not necessarily those of the Committee. I phoned them to you simply to give you a quick turn-around.

Sincerely,

FRICION MATERIALS STANDARDS INSTITUTE



EWD/erc
CC- Asbestos Study Committee

E. W. Drislane
Executive Director

FMSI 03156

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

September 23, 1974

TO: Asbestos Study Committee

SUBJECT: AIA/NA Recommended Revisions to OSHA Asbestos Standard.

In August 1974 we distributed to Committee Members a copy of the AIA/NA recommendations for revisions to the OSHA Asbestos Standard. We asked for comments concerning these recommendations.

Based on comments from Messrs. Weaver and Wagner, I drafted a letter to AIA/NA. You Chairman reviewed the content of this letter which is being sent to AIA/NA. A copy is attached. The foregoing is for your information.

EWD/lmc
Enc.

E. W. Drislane
Executive Director

E-10
(2)

FMSI 03157

FRICTION MATERIALS STANDARDS INSTITUTE, INC.

BERGEN MALL OFFICE CENTER
E. 210 ROUTE 4
PARAMUS, N. J. 07652

September 23, 1974

Mr. R. H. Mereness
Asbestos Information Association/NA
1660 L Street, NW
Washington, D.C. 20036

Subject: Recommended Revisions to OSHA Asbestos Standard

Dear Bob:

The committee members within the Friction Materials Standards Institute responsible for monitoring asbestos regulations have reviewed your Association's recommended revisions and suggested work practices for the OSHA Asbestos Standard.

An overall comment is that your proposal is well prepared and that it represents a realistic approach which if accepted will safeguard the health of employees who work in the manufacture of asbestos-bearing friction materials.

There is, however, one item on which committee members have expressed concern, and that is the recommendation to add a new section (d) (1) (vi):

"(vi) Where respirators are permitted under sub-division (iv) of this subparagraph, their use shall be subject to the following limitations:

1. Respirator shall not be worn for more than 60 minutes in any 8-hour shift.
2. Respirator shall not be worn for more than 30 minutes in any hour in the 8-hour shift.
3. Exposures do not exceed 10 times the permissible limits and protection can be achieved by use of an air purifying respirator."

It is felt that addition of this sub-paragraph vi is unnecessary, and that addition of sub-paragraph iv is sufficient. In addition, it is felt that the limitations indicated by suggested sub-paragraph vi may be confused with exceptions permitted by existing sub-paragraphs i, ii, iii and iv.

Your Association's consideration of these comments will be appreciated.

Sincerely,

EWD/lmc

E. W. Drislane

FMSI 03158

MOLDED MATERIALS COMPANY
Division of Carlisle Corporation
P.O. Box P, Gillis Avenue
Ridgway, Pennsylvania 15853
(814) 773-3187



August 20, 1974

Mr. E. W. Drislane, Executive Director
Friction Materials Standards Institute, Inc.
Bergen Mall Office Center
E-210 Route 4
Paramus, New Jersey 07652

Dear Ed:

The papers which you circulated under date of August 8, 1974 relating to the revision of O.S.H.A. Standards on "Exposure to Asbestos Dust" were carefully studied here.

I immediately called our Chairman, Ike Weaver, and expressed my displeasure with the recommendation limiting the use of respirators to 60 minutes in any 8 hour shift, and 30 minutes in an hour.

This is recommended as an additional section under (d) (1) (vi) which I feel would best be left as is.

The entire proposal is well prepared and represents a realistic approach which will safeguard the health of employees.

Yours very truly,

MOLDED MATERIALS COMPANY
DIVISION OF CARLISLE CORPORATION

H. H. Wagner
Industrial Relations

HHW:pj

cc: Mr. Isaac H. Weaver
Raybestos-Manhattan, Inc.
Manheim, Pennsylvania 17545

Mr. E. R. Zacharias

E-11
(2)

FMSI 03159

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

August 15, 1974

To: Asbestos Study Committee

Subject: AIA Recommendations for Revision of OSHA Standard
"Exposure to Asbestos Dust"

On August 8, 1974, we forwarded several papers applicable to asbestos problems. The first paper was AIA's recommendations for revision of the OSHA Standard on "Exposure to Asbestos Dust".

This particular paper took the 1910.93a Asbestos standard by paragraph showing recommended changes and the reasons therefor. Also included were suggested work practices in the handling of asbestos.

Would you please review these proposed revisions and additions. Please also circulate them to those in your organization responsible for asbestos control. We would very much like written comments and criticism of these proposals. These would be passed on to those at AIA who are dealing with OSHA.

EWD/erc
Enclosure:

E W. Drislane
Executive Director

FMSI 03160

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

June 19, 1974

To: Asbestos Study Committee

Subject: Minutes of Meeting of June 14, 1974

I am forwarding minutes of the meeting of the Committee held on June 14, 1974. These are UNCONFIRMED MINUTES, and must be reviewed by your Chairman and Legal Counsel.

In addition, I am enclosing with Mr. Dunderdale's and Mr. Feierabend's copies the following literature that was distributed at the Meeting:

1. American National Standard - "Fundamentals Governing The Design and Operation of Local Exhaust Systems For The Control of Asbestos-Containing Dusts".
2. "Analysis of FoamaerolTM Foam and its Comparative Efficiency as a Dust Collector".

EWD/erc
Enclosure

E. W. Drislane
Executive Director

E-12

FMSI 03161

Asbestos S.C.

May 29, 1974

Mr. I. H. Weaver
Raybestos-Manhattan, Inc.
123 East Stiegel Street
Manheim, Pa. 17545

Subject: Report of Asbestos Study Committee Chairman

Dear Ike:

I earlier talked with you about a report for the June Meeting. You indicated that you would not be able to attend our June Meeting. Also, I stated I would give you an outline of actions taken within the Institute concerning Asbestos during the 1973-74 FY (July 1, 1973-June 30, 1974).

Enclosed is a list of actions during the 1973-74 fiscal year, listed in date order. I'd very much appreciate a brief Committee Chairman report as soon as you're able. It would be most helpful if I could have it by the June 14th meeting.

Sincerely,

FRICTION MATERIALS STANDARDS INSTITUTE

EWD/ero
Enclosures:

E. W. Drieland
Executive Director

*E-13
(2)*

FMSI 03162

- 7/73 Questionnaire on Plant Operations Seminar
- 8/73 Sent to Committee Members information on pelletizing asbestos-containing dust.
- Sent to Committee Members information concerning Dr. Selikoff's presentation indicating that the 1976 2-fibers/cc exposure may be too high.
- Sent to Committee Members data concerning:
- (1) The Lyon, France meeting in 10/72
 - (2) Asbestos bag opening machinery by Fairmont Engineering.
- Advised Membership of Sverdrup and Parcel study for EPA on waste water effluents from friction materials plants.
- 9/73 Sent Committee Members additional articles on asbestos and brake linings.
- 10/73 Advised Membership of Arthur D. Little study for EPA on economic impact of 1972 Federal Water Pollution Control Amendments.
- Advised Committee Members of change of address of Asbestos Information Association to Washington, D.C., and that Robert Mereness is the new Executive Director.
- 11/73 Advised Committee Members of results of questionnaire concerning the suggested Plant Operations Questionnaire.
- 12/73 Advised Membership that the suggested Plant Operations Seminar will not be held. (Lack of sufficient interest).
- Sent Committee Members considerable literature on asbestos as it relates to occupational health.
- 1/74 Sent Committee Members copy of letter from R. Mereness of Asbestos Information Association relative to FMSI being listed as an organization affiliated with AIA.
- 5/74 Attended meeting of American Industrial Hygiene Conference relative to papers on asbestos and friction materials.

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

May 3, 1974

TO: Asbestos Study Committee

SUBJECT: Activities concerning asbestos in the occupational area

I've attached a copy of a letter from your Chairman, Mr. I. H. Weaver, concerning the American Industrial Hygiene Conference to be held in Miami Beach on May 16-17, 1974. There are three papers to be delivered which should be of interest to the friction materials industry:

<u>Schedule</u>	<u>Authors</u>	<u>Title</u>
2nd asbestos Thursday May 16, 1974 9:40 A.M.	Diberardinis, L. Burgess, W. A. Lynch, J. J.	"Exposure of Turnpike Toll Booth Operators to Automobile Dust"
CXL Friday May 17, 1974 11:20 A.M.	Cowle, J. E. Rajhans, G. S. Moore, D. E.	"A Comparative Review of Dust Conditions and Clinical Observations of Two Brake Lining Manufacturing Industries"
Friday May 17, 1974 11:40 A.M.	Rohl, A. N. Anderson, H. Nicholson, W. J. Langer, A. M.	"Asbestos Exposure During Brake Lining Maintenance and Repair"

I plan to attend these presentations and hope to secure copies of the papers while there. (I will be in Miami Beach for another conference at that time.)

On another subject, Mr. Weaver and I have discussed the possibility of another committee meeting. Our last meeting was on June 1, 1973. Your Chairman and I do not believe in calling for a meeting unless there are items of substance on the agenda. Currently, Mr. Weaver and others in the Industry are preparing a draft to send to OSHA concerning work practice standards for various asbestos products. As asbestos containing friction materials will be one of the products, a committee meeting may be called relative to this subject. As I receive more information, I will let you know.

EWD/lmc
Enc.

E. W. Drislane
Executive Director

E-14

FMSI 03164

I. H. WEAVER
CORPORATE DIRECTOR
ENVIRONMENTAL CONTROL

123 E. STIEGEL STREET, MANHEIM, PENN. 17545

Raybestos ^R_M Manhattan

April 24, 1974

Mr. E. W. Drislane
Friction Materials Standards Institute
E. 210 Route #4
Paramus, N.J. 07652

Subject: American Industrial Hygiene Conference Program

Dear Ed:

There are three papers to be presented at the American Industrial Hygiene Conference that will be of particular interest to FMSI members. The first will be presented at 9.40 A.M. Thursday, May 16, entitled, "Exposure of Turnpike Toll Booth Operators to Automobile Dust". It is by L. Diberardinis, W. A. Burgess, and J. J. Lynch of the Harvard School of Public Health.

The other two papers will be presented 11.20 and 11.40 A.M. Friday, May 17. The first is entitled, "A Comparative Review of Dust Conditions and Clinical Observations of Two Brake Lining Manufacturing Industries" by J. E. Cowle, G. S. Rajhans, and D. E. Moore of the Ontario Ministry of Health. The second is entitled, "Asbestos Exposure During Brake Lining Maintenance and Repair" by A. N. Rohl, H. Anderson, W. J. Nicholson, and A. M. Langer of Mt. Sinai School of Medicine, New York.

You may wish to alert FMSI people who might be interested in attending one or more of these sessions at the American Industrial Hygiene Conference. The conference is to be held at the Fontainebleau Hotel, Miami Beach. Registration for one day at the conference costs \$11.00.

Sincerely,

I. H. Weaver
I. H. Weaver

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E-15
FMSI 03165

6/74

ASBESTOS STUDY COMMITTEE REPORT

ASBESTOS

1973

Although only one committee meeting was held during the past fiscal year, Asbestos Study Committee members pursued a number of items of interest and concern to FMSI member companies throughout the year. Members maintained phone contact with one another and with the Executive Director with regard to numerous asbestos/health and environmentally related subjects of potential importance to the friction material industry.

Recommendations for compliance with OSHA labeling requirements were frequently discussed. These requirements have assumed a greater importance in view of the current intense interest in product safety legislation and recent judgements in which manufacturers' culpability has been challenged successfully in the courts in cases involving adverse health effects from exposure to hazards inherent in products where no warning of existence of the hazard was given. All manufacturers and marketers of asbestos-containing friction materials should pay heed to the precedents that have been set establishing manufacturers' responsibility for informing customers of potential health or safety problems that may exist in connection with the use or disposal of their products. Labeling friction materials in accordance with the OSHA Asbestos Standard would appear to be a minimum essential measure.

Other major items investigated and reviewed during the year were as follows:

ASBESTOS STUDY COMMITTEE REPORT

- I. FMSI members interest in plant operations seminar on safety, health and compliance with Federal regulations. Survey indicated insufficient interest to justify such

Although ~~no seminar~~, but the subject may be reconsidered at a later date. In the past year, Asbestos Study Committee members pursued a number of items of interest: I. Dr. Selikoff's attack on the 2 fibre/cc workplace year. Members have exposure level and the controversy between Drs. Selikoff and H. C. Lewinsohn of Turner & Newall Ltd. health and environmentally related subjects of potential importance to the friction material industry. II. Mechanized bag opening systems.

Recommendations: Improved waste disposal systems for labor reduction were frequently discussed and elimination of fugitive dust problems of a greater importance in view of the current intense interest in product safety legislation. V. Asbestos Industry studies by Sverdrup and Parcel. Culpability has been challenged successfully in the courts in cases involving adverse health effects from exposure to hazards inherent in products where no warning of existence of the hazard was given. All manufacturers and marketers of asbestos-containing friction materials should pay heed to the precedents that have been set establishing manufacturers' responsibility for informing customers of potential health or safety problems. Probably the most important asbestos health related meeting that has occurred during the past year was the International Labor Organization Meeting of Experts on Safe Use of Asbestos, held in Geneva, Switzerland, December 11-18, 1973. Approximately thirty representatives of labor, industry, government and the medical fraternity participated. The main subjects were: (A) Pathological Effects of Exposure, (B) Prevention of Risks Due to Exposure, and (C) Possibilities of International Regulations.

- I. FMSI members interest in plant operations seminar on safety, health and compliance with Federal regulations.

As far as I know, the final report of the ILO meeting has not been published, but the following highlights excerpted from the draft report should be of concern to all asbestos products manufacturers:

- (1) There is growing evidence of severe health risks following exposure to asbestos dust.
- (2) All types of asbestos fibre are associated with mesothelioma.
- (3) The proportion of asbestos workers who may be expected to develop mesotheliomas cannot be determined precisely at present.
- (4) There is no simple pattern of risk related to type of job, type of fibre, past dust exposure or other factors.
- (5) Substitutes should be used wherever possible.
- (6) Whatever standards of maximum dust exposure may be recommended as targets, the ultimate aim should always be minimum amount of occupational exposure.
- (7) The membrane sampling method should be adopted as an international reference method for comparison and correlation of environmental data concerning asbestos dust concentrations.
- (8) The 2 fibres/ml standard should be regarded as an interim target concentration related to fibrogenic effects and not to carcinogenic effects, for which no standards exist at the present time.
- (9) Wherever technically possible, processes or operations should be designed or redesigned so that dust exposure is reduced to the recommended target concentration or lower.
- (10) Wherever possible, mechanical means should be devised to avoid handling involving personal exposure.
- (11) Filtered air should not be readmitted to the work place, unless asbestos dust levels are not more than one tenth the recommended target concentration for the working environment.
- (12) Use of respiratory protective equipment and protective clothing should be limited to the interim period required to achieve dust control by technical measures.
- (13) Respirators should be individually fitted, and the duration of continuous use should be limited.

- (14) On no account should dust be removed by compressed air or brushing. Cleaning should be carried out by vacuum cleaning equipment which has been approved by competent authority for use with asbestos.
- (15) Bags of asbestos fibre and asbestos waste material should be marked with an internationally recognizable symbol indicating that hooks should not be used. Those concerned with transportation of asbestos fibre and waste should be warned of the need to observe high standards of hygiene.
- (16) Workers suffering from respiratory disease or insufficiency should not be exposed to additional asbestos exposure.
- (17) Medical supervision must be continued after exposure ceases.
- (18) Strict confidentiality of medical records should be observed, and personal files should be kept under the seal of medical secrecy.
- (19) Competent authorities must be informed of all work involving exposure to asbestos.
- (20) There should be a full understanding of the nature of the asbestos hazard by all persons concerned, both inside and outside asbestos processing facilities.

Vinyl chloride and other chemical carcinogens appear to have replaced asbestos as far as notoriety in the media is concerned for the present. Although government agencies, environmentalists, and occupational health zealots now appear to be directing their attentions elsewhere, we should not permit ourselves to be lulled into a false sense of security. Asbestos has been referred to by more than one medical researcher as the "next carcinogen", presumably for which much stricter controls than now exist must be devised and implemented.

Asbestos still is very much under attack in many quarters, and its health effects are being very intensively investigated. There appears to be no chance the 2 fibres/ml TLV will be increased, and strong pressure will be exerted by many to reduce this figure. More restrictive controls in the form of specific work practices and waste disposal regulations are almost certain to evolve later this year after OSHA and EPA finish their deliberations regarding revisions to existing standards.

The Asbestos Study Committee will attempt to keep abreast of information concerning this and other developments in asbestos/health and related fields throughout the ensuing year.

Respectfully submitted,

I. H. Weaver, Chairman