

MEMORANDUM

TO: File
FROM: BLC
RE: Friction Materials Standards Institute
DATE: 10/1/84

Pursuant to ongoing asbestos litigation, I spoke with Ed Drislane, Executive Director of the Friction Materials Standards Institute (FMSI) on September 26, 1984. We discussed the two areas of concern: ongoing research concerning brake lining dust; and warnings on brake lining products.

1. Research: Mr. Drislane is aware of no ongoing research concerning brake lining dust, its decomposition and health effects. His only knowledge concerning research in this area is what is available through published medical and technical literature. He recommends that we contact the Asbestos Information Association for more information in this area.

2. Warnings: The basic model for the warning label on asbestos containing friction products came from the 1972 OSHA standard. Brake Lining Manufacturers, as a group, did not begin labelling their products until 1974-75, because of disagreement within the industry whether the OSHA Standard applied to encapsulated friction products.

The FMSI have published a one-page notice in their catalogs since 1977 entitled "Recommended Procedures for Reducing Asbestos Dust During Brake Servicing" (copy attached). In late 1978, the FMSI published 45,000 copies of the booklet "Friction Material Work Practices Guide" (copy attached) which was distributed to its members (brake lining manufacturers).

"The purpose of this booklet is to provide practical guidelines for brake and clutch service mechanics in the handling and processing of asbestos containing friction materials and in the maintenance and repair of brake and clutch assemblies...

cont'd

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Adherence to the recommended work practices will reduce employee exposure to airborne concentrations of asbestos dust and will assist employers in complying with government regulations."

Mr. Drislane cannot state to whom the FMSI members distributed these booklets or how many found their way to independent garages and shops.

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FRICTION MATERIALS STANDARDS INSTITUTE, INC.

BERGEN MALL OFFICE CENTER

E. 210 ROUTE 4

PARAMUS, N. J. 07652

September 26, 1984

Ms. Barbara Ciaramitaro, Legal Asst.
Dickinson, Wright, Moon et al
800 First National Building
Detroit, MI 48226

Dear Ms. Ciaramitaro:

Enclosed are 1 copy of the one page notice "Recommended Procedures for Reducing Asbestos Dust During Brake Servicing" which first appeared in our catalogs in 1977, and the booklet "Friction Materials Work Practices Guide" which was published in late 1978.

Sincerely,

FRICTION MATERIALS STANDARDS INSTITUTE

E. W. Drislane

E. W. Drislane
Executive Director

EWD/e

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RECOMMENDED PROCEDURES FOR REDUCING ASBESTOS DUST DURING BRAKE SERVICING

Because studies have indicated that exposure to excessive amounts of asbestos dust may be a potential health hazard, OSHA has set maximum limits of levels of airborne asbestos dust to which workers may be exposed. Since most automotive friction materials normally contain a sizable amount of asbestos, it is important that people who handle brake linings and clutch facings understand the nature of the problem and know the precautions to be taken.

1. Areas where brake work is done should be set aside if possible, and entrances should be posted with an asbestos exposure sign as follows:

**Asbestos
Dust Hazard
Avoid Breathing Dust
Wear Assigned Protective Equipment
Do Not Remain in Area Unless Your Work
Requires It
Breathing Asbestos Dust May Be Hazardous
To Your Health**

2. The amount of asbestos in the dust from brake lining wear is normally at an extremely low level because of chemical breakdown during use, and if machining of friction material does not take place, simple procedures will minimize exposure. During brake servicing, the mechanic should wear a respirator approved by NIOSH for asbestos dust. It should be worn during all procedures starting with the removal of wheels and including reassembly.
3. When removing worn friction materials, remove the accumulated dust in the assemblies with an industrial vacuum cleaner equipped with a high efficiency filter system. If such equipment is not available, dust can be removed with a damp cloth. Do not use compressed air or dry brushing for cleaning unless the assembly is enclosed and properly exhausted.
4. Whenever possible, purchase friction materials preground and ready for installation. If machining is necessary, the precautions which must be taken are of extreme importance. This is the operation

in brake service when exposure to asbestos dust may be at its highest. This increases the difficulty in complying with the OSHA standards. In addition to the approved respirator, there must be local exhaust ventilation such that worker exposures are maintained below the OSHA asbestos standards. If there is any question as to the efficiency of asbestos dust removal by the machine, the manufacturer should be contacted.

5. Industrial vacuum cleaner bags containing asbestos dust and cloths used for wiping brake assemblies should be sealed in plastic bags and labeled with the following warning label printed in letters of sufficient size and contrast to be readily visible and legible.

**Caution
Contains Asbestos Fibers
Avoid Creating Dust
Breathing Asbestos Dust May Cause Serious
Bodily Harm**

All asbestos waste should be disposed of in accordance with OSHA and EPA asbestos regulations. During removal of vacuum bags, an approved respirator, as described in (2) above should be worn.

6. Good housekeeping is essential in a workplace where asbestos containing materials are handled. Industrial vacuum cleaners equipped with multiple stage high efficiency filters should be used for removing accumulations of asbestos dust and waste. Never use compressed air or dry sweeping for cleaning. Water or other dust suppressants should be applied if brooms are used.
7. Good personal hygiene practices are important in minimizing asbestos dust exposure. Do not smoke. Wash before eating. Shower after work. Change to work clothes upon arrival at work and change from work clothes at conclusion of work. Work clothing should not be taken home. Laundering of asbestos contaminated clothing shall be done so as to prevent release of airborne asbestos fibers in excess of the exposure limits.

CAUTION: DO NOT BREATHE ASBESTOS DUST

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FRICION MATERIALS WORK PRACTICES GUIDE

SOURCES OF ADDITIONAL INFORMATION

"Standard for Exposure to Asbestos Dust" (Code of Federal Regulations, Title 29, 1910.1001)—OSHA

"National Emissions Standards for Hazardous Air Pollutants—Asbestos and Mercury" (Code of Federal Regulations Title 40, Chapter I, Subchapter C, Part 61, Subparts A, B)—EPA

"Fundamentals Governing the Design and Operation of Local Exhaust Systems," ANSI Z9.2-1971 (\$7.00) and "Practices for Respiratory Protection," ANSI Z88.2-1969 (\$5.50)—ANSI

"Industrial Ventilation Manual" (\$8.00)—ACGIH

For other information, a user may contact the manufacturer supplying his friction materials, the Asbestos Information Association or the Friction Materials Standards Institute.

ACGIH
American Conference of Governmental
Industrial Hygienists
Committee on Industrial Ventilation
P.O. Box 16153
Lansing, MI 48901

ANSI
American National Standards Institute
1430 Broadway
New York, NY 10018

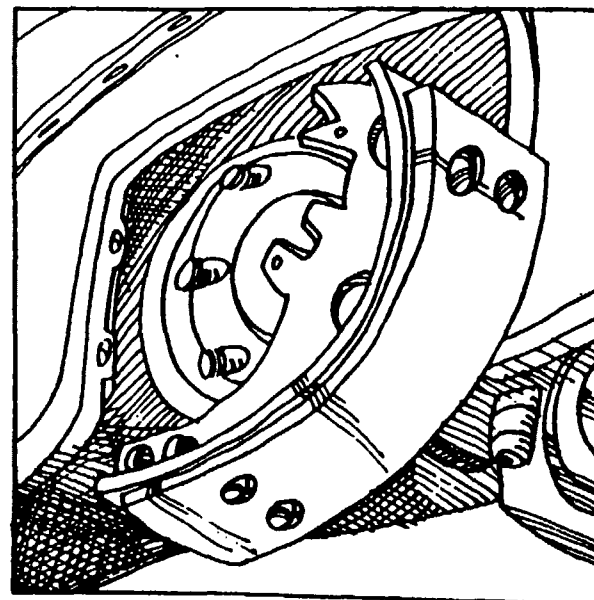
Asbestos Information Association
1745 Jefferson Davis Highway
Arlington, VA 22202

EPA
Environmental Protection Agency
Public Information Center
401 M Street SW
Washington, DC 20460

FMSI
Friction Materials Standards
Institute
East 210 Route 4
Paramus, NJ 07652

OSHA
Occupational Safety and Health
Administration
Office of Information
Washington, DC 20210

October 1978

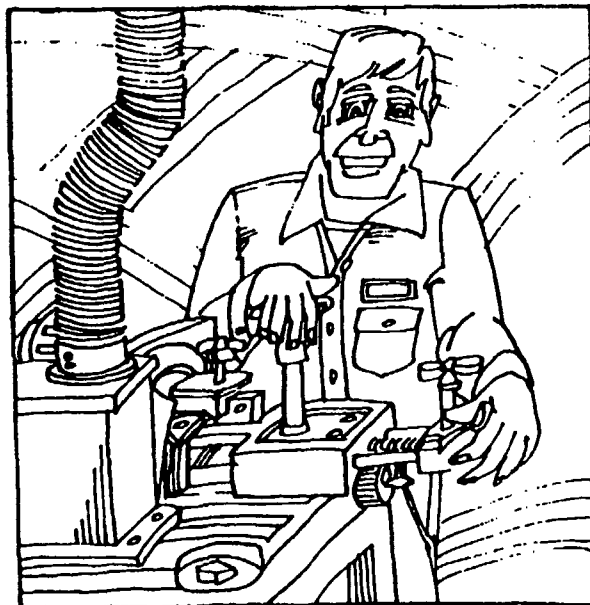


Friction Materials Standards Institute, Inc.

8008 0411

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USE DUST COLLECTION EQUIPMENT WHEN MACHINING



INTRODUCTION

The purpose of this booklet is to provide practical guidelines for brake and clutch service mechanics in the handling and processing of asbestos containing friction materials and in the maintenance and repair of brake and clutch assemblies on which the materials are installed.

Adherence to the recommended work practices will reduce employee exposure to airborne concentrations of asbestos dust and will assist employers in complying with government regulations.

This area is regulated by federal, state and local authorities. We caution that you may not rely on strict adherence to the work practices recommended herein as assuring compliance with these regulations, because (a) they are subject to amendment; (b) there are on-going administrative interpretations of these regulations; and (c) particular field conditions may vary. You should direct all questions relating to compliance with regulations to the appropriate regulatory agencies.

ASBESTOS AND FRICTION MATERIALS

Most molded friction materials contain about 50% asbestos - some woven materials over 90%. In molded materials, resin binders prevent the release of asbestos fibers during normal handling. Woven friction materials, normally used only in construction and industrial applications, must be handled with care to avoid creating dust as the asbestos fibers are less firmly bound into the product.

Potentially hazardous airborne concentrations of asbestos dust can be created by improper cleaning and handling of worn brake and clutch assemblies, uncontrolled machining operations and poor housekeeping.

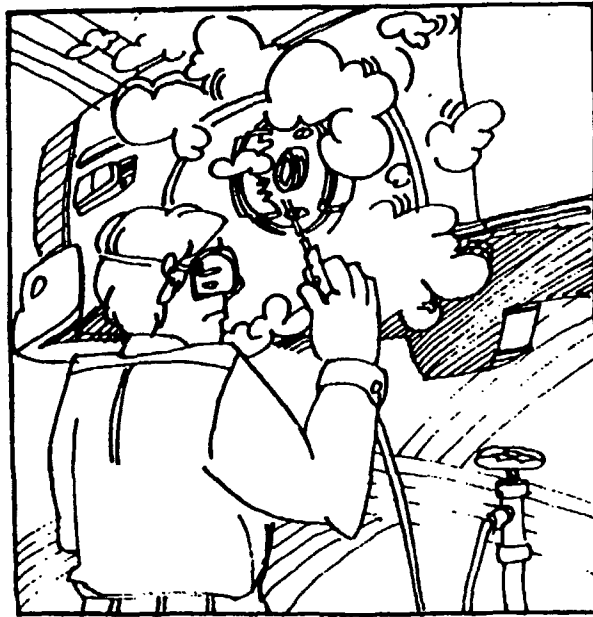
Breathing excessive quantities of asbestos fiber can cause respiratory disease and cancer. Smoking greatly increases the risk of lung cancer among asbestos workers. Prevention of asbestos dust exposure is the only known method of eliminating asbestos-related disease among those working with asbestos containing products.

Proper work practices offer the best assurance of providing exposure safeguards for workers removing, installing and machining asbestos containing friction materials.

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DO NOT USE AN AIR HOSE FOR CLEANING



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WHY?

SUMMARY OF OSHA ASBESTOS STANDARD EFFECTIVE JULY 1, 1976

Under the current standard, it is the employer's responsibility to assure that exposure of employees does not exceed the following permissible exposure levels.

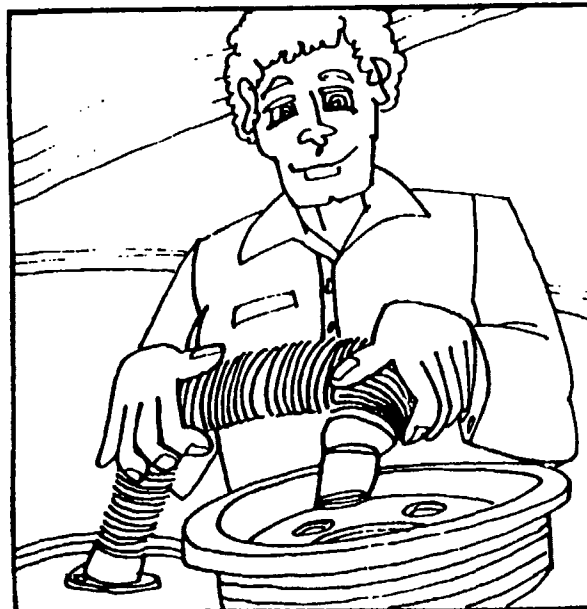
- a. Eight-hour time-weighted average: Two fibers, longer than five micrometers, per cubic centimeter.
- b. Ceiling (Peak) concentrations: Ten fibers, longer than five micrometers, per cubic centimeter.

Engineering controls such as isolation, enclosure, exhaust ventilation and dust collection are the preferred methods for meeting the prescribed exposure limits. All external surfaces must be maintained free of asbestos fiber accumulation.

Respiratory protection is required whenever airborne fiber concentrations exceed either the permissible time weighted average level or the permissible ceiling concentration. Protective clothing is required whenever airborne fiber concentrations exceed the permissible ceiling level. Caution signs, change rooms and employee notification are required where asbestos fiber concentrations exceed permissible exposure limits. The standard requires that all workplaces where asbestos fibers may be released shall be monitored to determine exposure levels, and regular monitoring is required where exposure levels are expected to exceed permissible limits. Employers must maintain records of monitoring required by the standard. They must also provide or make available medical examinations for employees exposed to airborne concentrations of asbestos fibers.

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USE VACUUM OR WET METHODS FOR CLEANING



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HANDLING NEW FRICTION MATERIALS

Handling new disc brake assemblies, lined brake shoes, clutch facings and brake blocks purchased in individual boxed sets is unlikely to create significant airborne concentrations of asbestos dust. If the parts are purchased in bulk quantities, abrasion during shipment may result in the accumulation of dust in shipping containers. Dust should be removed by vacuuming or cleaning with a damp cloth.

Whenever possible, purchase friction materials preground and ready for installation. This may keep dust levels below OSHA maximums and eliminate the need for respiratory protection, restricted areas, regular monitoring, special clothing, change rooms and employee notification.

REMOVING WORN FRICTION MATERIALS

Asbestos fibers in disc brake linings, drum brake linings, blocks and dry clutch facings are locked into the product with resin binders which prevent the release of asbestos fiber during normal installation. Heat and abrasion during normal use may generate dust containing asbestos. Some dust will accumulate in brake and clutch assemblies.

When removing worn friction materials, remove the accumulated dust in the assemblies with an industrial vacuum cleaner equipped with a high efficiency filter system. If such equipment is not available, dust can be removed with a damp cloth. Do not use compressed air or dry brushing for cleaning.

Use a NIOSH approved respirator when removing worn friction materials, or cleaning brake or clutch assemblies.

MACHINING FRICTION MATERIALS

There is an increasing trend for manufacturers and rebuilders to provide brake lining and clutch facings pre-drilled and pre-ground in final assembly form. In the case of truck brake blocks, various oversize thicknesses are available. However, there are some instances where field machining is necessary. This is particularly true for construction and industrial equipment applications which may require machining of blocks, slab stock or roll lining.

Dust generation can be minimized or eliminated during arcing of brake blocks by lathe turning at low speed rather than grinding. Whenever possible friction materials should be cut to length with a shear rather than a saw or abrasive cut-off wheel.

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DO NOT SWEEP IN WORK AREA - USE VACUUM METHOD



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DUST COLLECTION METHODS

When asbestos-containing friction materials are machined, i.e., drilled, ground, grooved, cut or beveled, the dust created contains asbestos fibers which may become airborne unless adequate dust controls are employed. The preferred method for minimizing airborne dust from machining operations is local exhaust ventilation. A local exhaust ventilation system consists of dust collection hoods or enclosures connected by duct work or piping to a dust collection filter and a suction source.

The two operations that offer the greatest potential for generation of excessive amounts of airborne asbestos fiber are arc grinding and beveling of lined brake shoes and linings or brake blocks. Grinding machines used for these operations must be provided with exhaust ventilation to maintain worker exposures within permissible levels.

If a central exhaust system is not available, NIOSH (National Institute for Occupational Safety and Health) has stated that, at a minimum, the dust bag of the arcing machine shall be removed and replaced with the hose from a high efficiency industrial vacuum.

For large volume machining operations that operate on a continuous basis, the preferred dust collection device is a fabric filter or baghouse, with a heavy-duty exhaust fan as the suction source. The dust collector must meet the air-cleaning requirements of the Federal Environmental Protection Agency Emission Standard for Asbestos. Approval must be obtained from EPA for installation and operation of each system.

OTHER METHODS OF MINIMIZING DUST EXPOSURE

Whenever possible machining and repair operations should be isolated from other work areas in a restricted area to prevent unnecessary exposure of other workers. Entrances to restricted areas shall be posted with asbestos exposure warning signs as follows:

Asbestos
Dust Hazard
Avoid Breathing Dust
Wear Assigned Protective Equipment
Do Not Remain In Area Unless Your Work Requires It
Breathing Asbestos Dust
May Be Hazardous To Your Health

WEAR AN APPROVED RESPIRATOR IF UNABLE TO AVOID DUST



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Good housekeeping is essential in a workplace where asbestos containing materials are handled. Industrial vacuum cleaners equipped with multiple stage high efficiency filters should be used for removing accumulations of asbestos dust and waste.

Never use compressed air or dry sweeping for cleaning. Water or other dust suppressants should be applied if brooms are used.

Good personal hygiene practices are important in minimizing asbestos dust exposure. Do not smoke. Wash before eating. Shower after work. Change to work clothes upon arrival at work and change from work clothes at conclusion of work. Work clothing should not be taken home. Laundering of asbestos contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of the exposure limits.

DISPOSAL OF FRICTION MATERIAL DUST AND WASTE

Dispose of vacuum cleaner waste and asbestos containing cleaning materials in plastic bags or other sealed containers, with the following warning label printed on the container:

Caution
Contains Asbestos Fibers
Avoid Creating Dust
Breathing Asbestos Dust May Cause Serious Bodily Harm

Use a NIOSH approved respirator when servicing vacuum cleaners, dust collectors, or handling any asbestos-containing waste materials.

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

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