The Bendix Corporation
Executive Offices
Bendix Center
Southfield, Michigan 48076

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

November 12, 1979

Dear Mr. Drislane:

I have taken the liberty of adding some comments to your draft of the response to the EPA.

After you have collected any other comments, please send me a final draft for review.

Sincerely,

J. W. Armstrong
Corporate Director
Safety and Protection Services

JWA/gvp
Enclosure

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November 21, 1979

Mr. J. W. Armstrong
Bendix Corporation
Bendix Center
Southfield, Michigan 48076

Dear Jim:

This relates to the draft of the Institute response to EPA concerning population exposed and the routes, duration and frequency of asbestos exposure of brake repair mechanics.

The only comments other than yours were to let it go as drafted. As the Committee agreed to resolve any questions on the draft by consultation between you as Chairman, and myself, I have assembled our comments as shown in the letter attached. It is addressed to the response area called for in the Federal Register. I have made no changes other than editing from the draft you sent.

Ordinarily, if you agree with this write-up, I would send it off now, as comments are required by December 17, 1979. However, as the Board will be meeting on December 4, 1979, I think they should be asked to approve it before being sent. I have added this as an agenda item for the Board of Directors meeting. If there is anything you wish changed before then, please let me know.

Sincerely,

FRICTION MATERIALS STANDARDS INSTITUTE

EWD/erc
Enc:

E. W. Drislane
Executive Director

The Friction Materials Standards Institute is an association of manufacturers of brake linings and clutch facings. The Institute would like to comment on the Environmental Protection Agency's Advanced Notice of Proposed Rulemaking in the FEDERAL REGISTER of October 17, 1979, concerning the use of products containing asbestos. In particular, we would like to comment on questions posed on Page 60067 as they relate to Friction Materials.

Friction Materials is a broad classification which covers such products as automobile brakes, both disc and drum, truck brakes, fan and transmission clutches, and other devices used in the Automotive, Truck, Bus, Heavy Vehicle, Aircraft and other industries to stop, slow or control moving mechanical parts. We believe the largest usages to be in the Automotive, Truck, Bus, Heavy Vehicles, and Aircraft industry.

Friction Materials may contain anywhere from zero (0) to 60% asbestos by composition depending upon the nature of the heat build up generated and required for control of the mechanical device involved.

Brake and clutch emissions and information related to the disposition of asbestos is contained in a report prepared for the Environmental Protection Agency, Office of Air and Water Programs, Ann Arbor, Michigan 48105, entitled Brake Emissions: Emission Measurements from Brake and Clutch Linings from Selected Mobil Sources, EPA Contract #68-04-0020, conducted by M. G. Jacko and R. T. DuCharme, Final Report for Period May 1971 - March 1973. The EPA technical officer was Dr. Joseph H. Somers.

We call this report to your attention in that it provides the information and data to answer many of the questions posed in the EPA advance notice of Proposed Rulemaking.

The answers to the questions of (a) number of people exposed (b) routes duration and frequency of exposure (c) the intensity of exposure and (d) fiber size distributions requires several source documents. We suggest you refer to a January 3, 1979 draft paper by Dr. W. J. Nicholson of Mount Sinai Hospital entitled "Investigation of Health Hazards in Brake Lining Repair and Maintenance Workers Occupationally Exposed to Asbestos". As that paper was a draft for comments, we believe you should contact Dr. Nicholson for that information on exposure levels and fiber sizes.

We are familiar with an IIT Research Institute report prepared for the Office of Toxic Substances, in which they attempted to develop a people exposure index based on several factors such as releasability of the fiber, frequency of exposure, duration of exposure, etc. While we will comment analyzing the inputs used for the IIT Research Institute exposure index, we do not wish to indicate that the mathematical exposure index is a meaningful index. It is constructed with several assumptions and arbitrary numerical levels which make it anything but an absolute index. We would like to provide an explanation of the brake repair business within the framework which IIT Research Institute arbitrarily constructed. By doing this, a better understanding of the actual number of persons exposed and duration of exposure will be presented.

Essentially, there are two areas where a brake repair worker may be exposed to airborne asbestos dust. They are: (1) In a shop which performs machining operations -- such as grinding, drilling, bevelling, etc., and (2) In a shop where the brake repair worker blows brake wear debris from the drums and brake parts of a car being serviced. To take three factors from the IIT Research Institute report from their Table 2 for Brake Linings (Releasability 2, User 1, Population Exposure 2), these factors cannot be put in the same equation for perhaps 99% of brake work. Where the User and Population Exposure is high, ie, the national chain, the corner garage-- the shops involved most often does not have access to machining equipment and thus the releasability code would be 3 rather than 2 -- "fibers locked in and not likely to be released in normal use". Counterwise, in the shops that have machining operations, i.e., fleets, municipal garages, where the releasability factor may be 2--"fibers locked in but releasable" during machining--the overall work force exposed is small.

The IIT Research report gives all brake repair a duration factor of 1 (12 hours per day). The average brake repair worker in a busy shop could do three or four brake jobs a day. The only exposure he will have -- since most brake repair shops do not machine the friction materials -- would be from the dust blown from the brake being serviced. While we agree for common sense reasons that blowing dust of any type should be discouraged, the brake wear debris has only a small fraction of asbestos--less than 1% in most studies.

Even with the blowing out of debris from brake drums, the duration cannot be 12 hours. The duration is more likely less than one minute per brake. With the advent of disc brakes on the fronts of most cars, this means less than 2 minutes per vehicle if the rear drum brakes are relined. When the time, the low asbestos content in the wear debris, and the fact that four brake jobs per day would be a busy shop, the 12 hour duration assigned to all brake repair is not justified.

We would like to comment on the do-it-yourselfer. He has the best of all worlds. (1) He doesn't have machining equipment so his repair job cannot have a releasability factor of 2; (2) He doesn't have access to an air hose so his duration must be near zero; (3) The do-it-yourselfer probably does no more than one brake job a year so he cannot have the frequency assignment of 365 (daily) given to the brake repair worker.

While additional examples could be given where the same factors or codes could not be assigned to all groups of brake repair workers, the point is that all brake workers cannot be categorized under one set of exposure codes. In other words, the IIT Research Institute report took the "Population Exposed" and "User" characteristics which are based on perhaps 900,000 workers in the brake repair area, and assigned them all the second most objectionable code for releasability and the worst codes for frequency and duration.

The exposure criteria should be analyzed by the segments of the work force and not by the total work force if one is to assign correct codes for releasability, duration and frequency. While estimates are necessary, we have prepared a table to indicate what we estimate the exposure factors (or codes) to be in brake repair facilities.

ESTIMATED EXPOSURE FACTORS IN BRAKE REPAIR FACILITIES BY TYPE

Type Brake Repair Operation	Releasability	Frequency	Duration	Estimated Number of Brake Repair Workers
Fleet Garages, Municipal Garages, with machining operations (2-20 jobs per month) (2-10 brake repair workers)	2	1-2	1-2	10- 30,000
Fleet and Taxi Garages without machining equipment (2-20 jobs per month) (2-10 brake repair workers)	3	1-2	2	10- 30,000
National and Regional Chain, Tire Company, Car Dealer (10-50 jobs per month) (2-10 brake repair workers)	3	1	3	50- 100,000
Gas Station, Corner Garage (2-10 jobs per month) (1-2 brake repair workers)	3	1-2	3	400- 800,000
Do-It-Yourselfer (1 job per year)	3	4	4	1-5,000,000

A simple conclusion is (1) Where the releasability is highest the smallest population is exposed, and (2) Where the population "exposed" is high, releasability and duration are low. In the areas of the fleet and municipal garages, where exposures are highest, these shops should be taking steps to comply with OSHA regulations. Shops of this type should be in compliance with OSHA regulations and thus will have the necessary exhaust ventilation equipment and procedures to maintain exposure levels below those suggested in the IIT Research Institute report and in the table shown above.

In summary, the shops which may potentially have the greatest population exposed do not have the asbestos exposure factors of the fleet and municipal garages with grinding equipment. It is suggested that a voluntary action program, with labeling and education be aimed at these smaller facilities. Compliance with OSHA regulations should be emphasized at the larger facilities, and particularly those with maching operations and thus new regulations from the EPA is not necessary.