

E. Drislane



**Research
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The Bendix Corporation

Dr. Joseph Breen
Project Officer
Office of Toxic Substances
U.S. Environmental Protection Agency
401 M Street S.W.
Washington, D.C.

May 11, 1978

RE: Report titled "Chemical Market Input/Output Analysis of Asbestos to Assess Sources of Environmental Contamination" prepared by W. M. Meylan, P. H. Howard, and S. S. Lande of Syracuse Research Corporation under EPA Contract No. 68-01-3224-Task III, for the Office of Toxic Substances, U.S. Environmental Protection Agency, Washington, D.C. 20460.

Dear Joe:

In my letter of April 7, 1978 to you I enclosed a "red-pencil-marked-up-copy" of pages 73 through 104 of the March 1977 version of the subject report. Noting that there are almost no changes in the March 1978 version for basically the same text on pages 73 through 92, my original comments, corrections, and additions stand. I suggest that the original which I sent to you be passed on to the authors of the report.

In addition, the following comments are offered:

- On page 87, the second sentence at the top of the page should be corrected to read: In brake wear debris, the problem is compounded because the reaction products of asbestos - forsterite, olivine, and dehydroxylated serpentine have similar elemental ratios, and several non-fibrous minerals have similar x-ray diffraction patterns to asbestos.
- Since the authors have abandoned the claims that x-ray diffraction is suitable to measure asbestos in brake debris (page 87, middle of page, March 1977 version), shouldn't they also abandon the Rohl et al (1976) figures for asbestos (page 89, bottom March 1978 version) and the subsequent calculations given in Table 6.7?
- Why do they say "the annual asbestos emissions reported in Table 6.7 (4.5% median) is nearly 22 times higher than the total reported in Table 6.6" when they can get more than 22 times if they used the Murchio et al (1973) and Anderson et al (1973) figures which were lower than the data of Jacko and DuCharme. Better yet, why are they

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disregarding two other studies with even lower asbestos emission findings and instead are honoring data produced by an analytical technique which even Rohl et al state are inaccurate?

- On page 101, middle of page, March 1978 version, the authors state "Virtually all of the asbestos collected in baghouses is in a free-fiber state." The authors should provide proof for such a statement. In the past, I have looked at grinding dust and have found that much of the asbestos is still bound by the resin and there is little or no concentration of asbestos. That is, the small amount of asbestos fiber collected in plants is diluted with a large amount of grinding dust which are friction material compositions (~50 wt% asbestos). Moreover, much of the grinding dust is from the skin produced in the molding process, and this skin contains more resin and less asbestos than the middle of the brake or clutch friction material. Finally, a portion of the Bendix and Delco grinding dusts contain semimetallic materials which are asbestos-free.
- The authors have been ignorant of the trends in the automotive friction material market. I suggest that the bottom of page 294, March 1978 version be improved as follows: "In present-day drum brake lining and clutch facing use, the presence of asbestos is almost essential; no other fiber or material performs the job requirements as well as asbestos. In disc brake pad area, steel fiber reinforced semimetallic friction materials, as described by Klein (1969), Aldrich (1971), and Kwolek (1975), have enjoyed increased usage; in model year 1978 the projected usage is for ~17% of the U.S. production of passenger cars and ~13% of light trucks. Semimetallic disc pads are specified for certain aftermarket replacements and semimetallic brake blocks are also installed on heavy trucks as aftermarket replacements to the original equipment materials which are asbestos-based. Alternate materials have been tested and are considered inferior. In practical terms, it will probably be a number of years before asbestos can be totally eliminated from automobile brake linings, disc pads, and clutches. Replacement of asbestos will be accompanied by cost penalties due to increased material and processing costs.
- The following references must be included to accompany the above statements:



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- Klein, B.W. (1969), "Semimetallic Outer Pads for Disc Brakes," Bendix Technical Journal, 2 (No. 3), 109-113 (1969).
- Aldrich, F. W. (1971), "Semimetallics: A New Type of Friction Material", SAE Paper 710591 presented at SAE Mid-Year Meeting, at Montreal, P.Q. Canada, June 1971.
- Kwolek, J. P. (1975), "Friction Material for Small Car Solid Rotor Applications," SAE Paper No. 750874 presented at SAE Automotive Engineering Meeting, Detroit, Michigan, October 1975.
- I reviewed only the sections dealing with friction materials and prefer not to offer comments on the other sections.

As a final comment, I was and still am surprised that the March 1977 version was not corrected in the year interval to the March 1978 version. I certainly hope the March 1978 version receives correction and improvement.

Except for having to find additional time to review the reports, it has been a pleasure to cooperate with The Office of Toxic Substances in an area which I feel is very important to peoples of the United States and eventually to peoples around the world. I hope I can be of additional service in reviewing the revised draft of the March 1978 version of the report.

Yours sincerely,

A handwritten signature in dark ink, appearing to read "Michael G. Jacko".

Michael G. Jacko

MGJ:nlm

cc: C. M. Brunhofer, Bendix Friction
Materials Division
W. M. Meylan, Syracuse Research Corp.
R. Mereness, Asbestos Information Assoc.
I. Weaver, Raybestos-Manhattan
S. K. Rhee
G. T. Burton
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April 7, 1978

RE: Report titled "Chemical Market Input/Output Analysis of Asbestos to Assess Sources of Environmental Contamination" prepared by W. M. Meylan, P. H. Howard, and S. S. Lande of Syracuse Research Corporation under EPA Contract No. 68-01-3224-Task III, for the Office of Toxic Substances, U.S. Environmental Protection Agency, Washington, D.C. 20460.

Dear Joe:

About three weeks ago Mr. Ike Weaver, Corporate Director for Environmental Control, Raybestos-Manhattan Corporation, sent to me for comments a portion (pages 98-100) of the above report which contained the summary and conclusions. The following were immediately noted:

- Point 10 on the middle of page 99 said that "Jacko and Ducharme (1973) produced samples of wear debris by means of laboratory simulation utilizing a car on a dynamometer, etc." This statement is in error. Our work utilized a car which operated in traffic on the streets of Detroit and the surrounding area.
- There are two important omissions - namely the work of Cooper and Murchio at the University of California at Berkley for the State of California Air Resources Board and the work of Johns-Manville (Spiel and Leineweber).

It was particularly disturbing that a current EPA contractor such as Syracuse Research Corporation had grossly misread the work of an earlier EPA contractor, and then concluded that others had analyzed real-life samples while ours were not. Apparently the authors also missed the fact that in addition to brake debris from the "mass balance" brakes enclosed in the collectors on the right side of the car, we analyzed a few samples of brake wear debris from the brakes on the left side of the car which were left alone (except for thermocouple instrumentation).



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During the last week of March, I called Mr. W. Meylan at Syracuse to inform him about the points which I outlined above and asked that he reconsider that portion of the report. In the meantime, Mr. R. Mereness of the Asbestos Information Association provided a complete copy (104 pages) of the draft of the report cited above.

While reading from Section 6.3 beginning on page 73 to the end of the report, I noticed many references to our work. In view of the error already mentioned, I carefully read pages 73-104, and soon became disgusted in the multitude of errors, omissions, and misrepresentations. Consequently, I started to "correct" as much as possible with the thoughts of writing a letter to you detailing all of the errors, omissions, and misrepresentations and suggesting improvements. However, such a letter would require too much time. Consequently, as a result of our telephone conversation on April 6, I am taking the liberty of sending to you my "red-pencil-marked-up-copy" which I trust will be passed on to the proper people who may consider my comments, corrections, and additions.

In addition, I am volunteering to review the revised draft of the report discussed above when it becomes available.

Thank you for your attention in this matter. If you have any further comments or questions, please feel free to contact me. I will maintain a continuing active interest in this research area.

Yours sincerely

A handwritten signature in cursive script, appearing to read "Michael G. Jacko".

Michael G. Jacko

MGJ:rp

cc: C. M. Brunhofer, Bendix Friction
Materials Division
W. M. Meylan, Syracuse Research Corp.
R. Mereness, Asbestos Information Assoc.
I. Weaver, Raybestos-Manhattan
S. K. Rhee w/o attachment
G. T. Burton "
R. M. Rusnak "
R. T. Ducharme "
J. H. Somers " EPA, Ann Arbor
V. DeCarlo " EPA, Washington
✓ E. Drislane " FMSI

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Mr. E. W. Drislane
Friction Material Standards Institute
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Paramus, N. J. 07652

March 6, 1978

Dear Ed:

The report on the Asbestos Study Committee of January 19, 1978 was excellent. I was extremely impressed by the interest generated in developing a Work Practices manual for users of friction materials containing asbestos in repair shops.

My personal view is that FMSI as an association representing the friction material manufacturers should be the author of a Work Practice manual and the membership be the vehicle to disseminate the information down to the worker in the repair shops. The talent for developing the manual is available in the membership and I would hope the Board of Directors will endorse the proposal.

With regard to the suggestion of holding an asbestos seminar I am guided by the recommendations of the committee as reported in the minutes of their meeting. I still feel a seminar should be held at the appropriate time including the introduction of the Work Practices manual at the seminar. Obviously some sort of a timetable should be developed for the publication of the manual and conducting the seminar.

My thanks to Mr. Wagner, the members of the committee and to the Messrs. Reis and Fenner of Johns-Manville Corporation for their participation.

With best regards,

F. E. Messier
Director of OE Service Sales

FEM:jb

B U L L E T I N

N O. 6 1 8

February 13, 1978

ASBESTOS STUDY COMMITTEE MEETING

There were several items discussed at a recent Asbestos Study Committee meeting which may be of interest to the membership.

Work Practices Booklet for Users of Friction Materials

After considerable discussion, the Committee recommended that the Institute publish a work practices booklet for replacement market users of friction materials. This would be aimed at the brake repair shops, with emphasis on work practices to reduce asbestos dust exposure in the shop, and to recommend procedures to assist users in meeting OSHA requirements. A Task Force set up by the Committee is now working on a draft.

The Board of Directors has approved this project and we will advise you on its progress.

A Brief Message--Asbestos Dust Control in the Shop

At the meeting, it was indicated that other manufacturers might be interested in the condensed set of instructions that Raybestos-Manhattan inserts in boxes containing friction materials. The message contains "three do's and three don'ts:"

- Do not breathe dust.
- Do not use air hose for cleaning.
- Do not machine without dust collection equipment.
- Do use vacuum or wet cleaning methods.
- Do dispose of dust in sealed container.
- Do wear mask if unable to avoid dust.

Johns-Manville Program--"Working with Asbestos"

Representatives of Johns-Manville attended this committee meeting. They have prepared a cassette/slide program entitled "Working with Asbestos." This program takes about 30 minutes and discusses asbestos-related health risks, government regulations, monitoring programs, medical surveillance and emission control efforts. The program is oriented to the worker in the asbestos products manufacturing factory. It is used by some as an indoctrination for new employees. It is well suited to employees in friction materials manufacturing plants.

One member prepared additional slides of operations in its shop showing dust control features on various presses and cutting equipment. A Plant Safety Supervisor narrated this section and named the operators and described the operations. The full program is used for indoctrination of new employees.

It was suggested that this J-M program--perhaps coupled with additional slides and cassettes of ones own operations--could be a worthwhile program for new

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employee indoctrination. If interested, one should contact:

Environmental Affairs Department
Johns-Manville Corporation
Greenwood Plaza
Denver, CO 80217

Consumer Product Safety Commission--Recall Procedures

This past summer, Mr. Adrian Comins of Auto Friction contacted me concerning procedures used by CPSC in its Tris recall, and how it--if applied in the future to asbestos-bearing friction materials--could cause financial burdens to friction material manufacturers. Mr. Comins' comments were passed on to your Officers and Board of Directors and were discussed at the recent committee meeting.

Mr. Comins feels the "Repurchase of banned hazardous substances" section in the "Federal Hazardous Substances Act" is unfair in putting the burden almost entirely on the manufacturer.

Mr. Comins wrote CPSC, citing the Tris recall, asking for a change to spread the costs on a recall over others in the distribution chain. He wrote under his personal letterhead, not mentioning friction materials. He feels that if CPSC considers a ban on asbestos-bearing friction materials, that distributors and stores may stock up and then return all materials for full refund plus transportation charges and expenses. He believes that repurchase costs should only be born by manufacturers for goods sold before announcement of proposed action by CPSC.

He has recommended that others write CPSC, expressing their concern on repurchase procedures of the Federal Hazardous Substances Act. We suggest that any comments be made as an individual, and friction materials not be mentioned.

E. W. Drislane
Executive Director

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