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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION

April 26, 1973

NATIONAL INSTITUTE FOR OCCUPATIONAL
SAFETY AND HEALTH
Room 527 U.S. Post Office & Courthouse
Cincinnati, Ohio 45202

Mr. Barry I. Castleman
Division of Air Pollution & Industrial Hygiene
Baltimore County Department of Health
Maryland Avenue at Hillen Road
Towson, Maryland 21204

Dear Mr. Castleman:

The information on the NIOSH automobile brake survey that you requested in your letter of April 10, 1973, is enclosed. Included are the original objectives and procedures envisioned for the project, the final results of the survey (project accomplishments were far less than had been proposed), and six published articles that may be of some interest in regard to brake linings and friction products. Please note that the survey results have not been published and are for your information only.

In regard to your request about asbestos exposure levels in asbestos plants, I would refer you to Tables I-XXVI of the NIOSH criteria document for the most recent data as collected by NIOSH. Note that these data are listed by operation and thus do not indicate whether or not a given plant, in its entirety, is above the present OSHA standards.

Castleman 4/29/83 30

The NIOSH asbestos data was collected for research purposes only and the fact that levels were found in excess of the OSHA standards does not indicate that compliance actions were subsequently initiated by NIOSH. Any information concerning excessive values were referred to OSHA, who then had the option of conducting their own inspections for determinating if violations existed. I would suggest that to obtain information concerning actual compliance data, you should contact the OSHA area office in Baltimore, as indicated below:

Maurice R. Daly
U.S. Department of Labor
Occupational Safety and Health Administration
Federal Building, Room 1110A
31 Hopkins Plaza, Charles Center
Baltimore, Maryland 21201
301/962-2840

For your information, I also have enclosed two technical publications concerning asbestos and occupational health. If you have any further questions, please let me know.

Sincerely,

Kenneth M. Wallingford, Physical Science Aid
Environmental Investigations Branch, DFSCI

Enclosures

cc: Mr. William Shoemaker, Regional Program Director, NIOSH, Region III

NIOSH AUTOMOBILE BRAKE STUDY OBJECTIVES AND PROCEDURE

I. The objectives of the study are to determine whether there is a significant asbestos dust exposure level during brake servicing. In order to accomplish this objective the following shall be done:

1. Time-weighted average exposures of the mechanics shall be determined during the whole servicing period.
2. Periods of peak exposures shall be identified with particular servicing operations.
3. General air samples shall be taken to determine exposures to anyone who might be in the area other than the mechanic.
4. Characteristics of the atmospheric dust shall be determined. (i.e., fiber size distribution, % asbestos, etc.)

II. Atmospheric Sampling

In general, all sampling whall be done in the same manner as all our past asbestos sampling. In addition, to our usual method of sampling, each mechanic will be asked to wear two personal pumps simultaneously. One pump and filter arrangement shall be used to get a time-weighted average exposure. Filters on the other pump shall be changed after each of the following operations in order to distinguish operations creating peak exposures:

1. Brake drum removal
2. Worn brake assembly removal
3. Back-plate cleaning (compressed air)
4. Old lining removal and new lining assembly for those shops which process riveted linings.
5. Replacement of new brake assembly
6. Brake drum cleaning and assembly

In addition to determining the personal exposure of the mechanics, several pumps shall be used to determine general air concentrations within the shop. These pumps will probably operate at 2.0 liters per minute in order to sample more air in a shorter period of time.

III. Analysis of samples obtained

Samples which are collected are to be analyzed as follows:

1. Counts for both fibers and grains shall be made with the standard asbestos counting procedure, using phase contrast illumination.
2. Samples shall be analyzed for the presence of asbestos using the X-ray diffraction technique described by Crable and Knott.[1]

3. Electron - micrographs shall be made in order to use the criteria for asbestos fiber identification presented by Gross etal.[2]
4. Fiber size distributions shall be determine using a particle size analyzer.

IV. Reporting of results
Results of the study shall be compiled in as short a period as possible so that a written paper may be presented.

REFERENCES

1 Gross, Paul M.D., Robert T.P. deTreville, M.D., Sc.D., and Martin N. Haller, "Asbestos Versus Nonasbestos Fibers", "Archives of Environmental Health", Vol. 20, May 1970.

2 Crable, John V. and Marta J. Knott, "Quantitative X-ray Diffraction Analysis of Chrysotile, Amosite and Crocidolite", "American Industrial Hygiene Association Journal, May-June, 1966.

DIVISION OF FIELD STUDIES AND CLINICAL INVESTIGATIONS

ENVIRONMENTAL INVESTIGATIONS BRANCH

GARAGE SURVEY RESULTS

FOR

ASBESTOS AND LEAD

SURVEY DATE: 1/28/72

OPERATION	ASBESTOS CONC.* FIBERS >5μ/ml	LEAD CONC.** Mg/m^3	SAMPLE TIME MINUTES
Air Blowing Front Drums	0.00	4.7	5
Air Blowing Front Drums	0.80		5
General Air During Air Blowing	0.60	0.95	15
Air Blowing Rear Drums	3.00	2.34	4
Air Blowing Rear Drums	2.10		5
Re-Assembly	0.20	0.03	20
Re-Assembly	0.20	0.01	20
General Air During Re-Assembly	0.00	0.01	28

* These fibers identified by phase contrast microscopy only. No chrysotile x-ray pattern was detectable in a bulk sample of the lining dust.

** The present OSHA standard for airborne inorganic lead is 0.2 mg/m^3 on an 8-hour time weighted average basis.