PLAINTIFF'S EXHIBIT
FOS-686

STATE OF OHIO
THE INDUSTRIAL COMMISSION OF OHIO
DIVISION OF SAFETY AND HYGIENE
2323 WEST FIFTH AVENUE P.O. BOX 1749
COLUMBUS, OHIO [redacted] 43216
466-3285

Industrial Commission
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Division of Safety and Hygiene
GARY B. SAYLER
Superintendent
WILLIAM C. MURPHY
Assistant Superintendent

October 16, 1974

Legal Section
Industrial Commission of Ohio
Ohio Departments Building
Columbus, Ohio 43215

Attention: John R. Allen
Room 419 B

Re: O.D. 162314
John J. Kochis

Gentlemen:

On September 10, 1974, a visit was made to the plant of Foseco, Inc., Cleveland, Ohio to check conditions under which the claimant had worked.

The company manufactures hot tops and heating systems for steel ingot molds, and metallurgical chemicals for metal melting and foundry industries.

According to company records, the claimant's experience is as follows:

5-8-72	- 8-1-73	Machine operator, including pulping machines
8-1-73	- 9-19-73	Salvage operator
9-19-73		Permanent layoff

Pulping is done in rows of vertical cylindrical blenders. Dry material is charged into the blenders, mixed with water, and later cast into products such as hot tops. The components include asbestos, fiberglass, silica, clay, rock wool, and phenolic resin. Some machines have hoods with local exhaust to serve as dust collectors, but not all do. Operators are required to wear dust masks approved by the Bureau of Mines for asbestos and mineral dusts. The type used was No. 8710, supplied by the 3M Co.

Measurements were made in the breathing zone of operators. Data are summarized in Table 1. From an air sample taken with a midget liquid impinger, the dust count was 2.3 million particles per cubic foot. A sample of settled dust was taken for X-ray diffraction analysis of free silica content by Kettering Laboratory at the University of Cincinnati. The result was 45% free silica in the form of alpha quartz. From this, the Threshold Limit Value (TLV) for impinger measurement, computed from the formula TLV = 300/ (% SiO_2 + 10) mppcf, is 5.5 mppcf. While below the TLV, the 2.3 mppcf dust count was higher than desirable for the high silica content.

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Measurements were made with 37 mm. Type AA membrane filters and a personal sampling pump worn by the operator. These were taken open face, without cyclone, thus sampling the total dust in the air. For this method, the TLV for silica dust, computed from the formula TLV=30/(% SiO_2 + 3) mg/M^3, is 0.63 milligrams per cubic meter (mg/M^3). The same type of filter is used for making counts of asbestos fibers with a phase contract microscope. The TLV for asbestos is 5 fibers longer than 5 microns, per cubic centimeter of air (5 f > 5u/cc).

The first filter, which had sampled an air volume of 75 liters, had too heavy a dust accumulation for count of fibers. By weight measurement, the concentration of total dust, including both respirable and non-respirable particle sizes was 42 mg/M^3, which is far above the TLV of 0.63 mg/M^3.

From the second filter, the sample size of which was 13 liters, analysis for fiber count was made by Kettering Laboratory at the University of Cincinnati. The result was 58 f > 5u/cc, which is much greater than the 5 f > 5u/cc TLV. The concentration of total dust on this filter was 6f mg/M^3.

It should be noted that the fiber count includes not solely asbestos, but all types in the sample. The slurry material included fiberglass and rock wool, which would both be classified as amorphous silica, the TLV being 20 mppcf. By ratio, this would be equivalent to 7 mg/M^3. However, it was evident, from the relative quantities used, that asbestos was a significant portion.

Threshold Limit Values are not intended for use, or for modification for use, as proof or disproof of an existing disease or physical condition.

Symptoms of silicosis and asbestosis do not usually appear until after a number of years exposure, although there are differences in individual susceptibility. If, in spite of the high dust and fiber concentrations, the required filter masks were used properly, it is not likely that excessive exposure would occur. Whether the claimant has symptoms related to such exposure would be a medical question.

Very truly yours,

Robert W. Bursh

Robert W. Bursh, P.E.
Industrial Hygiene Engineer

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TABLE 1

Measurements at Foseco, Inc., Cleveland, Ohio September 10, 1974

Location	Evaluation of	Evaluation means	Sample Volume	Reading	TLV
Pulper operation platform	Respirable dust	Midget liquid impinger	28 liters	2.3 mppcf	5.5 mppcf
	Asbestos fibers	37 mm. Type Aa membrane filter and personal sampling pump	76 liters	Dust to heavy for measurement	
	Total dust	Same		42 mg/M^3	0.63 mg/M^3
	Asbestos fibers	Same	13 liters	58 fibers 5u/cc	5f 5u/cc
	Total dust	Same		68 mg/M^3	0.63 mg/M^3
	Free silica content of dust	X-ray diffraction		45%	

OCT 0 4 1974

University of Cincinnati Medical Center

3223 Eden Avenue
Cincinnati, Ohio 45219

DEPARTMENT OF ENVIRONMENTAL HEALTH
KETTERING LABORATORY
(513) 872-5700

Re: O.D. 162314, John J. Kochis

Material: Two (2) filter papers containing particulate matter removed from the atmosphere at Foseco, Inc., Cleveland, Ohio.

Submitted: 9-25-74 by Mr. R.W. Hursh, Industrial Hygiene Engineer, Industrial Commission of Ohio, Division of Safety & Hygiene, P.O. Box 1745, Columbus, Ohio 43216

Required: Count of fibers greater than 5 microns/cc of air

Results

Analysis Number	Sample Number	Volume of Air Cubic Centimeter	Fibers >5u/cc
74A-4182	#3	76,200	*
74A-4183	#4	12,700	58

*This sample was too heavy with particulate to make a fiber count.

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David W. Yeager

David W. Yeager, Senior Research Associate of Environmental Health

Reported: 10-1-74

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University of Cincinnati Medical C.

3223 Eden A
Cincinnati, Ohio

DEPARTMENT OF ENVIRONMENTAL HEALTH
KETTERING LABORATORY
(513) 872-5700

Re: O.D. 162314, John J. Kochis

Material: One (1) settled dust sample collected 9-10-74 at Foseco, Inc., Cleveland, Onio

Submitted: 9-25-74 by Mr. R.W. Hursh, Industrial Hygiene Engi: The Industrial Commission of Ohio, Division of Safe & Hygiene, P.O. Box 1745, Columbus, Ohio 43216

Required: Dete mination of per cent free crystalline silica in the particles less than 5 microns

Results

Analysis Number	Per Cent Free Crystalline Silica in the Particles Less Than 5 Microns in Diameter		
	α Quartz	Cristobalite	Tridymite
74A-4184	45	absent	absent

David W. Yeager, Senior Research Associate of Environmental Health

Reported: 10-1-74

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GARY B. BRYNER
Superintendent
WILLIAM C. MURPHY
Assistant Superintendent

September 19, 1974

Kettering Laboratory
University of Cincinnati
3223 Eden Avenue
Cincinnati, Ohio 45219

Gentlemen:

Enclosed are two samples taken on Millipore Type AA, 37 mm., membrane filters at a pulping operation of Foseco Inc., Cleveland, Sept. 10, 1974, data on which are:

Sample No.	Sampling Time, Min.	Rate, L/m	Air Volume, Liters
9/10/74 #3	30	2.54	76.2
9/10/74 #4	5	2.54	12.7

Counts of asbestos fibers are needed. The 5-minut sample was taken in case dust accumulation on the 30-minut filter may have been too heavy to permit detection of fibers. Return of the unused portions of the filters would be helpful.

Also enclosed is a settled dust sample for analysis by X-ray diffraction of free silica in the portion smaller than 5 microns.

The above tests should be billed to the Bureau of Workmen's Compensation. The claim number is O.D. 162314, John J. Kochis.

A second settled dust sample for similar free silica analysis of the portion smaller than 5 microns was taken at the Arcair cutting operation of Crucible Steel Casting Co., Cleveland. This should be billed to Workmen's Compensation, the claim number being O.D. 162264, Johnny L. Eberhardt.

A third settled dust sample for free silica analysis was taken at a sand-blast operation at Club Products Div., Standex Intl., Cleveland. This should also be billed to Workmen's Compensation. The claim number is O.D. 161590, Timothy Ganczar.

Forms for the billing are enclosed.

Yours very truly,

Robert W. Hursh

Robert W. Hursh
Industrial

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Let's hear it for