

June 27, 1949

Mr. G. A. Cowan, Sales Manager,
The Eagle-Picher Company,
American Building,
Cincinnati 1, Ohio.

Dear Mr. Cowan:

I send you herewith two copies of Mr. Cholak's report on the observations made in your plant. This seems to me to be quite satisfactory in itself. I seem to remember that there was some question as to a statement that you might wish to make to submit to us, covering this whole problem of any potential hazard of silicosis. For this reason I am not sending you a bill at this time, since if there is anything further for us to do, we can provide you later with an invoice covering any services which we may render in this connection. For your information, however, Mr. Cholak has estimated the cost of this work at \$120.00.

Very truly yours,

Robert A. Kenoe, M. D.

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Enc.

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Report on
THE SUSPENSION OF DUST IN THE ATMOSPHERE OF A FACTORY
IN ASSOCIATION WITH THE USE OF EAGLE-PICHER #85
INDUSTRIAL FLOOR-DRY

The object of these observations was to determine the degree of dustiness which is produced by foot and wheel traffic over Eagle Picher #85 Industrial Floor-Dry under unfavorable conditions of use on factory floors. They were made on May 11, 1949, at the Eagle-Picher Plant on Seymour Avenue, Cincinnati, Ohio. Samples of suspended material from measured volumes of air were collected at a height of five feet above the level of the floor by a midget impinger and by an electrostatic precipitator. Samples were taken before the Floor-Dry was spread on the floor, while it was being spread, during a period of wheel and foot traffic, and also while it was being swept up for removal.

Procedure

An area of approximately 300 square feet, covered by the Floor-Dry, was subjected to continuous foot and wheel traffic for a period of approximately 25 minutes. The wheel traffic consisted of an electric mule, carrying about one ton of pig lead, and a manually operated wheeled truck also loaded with pig lead.

The samples of material from the air, collected by the midget impinger and the electrostatic precipitator were examined with respect to numbers and size of particles by standard procedures, employing the M.S.A. microprojector and light field illumination. The results are recorded in the accompanying table.

In addition to the data on numbers of particles, the chart also records the sizes of the particles in a simple manner. The average size as given represents the analysts' impression as to the majority of particles observed.

After the conclusion of the atmospheric sampling, a sample of the sweepings from the floor was obtained for analysis for its free silica content. Only that portion of the sweepings of which the particles were 5 microns or less in size was subjected to analysis. A sedimentation technique was employed to isolate the fraction containing only the particles in the desired range. The analysis of this fraction is also given in the table.

Results

It can be seen that the amount of dust resulting from the mechanical agitation of the Floor-Dry was only slightly greater than that in the control sample taken before the test began. The degree of dustiness which prevailed during the experiment was well within the range of 0.01×10^6 to 4.7×10^6 particles per cubic foot (mean value 0.2×10^6), in the atmosphere of the streets in Cincinnati in the course of a systematic investigation of the latter during the years 1947 and 1948. Somewhat more dust was suspended in the air while the material was being swept up, but the amount of dust was well below the value of 5,000,000 per cubic foot suggested as permissible by the Ohio State Code for dust containing more than 40 per cent of free or uncombined silica. The free silica content of that portion of the sweepings which was composed of particles smaller than 5 microns in size

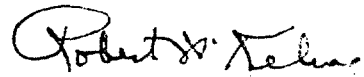
was determined in duplicate. These results are also given in the table.

From the Kettering Laboratory of Applied Physiology,
College of Medicine, University of Cincinnati, Cincinnati, Ohio

Samples Collected by: L. J. Schafer, B.S.E. (Ch.E.)

Report by: J. Cholak, Ch.E. .

Approved:



Robert A. Kehoe, M.D.,
Director

Date: June 27, 1949

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The Numbers of Particles, Their Size and Their Composition with Respe

Analysis Number	Description	Type of Sample	Size of Sample ft. ³	Particle Size μ			PP ft ³ x 10 ⁶	% As
				Max.	Min.	Avg.		
49A-5766	EP 1, Control, 9:50 a.m. Before operation began	EP	60	>10	1	3-5	0.114	
49A-5767	EP 2, While spreading Floor Dry, 10:20 a.m.	MI	0.6	--	--	--	0.330	
49A-5768	EP 3, Truck traffic over area, 10:42 a.m.	EP	66	>10	1	1-2	0.342	
49A-5769	EP 4, Truck traffic over area, 10:43 a.m.	MI	2.0	--	1	1-2	0.300	
49A-5770	EP 5, Sweeping, 11:20 a.m.	EP	27 ft. ³	>10	1	1-2	0.98	
49A-5771	EP 6, Sweeping, 11:20 a.m.	MI	0.758	--	1	1-2	1.85	
49A-5772	EP 7, Sample of sweep- ings (Industrial Floor Dry) Duplicate Sample			5 or less				2. 2.

The Numbers of Particles, Their Size and Their Composition with Respect to Si

S	Description	Type of Sample	Size of Sample ft. ³	Particle Size μ			PP ft ³ $\times 10^6$	% Ash	% Acid Sol.
				Max.	Min.	Avg.			
6	EP 1, Control, 9:50 a.m. Before operation began	EP	60	>10	1	3-5	0.114		
7	EP 2, While spreading Floor Dry, 10:20 a.m.	MI	0.6	---	---	---	0.330		
8	EP 3, Truck traffic over area, 10:42 a.m.	EP	66	>10	1	1-2	0.342		
9	EP 4, Truck traffic over area, 10:43 a.m.	MI	2.0	---	1	1-2	0.300		
0	EP 5, Sweeping, 11:20 a.m.	EP	27 ft. ³	>10	1	1-2	0.98		
1	EP 6, Sweeping, 11:20 a.m.	MI	0.758	---	1	1-2	1.85		
2	EP 7, Sample of sweep- ings (Industrial Floor Dry)			5 or less				2.18	7.28
	Duplicate Sample							2.55	5.04