

Report of Preliminary
OCCUPATIONAL DISEASE STUDY

The Flintkote Company
Orangeburg Mfg. Division
Ravenna, Ohio

BY

William E. Shoemaker
Industrial Hygiene Engineer
Atlantic Division Engineering

September 21 & 22, 1965

PLAINTIFF'S EXHIBIT

FK-296

City of Balt. v. Keene Corp
Balt. Cty. Circ. Ct.
Case No. 84 268068/CL 25639
September, 1993

PURPOSE

The purpose of this investigation was to determine the probable extent of the dust hazard associated with the manufacture of asbestos cement pipe.

Neither the visit of our representative under the terms of our policy nor the making of this report constitutes an undertaking to determine or warrant that your premises or operations are safe.

CONCLUSION

- A. Atmospheric dust conditions throughout the pipe manufacturing areas where the greatest number of employees are potentially exposed, was found to be below the Threshold Limit Values set for silica and asbestos. No recommendations were developed for the major production areas of the plant as a result of this study.
- B. Unloading burlap bagged asbestos fiber from railroad box cars under summer conditions (both doors open) showed atmospheric dust levels below the Threshold Limit Value. However, simulated winter conditions with one door closed and awning in place gave a slightly excessive dust level. Insufficient tests were made to conclude definitely what effective control measures would be. Burlap bagged fiber represents only 15% of your receipts; unfortunately no railroad cars containing paper bagged fiber were being unloaded during the week of the writer's visit, hence further testing is advisable.
- C. Atmospheric dust concentration in the Ball Mill Building where conglomerate quartz is ground showed a level slightly above the Threshold Limit Value. However, the employee is said to work here ten minutes or less an hour. Reduction in the dust level should not be difficult.

RECOMMENDATIONS

- A, Atmospheric dust should be retested to check evaluation of unloading burlap bagged asbestos under summer conditions with both railroad car doors open. Similarly, atmospheric tests should be made to determine if as satisfactory levels are found in the unloading of paper bagged asbestos.
- B. Further atmospheric dust testing should be done during the unloading of burlap bagged asbestos under winter conditions when entrance to the car is closed in and only one car door open, while not conclusive, it is believed that the air blown into the car by the unit heater may be stirring up dust within the car to create the poor condition. Substitution of radiant heat within the car when needed might correct this condition,

DISCUSSION

On September 21st and 22nd, 1965 thirty atmospheric dust samples were collected on millipore filters using Unico No. 2199 Mighty Mite electric pump as a source of suction. The samples were sent to our Industrial Hygiene Laboratory in Wakefield, Massachusetts and counted by light-field technique.

Samples of settled dust were accumulated from structural members overhead in the plant at the locations described in the Mineral Dust Analysis Table. Petrographic analysis of these was done in our laboratory. Difficulty was encountered in obtaining a representative settled dust sample around the Willow and RR car unloading areas. However, since only asbestos fiber is handled here, it was concluded that a prudent threshold limit value would be 5 million particles per cubic foot. It is believed that Settled Sample No. 3 represents more the atmospheric dust likely to be found in the storage silos where no one actually works, rather than the Willow operation.

DISCUSSION (Continued)

Commendable planning and engineering of ventilation for the elimination of atmospheric dust were evident throughout the operations. Exemplary housekeeping practices were observed with the possible exception of the Ball Mill. Only two of the thirty atmospheric samples taken were found to be slightly excessive as shown on Air Analysis Table I.

DATE Sept. 21, 1965PLANT Orangeburg Mfg. Co. Div.
Flintkote Co.LOCATION Ravena, O.

Sample No.	Time Mint.	RAW MATERIAL HANDLING & PREPARATION Location and Events	Dust	
			Concentration X101 X101X (C)	
AR 85	10	Ball Mill Bldg. Grinding "Silex" (quartz). General sample. 1st floor in vicinity of control panel.	4.5	
AR 86	10	RR Box Car. Fiber unloading. Worker sample 2 men. Burlap bags. One RR car door closed & Tarp. in place to simulate winter conditions. Air blower on.	6.1	
AR 87	10	RR Box Car. Fiber unloading. Worker sample-2 men. Burlap bags, Air blower on but tarpaulin not in place. Both RR car doors open.	3.2	
AU 99	10	Fiber Willowing. General Sample. Opening & Dumping paper & burlap bags of asbestos .	Less than 0.35	
AR 82	10	Fiber Willowing. 12 ft. fiber conveyor. Worker sample. stack bags of asbestos (mostly in paper bags), slit & dump into hooded conveyor.	1.6	
AR 81	10	Fiber Willowing. 10 ft. fiber conveyor. Worker sample as above. All asbestos in burlap bags.	Less than 0.32	

Threshold Limit Value (Sample AR 85 - 4 MPPCF)
 A—Milligrams per Cubic Meter (All other on this Table—Asbestos - 5 MPPCF)
 B—Parts per Million
 C—Million Particles per Cubic Foot

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AIR ANALYSIS TABLE II

Sample No.	Time Mins.	PIPE MANUFACTURING Location and Events	Dust Concentration	
			MAX	MAX (a).
AR 80	10	Large Coupling Cut-off Machine . Worker sample.	0.65	
AR 79	10	Around large Coupling Cut-off Mach. Universal Coupling Lathes Nos. 1 & 2 and Boring Mill. All in operation General sample.	0.97	
AR 78	10	Universal Coupling Lathe No. 1. Worker sample.	1.9	
AR 84	10	12 ft. Pipe Machine Console. General sample at work station. Windows & doors open	0.97	
AR 83	10	10 ft Pipe Machine Console. General sample at work station.	1.3	
AV 7	10			
AV 8	10	Fitting Lathe. Worker sample. Putting ends on 8" sewer pipe.	0.65	
AV 9	10	Nipple Lathe. Worker sample. Increaser ring.	1.6	
AV 10	10	Heavy Tap Drill - 1 $\frac{1}{4}$ ". Forker sample Wet drilling.	0.32	
AV 11	9	Radial Drill. Worker sample. Wet drilling.	1.8	
AV 12	10	Boring mill. Worker sample	3.2	
AV 13	8 $\frac{1}{2}$	Universal Pipe Lathe No. 1 Worker sample south side. 6" pressure pipe.	Less than 0.38	

B—Parts per Million

C—Million Particles per Cubic Foot

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Orangeburg Mfg. Co. Div.

PLANT Flintkote Co.LOCATION Ravenna, O.

AIR ANALYSIS TABLE III

Sample No.	Time Mins.	<u>PIPE MANUFACTURING</u>	Dust
		Location and Events	Concentration MA MX (C)
AV 14	10	Same - worker sample, north side	0.32
AV 15	10	Universal Pipe Lathe No. 2. Worker sample. South side. 4" pressure pipe	Less than 0.32
AV 16	10	Same - worker sample, north side,	0.65
AV 17	10	Universal Pipe Lathes Nos. 1 & 2. General sample. Botn running full time.	Less than 0.32
AV 18	10	Small Coupling Cut-off, Worker sample	1.9
AV 19	10	Monolithic Lathe. Worker sample. 4"-22 $\frac{1}{2}$ " elbow.	0.32
AV 20	10	Band Saw. Worker sample. Angle sawing 3" non-pressure pipe.	2.77
AV 21	10	Epoxy Area - wire brushing unfinished fittings. Worker sample. Brushing full time during sampling although brushing is only a part time job.	2.6
AV 22	10	Machine Over All MOA. 6" pressure pipe. Worker sample	1.9
AV 23	10	K. & C. Line. Machining end of 4" non pressure pipe. Worker sample. North end of machine.	0.32
AV 24	10	K. & C. Line. Same, south end of machine.	Less than 0.32
AV 25	64	Wet Saw. Worker sample. 20" dia. saw.	Less than 0.50

Threshold limit Value

A—Milligrams per Cubic Meter

B—Parts per Million

C—Million Particles per Cubic Foot

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MINERAL DUST ANALYSIS TABLE

PLANT ORANGEBURG MFG. CO. DIV. LOCATION RAVENNA, O.
THE FLINTKOTE CO.

Laboratory Sample No.	Your Sample No.	Description	Per Cent Free Silica Found	ASBESTOS
MD 1358	A	Ball mill. "Silex". said to be dust.		0
	B	Same operation.		
		N at the area. Above columns F 6 & F 7.	21	1.3
MD 1361	D	N.E. corner of bldg., between MOX & K. & C. lines. Columns C 10 & C 11.	22	1.6

AMERICAN MUTUAL LIABILITY INSURANCE COMPANY

October 7, 1965

Mr. R. O'Sullivan, Plant Manager
Orangeburg Manufacturing Co.
Div. of The Flintkote Co.
Ravenna, Ohio 44266

Re: Dust Study

Dear Mr. O'Sullivan:

Following my call at your plant on September 21st. and 22nd, 1965, the Atmospheric Dust Samples accumulated have been forwarded to our laboratory in Wakefield, Massachusetts, for counting. As soon as the laboratory information becomes available, results of the study will be forwarded to you.

It was a pleasure to cooperate with you in this preliminary survey.

Very truly yours,

William E. Shoemaker
William E. Shoemaker,
INDUSTRIAL HYGIENE ENGINEER

WES:jcm

cc:- Mr. Harry Houbner, Insurance Manager
Mr. John F. Tuffy, Ass't. Insurance Manager
The Flintkote Company Inc.
30 Rockefeller Plaza
New York 20, N. Y.

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