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MONTANA DEPARTMENT OF HEALTH

Helena, Montana

DIVISION OF DISEASE CONTROL

A

REPORT OF AN ENVIRONMENTAL HYGIENE STUDY

OF THE

ZONOLITE COMPANY

Libby, Montana

July 19, 1962

1962

Conducted by:

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Distribution:

This report is confidential
and is not for distribution
except to the management of
the Zonolite Company.

CONFIDENTIAL

On March 6 and 8, 1962 an industrial hygiene study was made of the Zonolite mill at Libby, Montana to determine if any of the components of the operations continued to be a threat to the health of the employees. The last study of December 1958 indicated substantial quantities of dust in various areas of the plant for which recommendations were made concerning a substantial reduction. The study of March 6 through 8, 1962 was made after a conference with Mr. R. B. Dieich, Manager of the Company, and Mr. A. J. Kujawa, Chief Engineer of the plant. Mr. Robert Vinton acted as guide during the study and supplied information needed for the performance of the investigation.

This study was a follow-up investigation of previous studies to determine if the recommendations previously submitted had been carried out and that the dust concentrations in the dry mill, in particular, were lowered to acceptable limits.

As in the past, all samples were collected and analyzed in accordance with practices recommended by the U.S. Public Health Service and other official agencies. The amorphous content of the air-borne dust was analyzed by the U.S. Public Health Service in Cincinnati, Ohio and the free-silica content by Lehigh College at the Industrial Hygiene Laboratory in Helena.

DESCRIPTION OF PLANT

A description of the operations of this plant have been included in previous reports and will not be repeated here. The only change noted was the addition of a flotation arrangement in the wet mill for the processing of lower grade vermiculite. This part of the mill was in the process of being expanded, but at the time sampled a very small part of the total operation. According to Mr. Kujawa, the flotation agents are diesel fuel, burner fuel and "Amino" acetate, each by Lehigh is called Y506.

The dry mill was observed most closely during this study and was found, as during all previous investigations, to be extremely dusty and in the need of repair and modification to reduce dustiness to acceptable limits.

During the time of this study, all of the plant was in operation such that the dust samples and other samples indicated should represent normal working conditions. According to both plant management personnel and the workers, conditions appeared to be about average on the days on which sampling was done.

According to Mr. Dieich, each operator on each floor has been made responsible to see that his ventilation and air ducts were open.

The population of the mill was approximately 150 with two shifts working at the mine and three at the mill.

Concentrations

TABLE I
Dust-in-Air

Sample No.	Location and Description	Concentration in mg/m ³	Asbestos %
1	Dry mill, 6th floor, gen. area, 3/6/62	51.0	20.4
2	Dry mill, 5th floor, gen. area, 3/6/62	69.5	27.8
3	Dry mill, 4th floor, gen. area, 3/6/62	90.0	35.0
4	Dry mill, 3rd floor, gen. area, 3/6/62	60.5	24.2
5	Dry mill, 1st floor, belt deck, 3/6/62	59.2	23.7
6	Dry mill, 2nd floor, gen. area, 3/6/62	54.5	21.8
7	Dry mill, 1st floor, west side, 3/6/62	44.8	17.9
8	Dry mill, 1st floor, east side, 3/6/62	50.9	20.2
9	Dry mill, tails belt tunnel, 3/6/62	1.9	0.8
10	Dry mill, 1st floor, south end, 3/6/62	59.1	23.6
11	Dry mill, over deck over digesters, 3/6/62	42.5	17.0
12	Dry mill, 6-10 inch feedbins, 3/6/62	22.8	9.1
13	Dry mill, 6th, 5th, 4th floors, equal time, 3/7/62	47.4	18.9
14	Dry mill, 3rd, 6th floors, equal time, 3/7/62	55.2	22.2
15	Dry mill, 1st floor, gen area, 3/7/62	47.8	19.1
16	Dry mill, cusper breathing zone, 5th floor, 3/7/62	55.5	23.1
17	Dry mill, transfer point, oper. sta., 3/7/62	3.5	1.4
18	Wet mill, control panel, 1st floor, 3/7/62	2.8	1.1
19	Wind, while drilling, wind away from sampler, 3/7/62	2.7	1.1
20	Wet mill, over screw classifier, 3/7/62	4.0	1.6
MAXIMUM ALLOWABLE CONCENTRATION		20.0	5.0

* Millions of particles per cubic foot of air.

** The asbestos concentrations are calculated on the basis of 40% asbestos in air-borne dust.