

ASBESTOS FIBER COUNTS

for

December 29, 1972

Personnel Present:

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DESCRIPTION OF PLANT AND TESTS

Tests were conducted November 27, 1972
[redacted] manufacturers of tape joint compounds.

Dry ingredients are added at a loading hopper the load is then conveyed to a bagging machine. Both operations were monitored.

APPARATUS AND PROCEDURE

Sampling and dust counting were carried out in accordance with OSHA Regulation 1910.93a, using the Bayer, Zummalde and Brown method for counting asbestos fibers by phase contrast microscopy (Bureau of Occupational Safety and Health, Feb. 1969).

Battery powered air pumps (M.S.A. type) calibrated to 2 liters per minute were used to collect personal breathing zone and environmental samples on Millipore membrane filters of 0.8 micron porosity.

Fiber counting was performed on a Leitz microscope utilizing phase contrast illumination at 400X and a Patterson Globe and Circle reticle.

Total dust was determined by light field microscopy at 100X.

TEST RESULTS

Three figures have been reported for each sample. They are:

1) Total Fiber - Any material 5 microns or longer having an aspect ratio of 3 or greater. Reported as fibers per milliliter.

Note: This figure is considerably higher than the "possible" asbestos fiber count. The presence of Mica in the test accounts for the large figure. Mica, a mineral with a platelet-type appearance fits the strict rule of greater than 5 microns in length and having an aspect ratio larger than 3. However, it is obvious that these platelet structures are not asbestos, nor even fibrous in nature.

2) Asbestos Fiber - Any material, 5 microns or longer, having an aspect ratio of 3 or greater, which in the judgment of the operator could possibly be asbestos. Reported as fibers per milliliter.

3) Total Dust - Any fiber or particle present. Reported as million particles per cubic foot.

INTERPRETATION

The regulations have been established with the 5 fiber limit on a time-weighted average. This essentially means the figures must be arranged to show an employee's average intake of fibers per milliliter on an 8-hour day. For example, the highest reading in the test was 3.6 fibers/ml. If this was the only contact with asbestos that day, the 2-minute sample would be extrapolated to 8 hours, giving a time-weighted average of less than 0.02 fibers/ml.

SUMMARY OF DUST COUNTS

N.B. No.	Description	"Possible" Asbestos Count Fibers/ml > 5μ	Total Fiber Count Fibers/ml > 5μ	Tot Du mpp
1929-64-1	Environmental (8 min.) - Bagging area, 3 ft. from operator at fill and dump area.	0.9	2.6	8.
1929-64-2	Environmental (2 min.) - At loading hopper during shaking of a load of dry mix.	3.4	6.8	0.
1929-64-3	Personal (2 min.) - Operator dumping Mica into loading hopper.	0	82.5	51.
1929-64-4	Personal (2 min.) - Operator dumping 2 bags 7RF9.	3.6	16.0	18.
1929-64-5	Environmental - In office on top of file cabinets.	0.4	0.8	2.

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