

AIRBORNE DUST COUNTS

for

TAPE JOINT COMPOUNDS

December 8, 1972

Personnel Present:

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UNION CARBIDE CORPORATION
Mining and Metals Division
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Description of Plant and Tests

Tests were conducted October 30, 1972 at
manufacturers of tape joint compounds

Asbestos is added at a hopper which has an overhead, negative pressure hood. Personal samples were collected from both the man dumping asbestos and his assistant, handing him the bags. A personal sample was also obtained during the dumping of mica. An environmental sample was placed near the dumping area and allowed to run for approximately one hour.

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

Two 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.

2) 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 8.0 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 0.04 fibers/ml.

SUMMARY OF DUST COUNTS

N.B. No.	Description	Fiber Count Fibers/ml. > 5 μ	Total Dust mmppcf
1929-48-1	Environmental (81 min.) - "Background" sample near filler bins on ladder 15 ft. from bag hopper for small raw material ingredients.	1.7	2.8
1929-48-2	Personal (2 min.) - Operator's assistant handing bags to man who dumps.	6.2	6.9
1929-48-3	Personal (2 min.) - Operator dumping 2 bags 7RF9 and 3 bags SG-210	8.0	10.1
1929-48-4	Personal (2 min.) - Operator dumping 7 bags Muscovite mica	3.6	13.8

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