



KELLY MOORE PAINTS, INCORPORATED

San Carlos, California

Evaluation of Airborne Asbestos

March 28, 1973

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KMX 00601

KELLY MOORE PAINTS, INCORPORATED

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RE-EVALUATION OF AIRBORNE ASBESTOS

An evaluation at the Paco Textures Manufacturing department for airborne asbestos concentrations was made on March 28, 1973. Filter paper samples were used as a collection medium and analyzed with a phase contrast microscope.

CONCLUSIONS

1. Our sample results indicate a considerable reduction in the concentration of airborne asbestos, due to the installation of a local exhaust system.
2. Sample results indicate that airborne asbestos concentrations (fibers longer than 5 microns) are lower than the currently accepted level of 5 fibers per milliliter of air.
3. Sample results indicate that airborne asbestos concentrations (fibers longer than 5 microns) are currently above the anticipated health level of 2 fibers per milliliter of air for 1976, in some areas of the manufacturing department.
4. There is a need for some additional engineering controls.
5. There is a need for some changes in work practices.

RECOMMENDATIONS

1. Adequate local exhaust should be provided for the asbestos bag baler location.
2. The exhaust sleeve on the ceiling texture bagger, should be extended approximately three inches toward the filling tube.
3. Employees should not use compressed air to clean themselves off. A brush should be used in a ventilated booth, or a vacuum cleaner. The mixing booth would be adequate for this practice.
4. Empty bags of asbestos, (after dumping at the ceiling texture, dry texture and redi-mix operation) should be isolated or exhaust ventilated between the time they are emptied and the time they are baled.

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DISCUSSION

I. ASBESTOS HEALTH STANDARDS

The currently accepted level of asbestos fibers (longer than five microns) in a milliliter of air is five fibers. This level is for an eight hour work day. This currently accepted level will drop to two fibers per milliliter of air in 1976. Our recommendations are based on the level of two fibers per milliliter of air.

II. ADDITIONAL CONTROLS

There has been a substantial reduction of airborne asbestos fibers since the last evaluation of July 7, 1972. This can be attributed to the installation of a more efficient local exhaust system. Our results indicate that current levels are acceptable; however, there are areas that do not meet the accepted standard of two fibers per milliliter of air for 1976.

The recommendations made in this report are based upon analytical results of airborne samples taken in normal work areas and observations of normal work practices.

III. SOURCES

The three largest sources of airborne asbestos are:

1. Asbestos dust being blown back into the room and face of the employee dumping at the ceiling texture station. Ventilation was measured with a velometer. Results indicated hood face velocity running 100+ at both stations. A smoke capsule indicated that the cross draft from the open warehouse door was over-shadowing the exhausting capacity of these enclosed dumping stations. Too much additional air was being provided creating currents the hood could not handle.
2. All dumping stations had a similar problem, dumping and stacking emptied bags of asbestos. Bags of asbestos were not always cut on the far side of the bag or held directly in the "hole". Sloppy procedures created dust. After an employee finished dumping a bag he would stack it next to him (on the platform or a barrel). As additional bags were emptied, the employee would push down on the pile of bags to keep them from falling over (one employee jumped up and down on the bags). Visual amounts of dust were emitted during these procedures.
3. Each employee bales the bags he empties. The baler was located next to an open warehouse door. Every time bags were baled visible dust was emitted and blown into the manufacturing area. Ceiling texture operations were closest.

5. The large sliding warehouse door, adjacent to the manufacturing department should be kept closed at all possible times.
6. All employees dumping bags of asbestos should follow these steps:
 - a. Open the trap door to conveyor
 - b. Lift bag of asbestos so that one end hangs into this hole
 - c. Cut far end of bag
 - d. Shake bag out well while it is still extended in hole
7. All housekeeping should involve the use of a vacuum bag cleaner. Compressed air and brooms (items that stir up dust) should not be used.
8. Employees working at the ceiling dumping station, dry texture dumping station, and dry texture bag filling operation should be provided with respiratory protection (that is, Bureau of Mines approved for fibrotic producing dusts) until acceptable controls and practices lower the asbestos concentration below two fibers per milliliter of air.
9. Our medical department has made recommendations concerning special medical controls for employees exposed to excessive airborne asbestos concentrations. They should be consulted periodically for new or changing medical controls.

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Additional sources of airborne asbestos were:

4. Employees cleaning themselves off with a brush (redi-mix dumper) or compressed air (dry texture bagger). This stirs up dust.
5. Housekeeping was being performed with brushes and brooms in areas.
6. Ventilation on the ceiling texture bagger consisted of a sleeve around a filling tube. A smoke capsule was used to demonstrate that this sleeve was so far back that the ventilation system was not capturing all the excess dust. In addition, the cross draft from the open door was blowing dust away from this system into the room air.
7. Dust was being exhausted periodically at the dry texture dumper when the conveyor was started for mixing, right after the dumping operation. Air was being forced out of the enclosed conveyor system, around the edges of the trap door to this dump station. Dust was stirred up.

The elimination of these sources of airborne asbestos through engineering controls and better work practices should lower all areas within the acceptable level of two fibers per milliliter of air for 1976.

IV. RESPIRATORS

Until this level is reached employees at the ceiling texture dumping, dry texture dumping and dry texture bagging should be incorporated into an "adequate respirator program". Guidelines for a respiratory protection program is attached.

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DATA

RESULTS OF: Asbestos in air

DATE OF SURVEY: March 28, 1973

SAMPLING METHOD: Membrane filter (0.8 micron porosity - open filter holder)

METHOD OF ANALYSIS: Phase contrast microscope (4mm objective) using 450X magnification

CURRENT STANDARD: Five fibers of asbestos greater than five microns in length per milliliter of air

NEW STANDARDS: As of 1976, two fibers of asbestos greater than five microns per milliliter of air

SAMPLE #	LOCATION	FIBERS/ml AIR
1	Operators Breathing Zone (OBZ) ceiling texture	4
2	Operators Breathing Level (OBL) ceiling texture operator dumped for 6 minutes 3' behind operator	0.4
3	OBZ ceiling bagger	0.5
4	OBZ ceiling bagger	0.7
5	OBZ ceiling bagger above weighing table	0.8
6	OBZ ceiling bagger above weighing table	1.0
7	OBL 2' from operator - dry texture dumper dumping 12 residual dust	1.4
8	OBZ dry texture bagger	3.3
9	OBZ above weighing table - dry texture bagger	0.7
10	OBL redi-mix dumping 2.5' behind operator	1.1
11	General Room Sample (GRS) - OBL 10' from redi-mix booth - no dumping	0.7

Sample #1 contained too much fine dust for good counting. Hence the results given should be taken as a minimum value.

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