

PITTSBURGH-CORNING, TYLER, TEXAS

At the request of Lee B. Grant, M.D., a dust survey was made of the Tyler plant on November 29, and 30, 1966. The purpose of this survey was to re-evaluate the plant in terms of any significant changes in levels of airborne dust since the last survey of August, 1963, by the Industrial Hygiene Foundation.

In evaluating a dust exposure, the threshold limit values as promulgated by the American Conference of Governmental Industrial Hygienists are used as guidelines. They represent levels of dustiness which should not be exceeded on a time-weighted average basis for an eight hour day for a man's useful working life. The threshold limit value for asbestos dust is 5 million particles per cubic foot of air (mppcf).

Before discussing the results it would be well to explain some of the changes that have taken place in recent years with regard to dust counting techniques. Most of the threshold limit values for dust (particularly silica dust) were developed in the 1930's in the granite sheds of Vermont. In those studies, the counting technique called for light-field illumination at 100X magnification. Since that time, however, better optics, giving better resolution at higher magnification have become more common. Therefore, the desire to use the more sophisticated optical systems of today must be balanced against the excellent correlation with medical findings that the Vermont granite studies produced. This is perhaps, an over-simplification of the situation, but the point being made is that one of the better optical systems was used for evaluation of the samples from the current study. It is believed that this is the reason for the dust counts reported herein being approximately ten times greater than previous studies of the same plant. In addition to total dust counts, however, this study also presents fibrous dust counts. It can be seen that these fibrous dust counts are of the same order of magnitude as previous studies. The reason being that a fiber, which is defined as a particle with a length at least three times greater than its width, is large enough to be seen at the old 100X magnification as well as the more sophisticated systems.

The results of the study are shown in Table 1. A comparison of the fibrous dust counts with the threshold limit value of 5 mppcf indicates that seven of the sixteen values exceed this limit. It is felt that the values reported herein are representative of conditions in the plant at the time of the visit, and the following recommendations are being made from the test results as well as personal observations:

1. Better ventilation, or a better materials handling system, or a combination of both, is needed on the feeders.
2. Constant inspection and immediate correction of any air leaks in the equipment is needed as is indicated by a dust count of 20 mppcf in the general area of No. 2 mill.
3. Better ventilation is needed in the sawing area. An evaluation of the present system by means of suitable air velocity measuring equipment would be a logical first step.
4. The use of sand on the floor as a lubricant for the movement of cardboard boxes should be discontinued. The addition of a silica hazard to an asbestos problem is unwarranted.

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5. The air cleaners should not be located inside the building. Positive pressure bag collectors of this sort may be inexpensive, but undetected leaks can put a significant amount of dust back into the air. Furthermore, re-circulation of exhausted air is poor practice, in addition to being illegal in some states, because it assumes a collection efficiency approaching 100% which is rarely true, especially in older installations. The proper type of dust collector would eliminate the excessive dust concentrations from shaking the dust bags.

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TABLE 1

Process Area	Total Dust mppcf	Fiber Dust mppcf
1. *BZ Scrap Crusher Operator	34.7	3.8
2. BZ Feeder Operators	38.8	6.3
3. No. 2 Mill - General Area	77.5	20.0
4. Production Floor - between Nos. 1 and 2	12.5	2.5
10. BZ Feeder Operator	45.0	20.2
11. No. 3 Mill - General Area	2.5	1.3
15. BZ Scrap Crusher Feeder	56.3	0
16. Production Floor - between Nos. 2 and 3	10.0	2.5
Sawing Area		
5. BZ Butt End Catcher - big end cut & rip saw	43.2	15.0
6. BZ Tie Machine Operator - packing (inspection also)	10.0	2.5
7. BZ Block Band Saw	53.0	10.5
8. Saw Room-Inspection Station & Tying	26.2	2.5
9. BZ Butt End Catcher - big saws	7.5	0
13. BZ Saw Operators - both block saws operating	30.0	7.5
14. BZ Saw Feeder - big saws	15.0	2.5
Miscellaneous		
12. BZ Operator shaking dust bags	17.5	32.6

BZ - Breathing Zone

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