FILE NAME: Sherwin Williams (SW)

DATE: 1973 Mar 12

DOC#: SW006

DOCUMENT DESCRIPTION: Internal Report - Asbestos Exposure During Preparation of Joint Cement with Cover Letter

LIBERTY MUTUAL

P.O. Box 19623, 3200 Maple Avenue, Dallas, Texas 75219 · Tel. (214) RIverside 1-5081

March 12, 1973

Mr. R. D. McLarty, Plant Manager
The Sherwin-Williams Company
2802 Miller Road
Garland, TX

Dear Mr. McLarty:

Attached is a report recently completed by Mr. Floyd Penney, our Industrial Hygienist, on the Bloc Tex operation.

Mr. Penney's report deals only with the asbestos exposure to the employee mixing the basic ingredients of Bloc Tex on the third floor. As you can see from his report, additional controls would be necessary if you should continue using asbestos in the formulation of this product.

Silica is also used in this product. I have asked that Mr. Penney schedule a survey sometime in the near future to measure this exposure. He will be in contact with you or Bob Ericson to determine a date for the survey.

Sincerely,

Ken Brock

Ken Brock
Loss Prevention Department

KB/wl
cc: Mr. Bill Jenkins, Personnel Director
Mr. L. J. Kachelein, Director of Corporate Safety
Mr. J. R. Skinner, Corporate Director of Insurance

SHERWIN-WILLIAMS COMPANY
GARLAND, TEXAS
ASBESTOS EXPOSURE
during
PREPARATION OF JOINT CEMENT



SHERWIN-WILLIAMS COMPANY

DARLAND, TEXAS

ASBESTOS EXPOSURE

during

PREPARATION OF [illegible] CEMENT

On January [illegible], 1973, air samples were collected during preparation of a batch of sheet rock joint cement called Bio-Tab. The samples were analyzed for concentrations of asbestos, the most hazardous constituent of the product.

CONCLUSIONS

Concentrations of asbestos in the breathing zone of the batch operator would be a problem if the exposure were continuous during the shift. The short-term maximum concentration, which occurs during the dumping of asbestos, could not be determined during the survey because it required the entire ingredient dumping time to add the asbestos due to a technical problem in the operation. Judging by the concentrations which were found during the 7 hour and 45 minutes of sampling and by observation, it is obvious that the short-term ceiling limit would be exceeded if the asbestos were all added at one time. During the visit, there was discussion regarding the possibility that this particular product would soon be made without asbestos.

Some of the talcs which were added to batches have been found to contain significant quantities of asbestos. Information from another plant where such talcs have been evaluated is to be used for determining the potential hazards at other plants, according to present information.



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## RECOMMENDATIONS

1. As long as asbestos is in Bloc Tex, approved respiratory protection should be worn. Nuisance-type dust respirators are not suitable.

2. The exhaust ventilation system to which the Bloc Tex mixer is attached should be periodically cleaned out. A spot check showed that one exhaust duct opening at the second floor mixer (below the Bloc Tex mixer) was heavily clogged.

3. The exhaust ventilation system has some poor design features:

   a. Some branch ducts enter the main at a 90° angle. The angle should be about 30°, and never over 45°.

   b. Branches should enter the main at gradual expansions, with one inch change in diameter to every five inches in length of the expansion.

   c. See attached drawings for proper duct design.

4. The small hoods where empty bags are stacked should be increased in height because the bags are stacked about twice the height of the present exhaust-ventilated enclosures.

5. Whenever spillage of ingredients (especially asbestos) occurs, it should be cleaned up before someone can walk in it and cause dispersion into the atmosphere.



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## DISCUSSION

### Potential Health Hazard of Asbestos

Excessive inhalation of asbestos dust and fibers can produce asbestosis, a serious and potentially disabling condition which affects the lungs. Other effects of a serious nature have come to light in recent years.

The current limit for asbestos permits exposure to average daily concentrations of five fibers per milliliter of air and a ceiling concentration of ten fibers per milliliter for fifteen minute periods, not to exceed five such periods per day. Only fibers greater than five microns (approximately 1/1,000 of an inch) are counted during determination of the concentrations. It has been estimated that for each fiber greater than five microns one can assume approximately 100 fibers of smaller size. In 1976, the daily average concentration will be reduced to two fibers per milliliter, the interim period intended to give industry time to provide engineering controls which will achieve the future limit.

### Controls

Adequate ventilation is necessary to control the dust from the operations at each of the mixers. Observation indicated that control was not sufficient at the mixer where Bloc Tex was being made. The entire ventilation system should be carefully checked to determine adequacy of air flow rates to provide the necessary dust capture efficiency. The system should be checked periodically for such conditions as duct separation, slipping fan belts, accumulation of material on the fan blades,



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restrictions in the cross-sectional area due to damage by fork trucks (several such locations observed), etc. The attached drawings show principles of good duct design.

Besides the exhaust ducts to the mixer covers, there are branches to small hoods where empty bags are placed and flattened. Because the bags are stacked nearly twice the height of the hood, much dust is forced into the air. This can be corrected by increasing the size of the hood or by removing the bags from the hood when it is filled.

The operator of the Bloc Tex mixer was not wearing a respirator, although he was exposed to considerable dust. Considering that one breathes about one million milliliters of air per hour, the air sampling indicated that he would be exposed to an estimated 7,300,000 fibers per hour (fibers greater than five microns in length) and about 100 times this number when considering shorter fibers. It is therefore necessary for every employee who is exposed to asbestos to wear a respirator approved by the U.S. Bureau of Mines for pneumoconiosis-producing dusts.

Floyd L. Penney
Senior Industrial Hygienist

FLP:jl
February 22, 1973



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## AIR SAMPLING DATA

Method of Sampling: Collected on millipore membrane type AA filter papers at two liters per minute sampling rate.

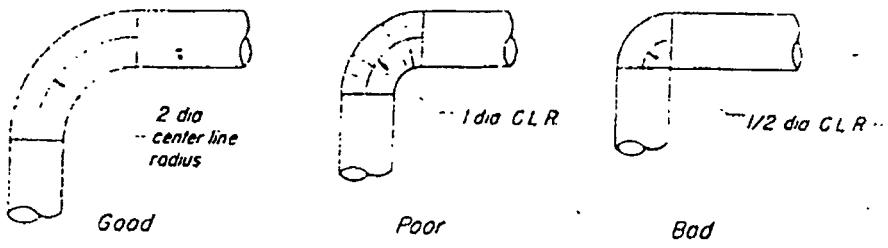
Method of Analysis: By phase-contrast microscope.

| Sample Number | Location | Fibers per Milliliter (greater than five microns)* |
|---|---|---|
| 1 | B.Z. (breathing zone)of man during 80 minutes of batch preparation of Bloc Tex. Sampler was worn on man. | 7.3 |
| 2 | B.Z. beside man (hand held sampler) during same peridd. | 5.0 |
| 3 | At desk about 10 feet from mixer. | 1.5 |

*The current threshold limit value for asbestos is five fibers per milliliter (fibers greater than five microns) for eight-hour daily average. A ceiling limit of ten fibers per milliliter is permitted for fifteen minute periods, not to exceed five times per day. The five fiber limit will be reduced to two fibers per milliliter in 1976.

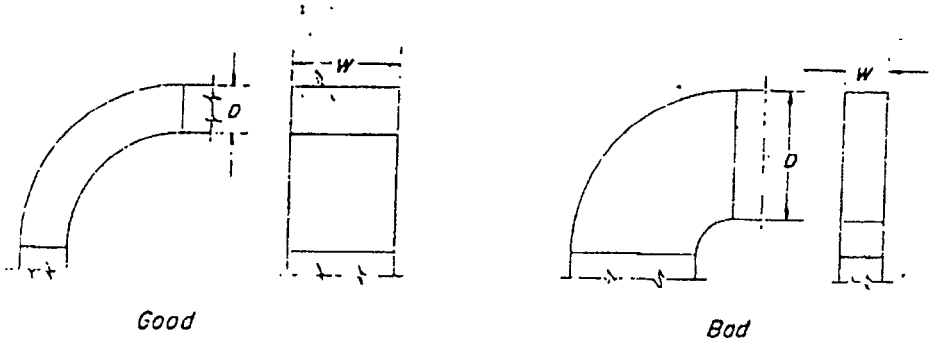


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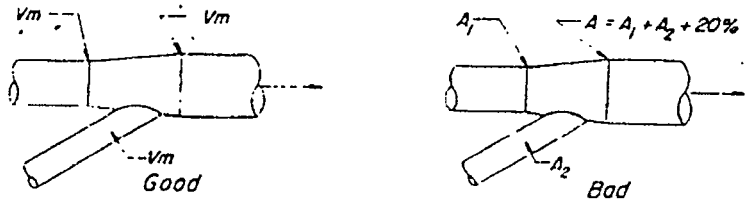

ELBOW RADIUS

Elbows should be 2 or 2 1/2 diameters centerline radius except where space does not permit.




ASPECT RATIO

Keep AR($\frac{W}{D}$) high in using rectangular duct




Vm = Minimum transport velocity.
A = Gross section area.

PROPER DUCT SIZE

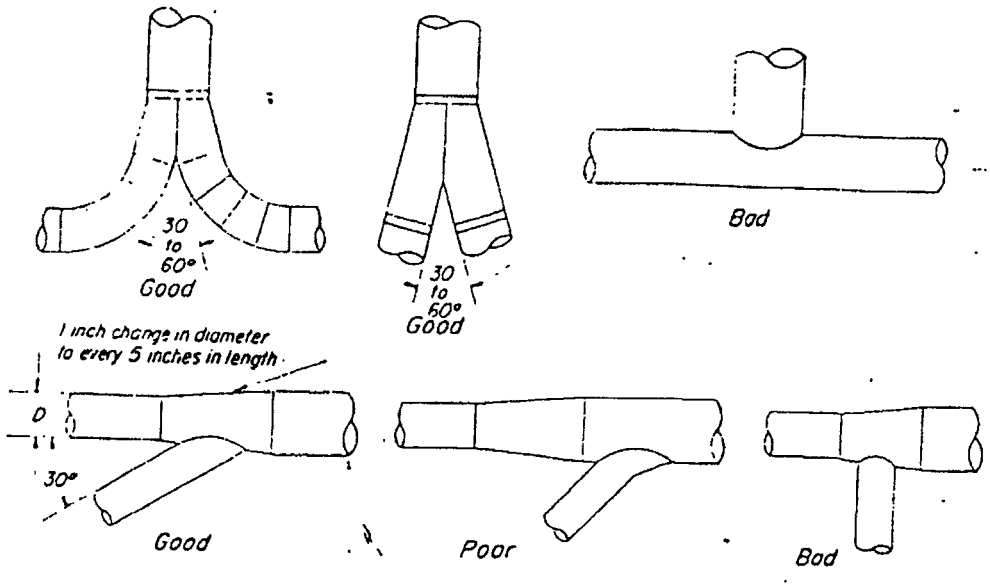
Size the duct to hold the selected transport velocity or higher.

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PRINCIPLES OF DUCT DESIGN

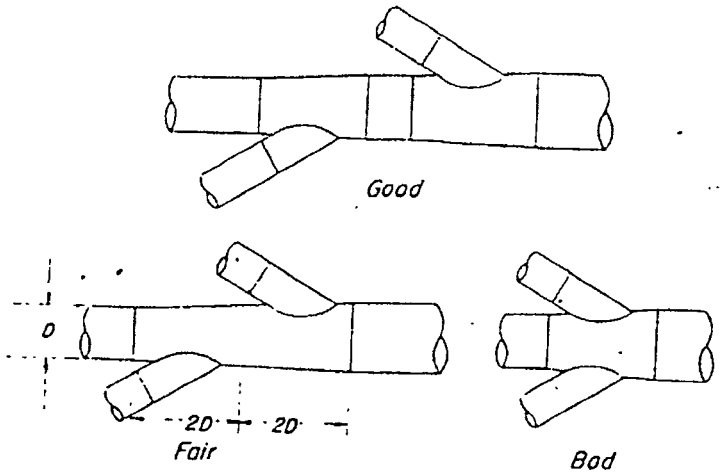
DATE 1-66 | Fig. 6-19

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BRANCH ENTRY

Branches should enter at gradual expansions and at an angle of 30° or less (preferred) to 45° if necessary.




BRANCH ENTRY

Branches should not enter directly opposite each other.

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|---|---|
| PRINCIPLES OF DUCT DESIGN | |
| DATE 1-66 | Fig. 6-20 |

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