Interoffice Memorandum

TO (Name and Location)	DATE
J. F. Stelluto, New York	02/07/83
FROM (Name and Location)	REFERENCE NO.
G. Ille, Bishop	GI-009-83

cc: C. D. Barrett, Dallas
~~N. Platen, Bishop~~
H. H. Flegenheimer, Louisville
W. H. Meyer, Bishop
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R. G. Hilbrich, Bishop
E. J. Heinz, Bishop
D. Unruh, Louisville

SUMMARY OF ASBESTOS EXPOSURE

Per request from C. D. Barrett, the following information is reported on potential asbestos exposure at Bishop.

The greatest potential for asbestos exposure occurs in the Celanese Engineering Resins plant where fibrous asbestos is added as a raw material to make an asbestos encapsulated plastic called Celanex®. The asbestos, presently purchased from Union Carbide, comes in 35 lb. bags and is double-wrapped to minimize tearing. Asbestos is handled in accordance with our Bishop Asbestos Policy VII-4, and requires that employees wear disposable coveralls, 3M disposable respirators and gloves and shoe covers. A dump chamber, under negative pressure, and connected to an asbestos dust collection system, allows employees to safely open the asbestos bags and transfer the empty bags to a drum located inside of the chamber, with minimal exposure to the employee. As always, varying work procedures result in different exposure potential, all of which are well below the present OSHA limits. A video-training film, outlining step-by-step procedures to be used at Bishop, has been recently completed to emphasize the need to follow standard operating procedures.

Approximately 25 operators and helpers are assigned to the Filled Resins department that work actively with asbestos. In addition, four (4) shift supervisors and about 56 maintenance employees are potentially exposed, although exposure data is not available. The following 1980, 81 and 82 short-term personal exposure data is summarized for your review:

UNIT	JOB CLASS	ASBESTOS CONCENTRATION MEAN	ASBESTOS CONCENTRATION RANGE	SAMPLE DURATION MINUTES
Celanex	Hlp	0.80	0.03-2.7	8-55
Sp. Products	Hlp	0.14	0.07-0.45	30-60

The above data represents potential exposure while tranferring, cutting bags and dumping bulk asbestos via the enclosed dump chamber. This is a batch operation, done at most once per shift and takes between 20 to 60 minutes. Both the Celanex and Special Products areas have similar dump chambers. Actual exposures are less since respirators are worn at all times during the entire operation.

In 1982, additional sampling was done to evaluate potential exposures while cleaning a blender vessel. This vessel, containing asbestos, must be cleaned manually when changing from one color blend to another. Presently, long-handle brooms are used to gently sweep the bottom residue into a vessel floor opening from outside of the tank. The following personal exposure data has been collected.

DATE	ASBESTOS CONC. FIBERS/CC	SAMPLE DURATION MINUTES	DESCRIPTION
04/17/82	3	30	Used high pressure air, PBT purge.
04/17/82	5	32	
07/12/82	0.36	24	Used PBT purge, no high pressure air, but swept with long handle brooms.
07/12/82	<0.05	34	
09/07/82	2.3	34	No purge, swept only with long handle brooms.
	0.14	37	
	< .05	35	

Again, when policy procedures are followed, short-term exposure levels are low. Employees again wear 3 M respirators as a standard operating procedure. Vacuum sources available are inadequate due to the volume of vessel residue that must be discharged. In the past, about a 1,000 lbs. of feed material (polybutylene terepthalate, PBT) was added, mixed and discharged from the blender vessel in the belief that this procedure would reduce asbestos dust levels during the sweeping operation. The samples labeled as "PBT purge" or "no purge" indicate the different concentrations that occurred. At present, it is believed that the PBT purge does not significantly reduce asbestos exposure potential during the ribbon blender cleaning and should be discontinued.

A final operation that was investigated was the cleaning of a weigh-belt feeder that ratios the blended feed to the extruder. This feeder is opened once per shift and cleaned by vacuuming. Because this procedure was not done as frequently and consistently in the past, a question was now raised by the unit supervisor as to whether opening systems containing asbestos was proper. Supervision asked that health criteria be evaluated to determine if justification existed for a new feeder. The following personal exposure concentrations were observed.

DATE	ASBESTOS CONC. FIBERS/CC	SAMPLE DURATION MINUTES	DESCRIPTION
08/30/82	0.1	33	Feeder cleaning by vacuuming.
	<0.07	24	
	0.06	28	
	0.07	25	
	0.43	20	
	<0.07	23	

Although the feeder is cleaned daily, the blender vessel has in the past required cleaning only on a monthly basis. The enclosed dump chamber is also used daily. Using worst-case data, it appears that the average daily potential exposure is 0.3 fibers/cc.

Although 8-hour asbestos sampling data are not yet available, one may be able to make an estimate using an oberved relationship in antimony trioxide data, added with asbestos to make the proper blend. Short-term antimony trioxide concentrations range from 0.01 to 1.1 mg/m^3 measured as antimony with a sample average of 0.6 mg/m^3. Eight-hour sampling data appears to indicate less than 0.01 mg/m^3 with two data points at 0.03 and 0.07 mg/m^3, a reduction by a factor of about 60. If the same relationship holds, 8-hour asbestos data should be negligible. According to the British, asbestos concentrations that range between 0-0.4 fibers/cc average over a 3-month period is classified as negligible.[1]

A number of sampling projects have been identified by employees in an asbestos safety training meeting. One of particular importance is evaluating the method by which we clean the entire building on a weekly basis. The method consists of using high-pressure air to clean-blow the floors and beams, from the top floor to the bottom. No recommendations for or against this procedure can be made until further data is available.

1. Standard for Occupational Exposure to Asbestos, Task Group on Naturally Occurring Inorganic Fibers, American Society for Testing and Materials, Oct. 7, 1980. Pg. 26

I hope that this report provides the information you requested. Insulation removal is handled by first determining whether the insulation contains asbestos and then following the detailed procedures in the plant policy. Sampling data obtained on A.B.I. employees removing asbestos insulation has generally ranged less than 0.1 fibers/cc for an 8-hour average.

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