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Asbestos Monitoring - 2nd Quarter

ENVIRONMENTAL ENGINEERING REPORT

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AFFECTED ORGANIZATION: MMD/Manchester SURVEY DATE: 5/31,6/4/79
SUBJECT: MMD Asbestos Monitoring - 2nd Quarter. 1979
ACTION: WAH CGM LHaack RJMikulak
INFO: RCB CAB VRLandi
REFER: Routine monitoring run.

PURPOSE: Monitoring of the degree of worker exposure to asbestos concentrations in the MMD plant, occurs on a regular basis in order to ensure and maintain OSHA compliance. This particular study represents one in a series of ongoing systematic analyses carried out in order to achieve this goal.

SUMMARY: The results obtained from the initial analysis confirmed that airborne asbestos fiber concentrations are below the existing OSHA standard of 2.0 fibers/c.c. (for 8 hours), in all monitored production areas except one. Analysis of the air samples obtained from our monitoring of the GLP Line Blender Operator showed one airborne fiber concentration above this standard. The results of our initial study, and of the follow up analysis, are reported herein.

A brief explanation of the methodology used in this study, the data obtained and a discussion of said data make up the body of this report.

Monitored by: CJPorter&RJFitzpatrick Date: 5/31-6/4, & 6/18/79
Analysed: CJPorter&RJFitzpatrick Date: 6/5-6/8, 6/19-6/20/79
Env. Eng. Mgr. Approval: *R. Gough* Date: 7/2/79

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BACKGROUND

From 5/31-6/4 (follow-up 6/18), Environmental Engineering personnel conducted a series of unannounced airborne asbestos monitoring runs in the MMD plant. This type of testing is specifically designed to determine the extent of worker exposure to airborne fibers in various production areas where asbestos is utilized. The specific techniques which were used to obtain samples and determine fiber concentration are as follows:

METHODOLOGY

1. SAMPLING:

All monitoring runs were carried out using NIOSH approved air sampling pumps and collecting filters. Two different types of sampling pumps were employed in the study; MSA Model S (2 units) and Bendix Type C115 (2 units). Filters used were Millipore Aerosol AAWG 037 A0 0.8 μ .

All samples taken were of the personal type. That is to say, a pump was placed directly on the worker to be tested, with a cassette containing the millipore collecting filter, situated in the worker's breathing zone. The duration of the sampling time in the vast majority of these tests was ninety minutes. Results of this TWA (time weighted average) are considered to be representative of the workers eight hour exposure to airborne asbestos fibers. While sampling in the beater room, we also thought it advisable to monitor the "peak" worker exposure to airborne asbestos. A fifteen minute monitoring run was done during the period of addition of asbestos into the beaters. As will be shown later, the degree of worker exposure under these conditions is well below the OSHA standard of 10 fibs/c.c. for a fifteen minute period.

Individual data sheets were filled out for each worker and contained the following information: date, location, monitor number, air flow setting, duration of test, filter number, total air volume collected, operator name, grade run, etc.

2. ANALYSIS OF SAMPLES:

Subsequent to sample collection, Environmental Engineering follows the OSHA/NIOSH prescribed technique for fiber counting. Pie shaped wedges ($\sim 1/8$ of the total filter area) are mounted on slides using a specially prepared mounting medium composed of equal parts dimethyl phthalate and ethyl oxalate (plus some dissolved filter added for viscosity). Slides are counted under 400x using a Balplan Phase Contrast Microscope. Counting fields are delineated using a Porton Reticule, which has been calibrated with a stage micrometer.

Under this OSHA/NIOSH prescribed method, any fiber falling into a specific size range (5-100 μ in length; 3:1 aspect ratio) is to be counted as possible airborne asbestos. It should be noted here, that the determination of airborne asbestos concentration based on this criterion, is a relatively nonspecific technique.

3. RESULTS: (Page 4)

I = Initial Study Results	5/31 - 6/4
II = Follow-Up Results	6/18

Area Sampled	Grade Being Run	Type of Sample	Filter No.	Parti- culates Field	Parti- culates Filter	Air (c.c.) Volume Sampled	Fiber c.c. **
I							
Inspection and Scaler	220A	TWA	M-79-1	.13	9,615.05	178,000	.05
Inspection and Scaler	220A	TWA	M-79-2	.26	19,230.1	178,000	.11
Paper Machine	102	TWA	M-79-3	.17	12,573.5	155,750	.08
Paper Machine	102	TWA	M-79-4	.17	12,573.5	168,750	.08
Calendar Slitter	R102B	TWA	M-79-5	.24	17,750	180,000	.10
Calendar Slitter	R102B	TWA	M-79-6	.25	18,490	168,000	.11
Kneader #2	466	TWA	M-79-7	.71	52,513	147,900	.36
Larger Slitter	102	TWA	M-79-8	.16	11,833.9	151,875	.08
Beater Room	102	Peak	m-79-9	.22	16,271.6	30,000	.54
Beater Room	102	Peak	M-79-10	.16	11,833.91	30,000	.40
Beater Room	102	TWA	M-79-11	.55	40,679.06	151,300	.27
Beater Room	102	TWA	M-79-12	.32	23,667.82	165,000	.14
725	925	TWA	M-79-13	.54	39,939.45	176,000	.23
725	925	TWA	M-79-14	.43	31,803.63	140,000	.23
Large Blender	462	TWA	M-79-15	.36	26,626.3	148,600	.18
Large Blender	462	TWA	M-79-16	.07	5,177.33	153,000	.03
735	466	TWA	M-79-17	.41	30,324.39	168,750	.18
735	466	TWA	M-79-18	.38	28,105.54	168,750	.18
745	466	TWA	M-79-19	1.99	147,184.26	186,000	.79
GLP Line	660	TWA	M-79-20	2.60	192,301.04	180,000	1.07
Kneader #1	462	TWA	M-79-21	1.99	147,184.26	157,500	.93
Blender Oper. (GLP Line)	660	TWA	M-79-22	5.26	389,039.8	171,000	2.2*
II							
Blender Oper. (GLP Line)	660	TWA	M-79-23	3.56	263,364 2,663,304.5	170,000	1.5
Mill (GLP Line)	660	TWA	M-79-25	1.08	79,878.89	150,750	.53
Mill (GLP Line)	660	TWA	M-79-26	1.37	101,327.85	166,500	.61

*=Violation

**=Airborne
Asbestos

DISCUSSION

As stated previously, the only problem which was observed during our initial work, was an airborne fiber concentration of 2.2 fibs/c.c. in the breathing zone of the GLP Line Blender Operator. This value is in violation of present OSHA standards, and as a result, we felt a follow-up study was in order. The data attained during our second personal monitoring run at this particular work area indicated an airborne fiber concentration of 1.5 fibs/c.c. which is within the OSHA limit of 2.0 fibs/c.c.

One possible explanation for the apparent variability in our results, is that the initial test and the follow-up test were performed of two different GLP line operators. It is conceivable that differences in work practices could account for the variability in the results. Assuming that this is the reason for the discrepancy, we suggest that work practices in this area be examined closely for the purpose of achieving and maintaining worker safety.

It should also be stated here, that the grade being run during testing of the GLP line was 660. Because 660 contains fiberglass as well as asbestos, the argument that our results in this area may be artificially high is not without some justification. However, the testing methods we use are the same ones that are used by government agencies for compliance determination. Therefore, according to NIOSH procedures for determination of asbestos levels, all values obtained in excess of 2.0 fibers/c.c. should be considered a violation of the OSHA standard.