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EDEN AND BETHESDA AVENUE
CINCINNATI, OHIO 45219

January 2, 1968

Mr. Arthur P. Mueller
Research Division
Philip Carey Manufacturing Company
320 South Wayne Avenue
Cincinnati, Ohio 45215

Dear Mr. Mueller:

We have completed our analyses of samples of air taken during fabrication of Carey Temp insulation at the Union Carbide Plant in Charleston, West Virginia. I do not know if you wish to have a formal report, complete with recommendations, etc., for methods of control of dust. Unless I hear otherwise, I will assume that this letter will suffice.

I do not feel it necessary to describe to you the conditions under which these samples were taken, since you were present during the entire operation. All of the impinger samples were breathing zone samples collected directly below the face of the operator. These samples are representative of an individual's exposure to the dust produced at the operation in question.

The impinger samples numbered 1 through 3 were collected during one "run," whereas numbers 4 through 6 were taken during the second cutting operation. The electrostatic precipitator samples were located near the saw table and could not be as representative of breathing zone samples as are the impinger samples. In addition, a high volume air sampler was used to collect dust from the air during the total period of time we were there. This sample naturally includes some down-time.

The samples were analyzed by standard procedures. A sample of dust collected with the high volume air sampler was prepared for examination by X-ray diffraction to determine the per cent of crystalline free silica and asbestos in the airborne dust. The X-ray diffraction pattern failed to indicate the presence of crystalline material in the dust. The probable limit of detection by X-ray diffraction for asbestos or quartz in untreated samples is approximately 5 per cent for each material.

Microscopic examination of the samples of dust indicated the presence of some fibers, but it was not always possible to differentiate between glass fibers or asbestos fibers. As you are aware, the threshold limit value for asbestos is 5 million particles per cubic foot of air and for inert or nuisance particulates this value is raised to 50 mppcf or 15 mg/m^3, whichever is the smaller (source: Threshold Limit Values for 1967, ACGIH). Since asbestos is known to be an ingredient of the parent material, my personal recommendation would be to use the lower value even though the analysis indicated that the dust contained less than 5 per cent asbestos.

The results of the sampling are given in the attached table. If additional information is required, please do not hesitate to let me know. Also enclosed is a statement of charges involved, including charges for analyses incurred by the Kettering Laboratory. Please make the check payable directly to me personally for the full amount and I will reimburse the Laboratory.

Sincerely yours,

J. O. Pierce, Sc.D.
Assistant Professor of
Environmental Health

JOP:egm

Enclosures

RESULTS OF SURVEY
AT THE UNION CARBIDE PLANT, CHARLESTON, WEST VIRGINIA
DURING FABRICATION OF PHILIP CAREY (CAREY TEMPE) INSULATION BOARD

DESCRIPTION AND LOCATION OF SAMPLER	MILLIONS OF PARTICLES PER CUBIC FOOT OF AIR Mppcf	MILLIGRAMS OF PARTICULATE PER CUBIC METER OF AIR Mg/M^3
#1-Impinger- located at breathing zone of Mr. D. E. Raines, operator at saw #1 during unloading and cutting of insulation board	16.4	-
#2-Impinger- same as #1 except attached to other operator, Mr. W. L. Alford	15.9	-
#3-Impinger- located at breathing zone of Mr. J. Jordan, operator at saw #2 during 1st phase of sawing	19.5	-
#4-Impinger- located at breathing zone of Mr. W. L. Alford, operator at saw #2 during second phase of sawing operation	19.9	-
#5-Impinger- located at breathing zone of Mr. J. Jordan, operator at saw #2 during second phase of sawing operation	23.8	-
#6-Impinger- same as #5 except attached to other operator, Mr. H. Witt	27.3	-
#7-Electrostatic Precipitator Sampler- located appr. 5" above plate of saw #1 during first unloading and cutting cycle	8.65	64.3

DESCRIPTION AND LOCATION OF SAMPLER	MILLIONS OF PARTICLES PER CUBIC FOOT OF AIR Mppcf	MILLIGRAMS OF PARTICULATE PER CUBIC METER OF AIR Mg/M^3
#8-Electrostatic Precipitator- located at same location as #7 during clean-up operation between runs	5.5	29.1
#9-Electrostatic Precipitator- located at saw #2, left side, appr. 8-10" above plate of saw during second phase of cutting operation	3.0	21.1
#10-High Volume Air Sampler using fluted filter- located at the right side, appr. 4' from saw #1 during entire operations	-	37.3*

* X-Ray Diffraction indicates no detectable crystalline material present in this sample