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July 30, 1970

Technical studies conducted at Owens Corning Fiberglas Corporation,
Jackson Road, Berlin, New Jersey



Technical studies for mineral dusts were conducted at your request in the Owens-Corning Fiberglas Corporation in Berlin, New Jersey on June 10, 1970. Results are recorded on the attached tables. They indicated that air-borne contaminant concentrations at the time of sampling averaged within established threshold limit values, providing the time-weighted formula is applied.

Highest concentrations generally occurred in the batch-mixing area where employees are intermittently exposed to such dusts as asbestos, diatomaceous earth, calcium oxide, clay, iron chromite and iron oxide. These dusts, depending upon the particular batch, may contain an appreciable amount of free silica and an especially hazardous form from diatomaceous earth known as cristobalite.

Atmospheric dust concentrations in the main production lines typically averaged within threshold limit values. As indicated by the samples, a considerable variation in dust concentrations can be expected under present manufacturing conditions.

The present threshold limit value for asbestos dust is under revision by the ACGIH. The results as stated in this report are based on the standard impinger, light-field count technique.

The company has hired George D. Clayton and Associates as environmental control consultants. Two industrial hygienists, Henry J. Muranko and John E. Mutchler, were collecting dust samples for phase-contrast microscopic examination at the same time as our study. The emphasis of their study for the week of June 9th had been on asbestos dust. They expect to complete and conclude their study during the month of October 1970.

According to the literature, diatomaceous earth that is calcined may contain appreciable quantities of cristobalite. This crystalline form of silicon dioxide is now considered more hazardous than quartz and the limit value should be reduced by approximately one-half. This cristobalite value is therefore included in Table I.

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Our staff observed that the company is installing extensive ventilation equipment throughout the main plant area. We believe that the present ventilation in the batch mixing area should also be improved because of the combined asbestos and free silica dust hazard. A full enclosure of the hoppers would readily increase effective capture velocities. Suggested bin and hopper ventilation specifications are diagramed on Print Number VS-304 appearing on page 5-30 of the manual, INDUSTRIAL VENTILATION.

In the near future a heat stress evaluation should be made in the autoclave area of the plant. Upon completion of the ventilation improvements and installations in the fall, technical studies should be continued to determine the effectiveness of the engineering recommendations, particularly in areas where cristobalite exposures can occur. Please contact us for a mutually agreeable sampling date.

E. Lynn Schall
Chief
Occupational Health Program

JAT:hfh

b.c. Mr. Taylor
Mr. Schall

Owens Corning Fiberglas Corp.
Jackson Road
Berlin, New Jersey

Results of an occupational health study conducted in
the above named establishment on June 10, 1970.

Table I - Mineral Dust

<u>Sample Number</u>	<u>Location and Remarks</u>	<u>Results expressed in m.p.p.c.f. *</u>
2391	Flat ware finishing line	3.3
2392	Batch mixing - hand dump- ing 100 lb. bag asbestos	2.3
2393	Batch mixing - hand dump- ing 100 lb. bag asbestos	1.8
2394	Batch mixing - hand dump- ing 50 lb Diatomite bags**	5.2
2395	Batch mixing - hand dump- ing 50 lb Diatomite bags**	4.7
2396	Pouring line	1.4
2397	Pouring line	1.4
2398	Flat ware finishing line	1.5

Note: * m.p.p.c.f. means millions of particles per cubic foot
of air. The threshold limit value for asbestos dust is
considered to be 2.0 m.p.p.c.f. for a daily 8-hour exposure.

** Threshold limit value for silica, as determined by Table II,
is 3.9 m.p.p.c.f.

The threshold limit value for diatomaceous earth containing
cristobalite (one of the three major crystalline forms of
silicon dioxide) is one half the above value or 1.95 m.p.p.c.f.

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Table II - Free Silica

<u>Sample Number</u>	<u>Location and Remarks</u>	<u>Percent Free Silica</u>	<u>T.L.V. *</u>
12881	Diatomite from hopper area	58.81	3.9

Note: * TLV means threshold limit value in million of particles
per cubic foot of air. It is determined by the formula:

$$TLV = \frac{250}{\%SiO_2 + 5}$$

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Table III - Calcium Oxide

<u>Sample Number</u>	<u>Location and Remarks</u>	<u>Results expressed in mg/cu.m. *</u>
12882	Batch mixing - hand dumping	1.98
12883	Batch mixing - hand dumping.	3.96

Note: * mg/cu.m. means milligrams of substance per cubic meter
of air.

The threshold limit value for calcium oxide is
5.0 mg/cu.m. for an 8-hour daily exposure.