PLAINTIFF'S EXHIBIT K-230



SPECIAL HAZARDS SURVEY

Prepared for: OWENS-CORNING FIBERGLAS CORP.
BERLIN, NEW JERSEY

April 27, 1967

SUBJECT

INDUSTRIAL HYGIENE SURVEY

P.S. PERSONAL SERVICE
FROM THE OFFICE OF

PICTON-CAVANAUGH, INC.

Prepared by:

B. R. ROY
INDUSTRIAL HYGIENIST

Survey date:

APRIL 27, 1967

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LIFE & CASUALTY

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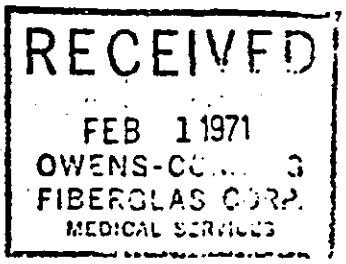

An Engineering Service of:
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This report is prepared to assist the named insured in a loss control program. It is confidential and is not to be used for any other purpose. It does not purport to include every loss potential, code violation or exception to good practice but relates only to those hazards specifically examined and described herein.

(C-2460-B) 3-66

OWENS-CORNING FIBERGLAS CORPORATION
BERLIN, NEW JERSEY

April 27, 1967

PURPOSE:
This Industrial Hygiene Survey was made in order to measure, study and evaluate the occupational disease exposures associated with your various manufacturing operations.

CONCLUSION:
The Diphenyl vapors measured in your Dowtherm Control Room were not found to be dangerous although they were slightly above the advocated threshold limit value. The dust concentrations in your Flat Ware Department did exceed the advocated Threshold Limit Value for asbestos. Other areas where the Threshold Limit Value for asbestos was found to be exceeded was in the Molded pipe stripping area and also in the batch house.

CONTACTS:
This survey was conducted in company with our Haddonfield, New Jersey Engineering Manager Mr. W. McKinney and our Home Office Technical Service Representative, Mr. W. Stallings. We contacted your Safety Direct, Mr. A. Courter. Also contacted were the various supervisors of the departments surveyed.

PROCEDURE:
The Diphenyl vapors (Dowtherm A) were absorbed in silica gel at the sampling rate of two liters per minute. In our Hartford Home Office Research Laboratory the vapors were then extracted with isoproply alcohol and determined by means of a DU Spectrophotometer at the 251 millimicron wave length.

The dust samples were collected with midget impingers utilizing isopropyl alcohol as the collecting medium. Dust counts were made on a light field as outlined in the United States Public Health Service Method for Dust Counting.

FINDINGS:
The analytical results of the air samples taken during our survey have been listed in the attached Appendices A and B. The Dowtherm A (Diphenyl) vapors expressed in terms of milligrams per liter of air by volume have been listed in Appendix A.

The dust counts for the flat ware finishing line and other areas where the asbestos finishing operations were conducted have been tabulated in Appendix B.

CRITERIA:
In the study of occupational health hazards, the Industrial Hygienist makes use of certain guides or bench marks in his evaluation of the exposures. These are referred to as TLV's or Threshold Limit Values. These values are time weighted concentrations below which it is believed that the average employee can be exposed daily without experiencing adverse physiological reactions. They are values that have been derived from animal experimentation and/or industrial experience. They are modified on a yearly basis according to additional industrial experience and toxicological studies.

During previous surveys we did not a specific TLV for Dowtherm A although we did find out that it was a trade name chemical for a mixture of 26.5% Diphenyl and 73.5% Diphenyl Oxide. The former was listed as being moderately to highly toxic by inhalation, while the latter is only believed to be a slight irritant. Consequently, our analysis was made on the basis of the former, namely Diphenyl. In our previous analysis we had quoted Fairhall from his book Industrial Toxicology, namely that prolonged exposure to Diphenyl could only be speculated upon but concentrations of 0.005 mg/liter should be considered dangerous. Since then the American Conference of Governmental Industrial Hygienists in its tentative values for 1966 has listed Diphenyl with a concentration of 1 mg/m3 which is equivalent to 0.001 mg/liter.

The Threshold Limit Value for asbestos dust has remained the same as that listed in previous years, namely 5 million particles per cubic foot of air, which is based on impinger samples counted by light field technique.

DISCUSSION:
As can be depicted from Appendix A, several of the results of the air samples taken during this visit were found to exceed the advocated TLV of 0.001 mg/liter of air. They were not found to be excessively high but nonetheless were in excess of what should be considered permissible for an eight-hour daily exposure. In reviewing this data, it can be seen that a sample taken outside between the pumps Nos. 6 and 8 was nine times that of the advocated value. However, there are no employees present in this area and certainly this would not represent an employee exposure. In addition, we would like to point out that this sample was taken on a day when the relative humidity was extremely high and that Dowtherm vapors appeared to concentrate in the pump area.

The concentrations measured inside at what could be considered regular operator stations were not found to be excessive if one considers that

these values most be integrated for the time periods spent at each location during the day. Again it should be pointed out that the environmental conditions under which these tests were made were for all practical purposes extremely adverse and should not be construed as representative for eight-hour daily exposures.

In Appendix B are listed the various dust counts [illegible] several areas of your plant. As can be seen, there were a few [illegible]s where the advocated TLV for asbestos has been exceeded. We [illegible] to point out that in the Flat Ware Department that a signi[illegible] improvement has been noted from previous studies and that the [illegible]s measured were not alarmingly high. Nonetheless, it would [illegible] recommendation that employees be monitored regular[illegible] continued efforts be made to maintain the exhaust ventilat[illegible] efficiency.

The pouring line molded type stripping operation [illegible] found to be slightly in excess of the advocated limit.

Although the operator's breathing zone dust sam[illegible] the stripping operation in the Molded Pipe Pouring [illegible] it was found to exceed the advocated TLV of 5.0 mppcf, we [illegible] not feel that the operator exposure here is that excessive since [illegible] is also exposed to dust concentrations measured in the surrou[illegible]. The latter were not found to be excessive and consequently [illegible] that by integrating these various exposures that the oper[illegible] in question is not exposed to concentrations in excess of the a[illegible] value quoted in the criteria of this report.

The same reasoning can be applied for the operato[illegible] exposures in the batch house since the higher concentrations are v[illegible] intermittent and only for short durations. The background cou[illegible] in the batch house would allow for some leeway and, consequently, we feel that there is no need for additional ventilation at this time.

ACKNOWLEDGMENT:
Mr. Stallings and I wish to express our gratitude [illegible] the courtesy extended to us during this visit. We are also in[illegible]ted to Mr. Courter for assisting us during the initial phases of air [illegible]mpling.

B. R. Roy

B. R. Roy, Industrial Hygienist
Certificate No. 590

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APPENDIX A

OWENS CORNING FIBERGLAS CORPORATION
BERLIN, NEW JERSEY

April 27, 1967

No.	Location	Time	Results
1.	Average Breathing Height-between cylinders 14 and 15 - adjacent to Schedule Board.	10:30 A. M.	0.0014 mg/L
2.	Average Breathing Height - Desk Area in front of No. 9 cylinder.	10:35 A. M.	0.0011 mg/L
3.	Average Breathing Height - On platform between Nos. 13 & 14 cylinder.	10:50 A. M.	0.0005 mg/L
4.	Average Breathing Height - On platform above No. 6 cylinder.	11:00 A. M.	0.002 mg/L
5.	Average Breathing Height - Feed End of No. 6 cylinder.	11:20 A. M.	0.0001 mg/L
6.	Average Breathing Height - Outside Dowtherm Room between pumps Nos. 6 & 8 No. 7 pump was dismantled.	11:25 A. M.	0.009 mg/L

NOTE: mg/Liter denotes milligrams of Diphenyl per liter of air by volume.

B. R. Roy

B. R. Roy, Industrial Hygienist
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APPENDIX B

OWENS CORNING FIBERGLAS CORP.
BERLIN, NEW JERSEY

April 27, 1967

No.	Depart	Location	Time	Results
7.	Flat Ware	Feeding Operator's Breathing Zone.	1:05 P. M.	5.2 mppcf
8.	Flat Ware	Average Breathing Level Between Fly Cutter and 1st Sander.	1:05 P. M.	2.4 mppcf
9.	Flat Ware	Average Breathing Level Between 1st and 2nd Sanders.	1:07 P. M.	4.5 mppcf
10.	Flat Ware	Average Breathing Level West Side of Line-Near End Trimmer and Turner.	1:25 P. M.	3.2 mppcf
11.	Flat Ware	Packer's Breathing Zone.	1:25 P. M.	6.4 mppcf
12.	Flat Ware	Average Breathing Height Box Preparation Area East Side of Packaging.	1:27 P. M.	2.5 mppcf
13.	Molded Pipe	Packer's Breathing Zone.	1:50 P. M.	0.2 mppcf
14.	Molded Pipe	Operator's Breathing Zone. B-Trim Saw	1:50 P. M.	3.5 mppcf
15.	Flat Ware Pouring Line	Stripper Breathing Zone.	2:10 P. M.	2.1 mppcf
16.	Flat Ware Pouring Line	General Background Cylinder Loading Area 4th Col. from No. 12 Cylinder.	2:10 P. M.	1.3 mppcf
17.	Molded Pipe Pouring Line	Operator's Preathing Zone Stripping Operation.	2:15 P. M.	5.4 mppcf
18.	Semi Molded Billet Machine	Packer's Breathing Zone	2:30 P. M.	3.4 mppcf

APPENDIX B CONT'D

No.	Depart	Location	Time	Results
19.	Semi Molded Billet Machine	Feed Operator's Breathing Zone.	2:30 P. M.	1.65 mppcf
20.	Batch House	Batcher's Breathing Zone.	2:50 P. M.	7.5 mppcf
21.	Batch House	Average Breathing Height Center of Batch House.	2:45 P. M.	3.7 mppcf

NOTE: mppcf - denotes million particles per cubic foot of a .

B. R. Roy

B. R. [illegible] Industrial Hygienist
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