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June 2, 1965

Ref. 609

Mr. H. James Bigalow
Owens-Corning Fiberglas Corporation
General Offices
Toledo 1, Ohio

Dear Mr. Bigalow:

We are aware of the controversy created by Dr. J. Selikoff on asbestos hygiene. There are fortunately however, several professional and comprehensive studies in progress which will determine what the asbestos health hazards are and how to solve them.

The U. S. Department of Health, Education and Welfare in 1962 started an "Occupational Health Study of the Asbestos Products Industry." This study covers asbestos textile, brake linings, asbestos cement and thermal insulations. I would assume your Mr. Taylor knows about the insulation part of this study. Enclosed are two official publications of the Department of Health, Education and Welfare related to the study and the asbestos textile industry. We would be glad to keep you advised on additional information if you wish.

There was a conference on "The Biological Effect of Asbestos" in New York City on October 19-21, 1964. A copy of the program is enclosed along with abstracts of Selikoff's papers. You could request copies of all the articles from the New York Academy of Sciences. We have not received the information as yet.

A report titled "An Epidemiological Study of Lung Cancer In Asbestos (Chrysotile) Miners" (Thetford Mines - Black Lake) by D. C. Braun, M. D. and T. D. Truan, M.A.

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June 2, 1965

was published in the AMA Archives of Industrial Health, Vol 17 - June, 1950. It concludes in part "...that the asbestos miners in the Province of Quebec do not have a significantly higher death rate from lung cancer than do comparable segments of the general populations." A copy of this report is enclosed.

It is also important to note that Asbestos (Chrysotile and Crocidolite) are approved as a "Filler in Rubber and Rubber Products used for food handling equipment." A copy of this information is available from the Food and Drug Administration Department of Health, Education and Welfare, in the Federal Register, Saturday, October 14, 1961, page 9715.

Listed below is some additional information on:

1. Maximum dust levels
2. Particle size
3. Dust level measurement
4. Respirators

1. Maximum Dust Level Permitted In Different States, Industries, or References

Most of the states have adopted the limit recommended by the American Conference of Government, Industrial Hygienist, a quasi official group which has assumed leadership in establishing safe limits for many of the air contaminants. The A.C.G.I.H. limit for asbestos dust is 5 million particles per cubic foot of air for 8 hour, continuous, daily exposure. This limit applies to samples collected with the Greenberg-Smith impinger or by a comparable method and counted by light field microscopy.

A complete discussion of dust sample collection and evaluation is given in "Industrial Dust" by Drinker and Hatch published by McGraw Hill, and in "Industrial Hygiene and Toxicology", Vol. I, published by Interscience Publishers, New York.

2. Data And References on Critical Particle Size

There is some controversy over the relative dangers of

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2. Data And References On Critical Particle Size (cont.)

small particles (short fibers under 3 microns in length) and long fibers of 10 microns or more. Long fibers may provoke a fibrous reaction in lung tissue somewhat more than short fibers. But long fibers in the air have a lesser chance of getting down deeply in the lung because of entrapment in the upper respiratory system. So the relative danger of small and large particles tend to balance out. A comprehensive discussion of dust particle size and its significance is given in "Pulmonary Deposition and Retention of Inhaled Aerosols" by Hatch and Gross, Academic Press, New York, 1964.

3. Recommendation on How to Measure Dust Level, Equipment, and Procedure

Although the original Greenberg-Smith impinger method of dust sampling is recognized as standard, it has been shown that sampling with properly calibrated midget impingers, portable electro-static precipitators and membrane (Millipore) filters will give comparable results. The important part of the dust measurement is the counting cell. Counting is an exacting and tedious procedure.

4. Mask and Filter Recommendation

Any respirator and filter combination approved by the U. S. Bureau of Mines for protection against pneumoconiosis producing dust will provide satisfactory protection. The respirator should be fitted carefully to each individual. If one brand does not fit snugly another should be tried. The leading manufacturers of respiratory protective equipment are Mine Safety Appliance Company, American Optical Company, and Wilson Products. Attached is a copy of a guide on Asbestos published by the American Industrial Hygiene Association.

I will try to obtain the information you requested on the percent of fines that is fifty microns or longer.

Very truly yours,

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E. A. Farrell

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