

FILE NAME: Union Carbide (UC)

DATE: 1966 Sept 9

DOC#: UC168

DOCUMENT DESCRIPTION: Memo and Report RE Asbestos Toxicology Report

MEMORANDUM

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DATE: September 9, 1966

SUBJECT: Asbestos - Toxicology

RECEIVED

SEP 12 1966

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON, D.C. 20540

Gentlemen:

Attached are "tear sheets" from some of the most recent publicity in respect to the subject. The one article appeared in the September 10 issue of CHEMICAL WEEK; the other was passed along to us by Peter Cheston, and appeared in the LONDON SUNDAY TIMES of August 14.

There is no doubt this kind of publicity will persist, and it is important that its inapplicability to our products and our applications not be missed by our customers and prospects. You have some positive positions you can and should take with your customers:

1. It is important that you continue to use Dr. Dernehl's "Asbestos Toxicology Report" as well as the statements made by the Food and Drug Administration (Department of Health, Education and Welfare). I am attaching copies of each; if your file supply of these is depleted, you can either run off copies or get additional from us.
2. In the CHEMICAL WEEK article, if we look at the summary of "sources of airborne asbestos", we see that, to our knowledge, our products now are used only in modest amounts in ceiling and floor tiles, and here in relatively low concentrations. Further, these are applications employing particularly good resin binders, making the loss of asbestos to the air from such compositions appear highly unlikely.

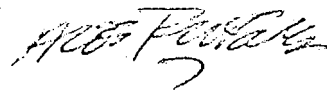
3. You will recall (my memo March 26) that there has been medical literature reference to the association between cancer and polycyclic aromatic organic compounds found with certain sources of asbestos -- among them jute oils from sacking materials, and 3,4 benzo(a) pyrene.

Union Carbide uses no jute bags.

Analytical tests have established the absence of organic material with Union Carbide asbestos. Some time next week, we expect microanalyses to show specifically no detection of polycyclic aromatic compounds with Union Carbide asbestos of our different grades.

4. Please note the primary concern in these publications deals with "airborne asbestos" - and Dr. Dernehl has stated clearly that "while asbestos dust in excess of the Threshold Limit Value is potentially harmful, as are many other dusts encountered in industry, it is as readily controlled as other dusts and it can be used safely with appropriate precautions". We should take the positive position, important to our customers, that Union Carbide produces and supplies this commodity in pelletized form, a major step in assisting the user to control his own dust hazards. We feel certain this factor has been a prominent one in the decision of certain of our floor tile customers to shift toward use of Union Carbide product.

Very truly yours,



A.E. Pufahl:dk

attach.



UNION CARBIDE CORPORATION

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ASBESTOS TOXICOLOGY REPORT

It has been known for many years that some persons working in asbestos production were prone to develop a disabling lung disease. In time, this condition became known as asbestosis and was related to exposure to high concentrations of asbestos dust. With further experience, it was found that men could work with asbestos without development of lung disease if dust concentrations were kept below a certain level. It is now generally accepted that a man can work a 40-hour week for a lifetime without developing asbestosis if the asbestos dust particle count is kept at or below 5 million particles per cubic foot of air. This dust concentration of 5 million particles per cubic foot of air is the Threshold Limit Value for asbestos, and no cases of asbestosis are known to have occurred when exposures have been maintained at or below this level, despite large-scale utilization (now approaching one million tons per year in the U.S.A.). This concentration of dust is generally not visible in the average work area unless a beam of light causing a Tyndall effect is present. Usually the dust concentration must be from 8-10 million particles per cubic foot before its presence is visible in average lighting conditions.

Several years ago, it was reported that there was an increase in the incidence of cancerous tumors, especially of the lung, associated with asbestosis. Recently there have been reports of some cancers occurring in individuals exposed to asbestos dust, but who have not developed clinical asbestosis. It is believed by most authorities that these cases have been associated with exposures significantly exceeding the Threshold Limit Value. A major manufacturer of asbestos products who also mines asbestos has not been able to show an increase in cancerous growths in men working where dust concentrations were maintained at the Threshold Limit Value.

Control of asbestos dust exposure is therefore necessary. The control methods are the standard ones applicable to a variety of dusty operations. They include closed flow systems, wet processes where possible, and adequate exhaust ventilation where openings in the system are necessary. Pelletizing is sometimes used to improve the handling characteristics of otherwise dusty materials. Where satisfactory containment to stay within the Threshold Limit Value is impractical or impossible, efficient and reliable respirators are available for the protection of the employee. A program of environmental monitoring is highly desirable to determine that Threshold Limit Values are not being exceeded. In paper manufacturing, it would be desirable to know the dust concentrations where the asbestos is dumped from bags into the pulp slurry. Concentrations should also be determined where dusting occurs in finishing products. While initial dust determinations should be made at frequent intervals, once the level has been established as satisfactory, the frequency may be extended to occasional tests to assure continuation of a satisfactory condition.

Pre-employment and periodic physical examinations of workers are desirable. These should include chest X-rays to insure that the worker has no chest condition prior to work with asbestos and to determine that no lung changes are resulting from work with asbestos.

It is believed that the addition of asbestos at the proposed levels during the manufacture of paper products would be harmless to the consumer. Total dusting would have to be well in excess of any levels acceptable to the consumer for the asbestos concentration to approach the Threshold Limit Value.

In conclusion, while asbestos dust in excess of the Threshold Limit Value is potentially harmful, as are many other dusts encountered in industry, it is as readily controlled as other such dusts and it can be used safely with appropriate precautions.

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