PLAINTIFF'S EXHIBIT
Union Carbide 109

13 June. 1967

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Mr. Frank Dexter
Union Carbide Corporation
Chemicals & Plastics Division
270, Park Avenue
New York, N.Y. 10017

Re: ASBESTOS TOXICOLOGY

Dear Frank:

I assume that you are aware of the occasional reports concerning possible toxicity and carcinogenic properties of asbestos. Dr. Dernehl of Union Carbide Medical Department has followed this area very closely and has maintained a very close check on the working conditions at the King City plant.

Perhaps the most publicity and "interest" in this problem has been in England. There, only two ports will handle normally bagged asbestos, at the other ports the Union of Dock Workers have refused to handle the shipments of asbestos.

We have been permitted to bring in several shipments with not very favorable results. The last shipment, because of rather poor handling and packing, was in bad shape with many broken bags and much free asbestos. Copies of reports on these shipments have undoubtedly already come to your attention.

Mr. Sayers of the asbestos group in UCL has written a report summarizing the findings and feelings concerning asbestos in the U.K. I assume that you have also seen a copy of this report. I am enclosing with this letter, a copy of the comments Dr. Dernehl made in response to this report from England.

My main purpose in writing this to you is to confirm that at the July asbestos meeting in Oxford we will implement the suggestion made by Mr. Sayers and agreed to by Dr. Dernehl that Union Carbide join in the cooperative standard sample comparisons to the extent of arranging for standard samples to be forwarded to Niagara Falls for trace element analysis. In joining the program to this extent we will be able to keep in close contact with the progress of this study and will also be aware of any adverse findings which may develop.

I assume that this is satisfactory to you. We will, of course, keep you directly advised of any information that may develop over here. If these findings or any others of which we may not be aware cause any change in marketing plans or programs for asbestos, we assume you will immediately advise us.

Dernehl DEPO. EXH. 34
3/10/69

T[illegible]Y A. KENNEDY

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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 airborne 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

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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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