

February 12, 1943

Dr. Donald Irish,
Dow Chemical Company,
Midland, Michigan.

Dear Don:

I have attempted to find the detailed information obtained by Dr. Machle on Tetraethyl Orthosilicate, but without success. Therefore, I called up Dr. Donald Lyle, who brought the matter to Dr. Machle's attention, and received the following information. Dr. Lyle did not state that this was confidential, but I think it should be regarded as confidential, at least to a degree, and that the source of the information should not go beyond your own hands. I merely mention the source in this instance to establish its authenticity for your information. It appears that Union Carbide and Carbon Company was employing Tetramethyl Orthosilicate under conditions which permitted its inhalation by a group of workmen. Certain difficulties arose which were chiefly concerned with acute irritation of the eyes. Apparently, very little in the way of other toxic symptoms were seen. There was an acute lesion produced which resulted in great pain, in acute conjunctival and corneal inflammation, with the loss of vision in several instances. Dr. Lyle brought the matter to Dr. Machle's attention, and a limited number of observations were made on the local and systemic effects of both Tetramethyl and Tetraethyl Orthosilicate. Apparently the Methyl compound is much more toxic than the Ethyl, quite apart from its volatility. The additional factor of greater volatility made the Methyl compound much more hazardous to handle, and for this reason as well as the lower toxicity, Dr. Lyle believed that the Ethyl compound could probably be used with reasonable safety under the conditions of the work being done by employees of Union Carbide and Carbon.

We have no information beyond this point. It would be my opinion that one should be rather careful in expressing an opinion as to the probable hazards associated with the use of the Ethyl compound until rather comprehensive observations have been made. I say this in view of the fact that the eye lesions produced by the Methyl compound were of an extreme type. I should be greatly surprised if the Ethyl compound

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did not share these same properties to some degree.

I shall try to obtain some additional information from Bill Machle, and if I learn anything that may be further useful to you, I shall send it along.

Sincerely yours,

Robert A. Kehoe, M. D.

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