

May 13, 1942

Mr. E. J. Downing
National Safety Council
20 North Wacker Drive
Chicago, Illinois

Dear Doctor Downing:

I am returning herewith the draft of the Industrial Data Sheet on Ethylene Dichloride. It seems to me to cover the field admirably well for the purpose. There are, however, one or two items that occur to me in going over this material which I think you might like to check before the final publication of the form. For your convenience I am itemizing these notations below:

(1) In Paragraph No. 3, you give the structural formula of the asymmetrical isomer 1,2-dichloroethane. Later, however, when you mention the boiling point ($55^{\circ}\text{C}.$), I presume you refer to the boiling point of the symmetrical 1,1-dichloroethane, since the boiling point of the 1,2-dichloroethane is $83.5^{\circ}\text{C}.$ In the next sentence in which you state that ethylene dichloride is only very slightly soluble in water, alcohol and ether, there seems to me to be an error. I believe the solubility in alcohol and ether is rather high.

(2) In Paragraph No. 6, there is the statement that a one per cent. concentration by volume in air will cause death after a day or two. I believe this observation is taken from Sayers' report in which he states only that it may cause death. The implication in this abstract is that death will certainly follow. Later, in the remainder of the sentence, the statement is made, "with edema and degenerative changes in the kidney." The lung changes strike us as being most important and I would be inclined to mention pulmonary congestion, as well as edema. My personal feeling is that ethylene dichloride is much more vicious than it is believed to be, and when referring to the codes for maximum allowable concentrations of California and Massachusetts, it might be worthwhile to mention that there have been no prolonged exposure studies on which those figures could be adequately based. It is possible that even lower concentrations are harmful. In fact, that is the question which we now have

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under investigation.

(3) In Paragraph No. 8, reference is made to nervous excitability and convulsions. I do not believe that convulsions usually occur and it is possible that rather than such a vague expression such as nervous excitability, one could mention irritation of the eyes and nose, nausea, and dizziness, which are rather specific symptoms and are easily recognizable.

(4) In Paragraph No 13, mention is made of the use of synthetic rubber gloves. I presume that data has been obtained on the solubility of the various synthetic rubbers in ethylene dichloride. One might expect the compound to penetrate most of them to a fair degree. It would be worth trying investigating the resistant qualities of leather gloves that have been boiled in a mixture of soap and glycerine, since this compound has low aqueous solubility and the leather-type glove is easy to wear, comfortable, cheap and very durable.

(5) Paragraph No. 17 deals mainly with prophylaxis and could possibly be inserted between Paragraphs 13 and 14, where prevention is considered.

I would appreciate receiving a copy of the finished draft. It seems to me to be a very good compilation.

It was a pleasure to see you in Cincinnati and have a visit from you at the laboratory.

With best regards, I am

Cordially yours,

WM:vr

Willard Machle, M. D.