

January 5, 1954

Mr. H. H. Fawcett  
General Electric Company  
P. O. Box 1088  
Schenectady, New York

Dear Mr. Fawcett:

I regret very much to have to say that we have no information of any kind on the toxicity of lead tetraphenyl. There has been no special reason for investigating its toxicity, and I would not like to hazard a guess of any kind on any possible peculiarities in its behavior. One important question, however, would seem to relate to the solubility of the compound in fats and in water, since its partition in these would be expected to determine whether or not it would behave like lead tetraethyl in its effect upon the central nervous system.

Another significant question concerns the extent and the rate of the percutaneous absorption of the compound. Here solubility would be of importance, no doubt, but there is also another factor (perhaps also solubility, but perhaps something else) in that some of the phenyl compounds seem to penetrate through the skin rather rapidly. It is also possible that the compound is irritating to the skin, and this might be a matter of considerable industrial importance.

No doubt the vaporization of the compound, under the conditions you mention (without describing), would constitute a serious hazard, except as the vapors were completely confined in a closed system.

I should say that an investigation of the absorption, distribution and retention of this compound in the body, together with the elucidation of the symptomatic and anatomic response of animals to its absorption, would probably be required. The comprehensiveness of the investigation, of course, would depend in considerable measure upon the technologic and economic significance of its anticipated use. If it should turn out to be analogous to lead tetraethyl, which I tend to doubt, the scope of the toxicologic investigation could be curtailed greatly. In any case, the primary toxicity of the compound is unlikely to be as important as the extent of its accumulation in the body following prolonged exposure to tolerable daily absorption.

You will recognize, of course, that I have contributed only questions and not answers to questions in my comments. This I do in the feeling that it would

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be most unfortunate if the practical usage to which this compound might be put were to result in serious and unforeseen results.

Cordially yours,

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Robert A. Kehoe, M. D.

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