

H. S. Greene
May 22, 1931

Dr. C. M. Aves,
Humble Oil and Ref. Co.,
Houston, Texas.

Dear Dr. Aves:

I am a little bit late in replying to your letter of May 7, but I am complying with your request to send you such information as I have on the subject of tetraethyl lead poisoning.

I should point out, however, that laboratory work on Ethyl Gasoline is to be regarded as in every way a totally different matter than experimental work with tetraethyl lead. I know at first hand the conditions which prevail in the refinery laboratories where Ethyl Gasoline is being tested. The distillations are carried out in such a manner that there is no possible exposure to the vapors of tetraethyl lead. Even the gasoline as a whole is so well condensed in distillation studies that only the smallest fraction of it is lost, and under these conditions the tetraethyl lead is very easily condensed. Furthermore, we have shown very satisfactorily that there is no appreciable skin absorption of tetraethyl lead out of gasoline in the concentrations in which such lead occurs in commercial gasoline. It is true that tetraethyl lead may be absorbed through the skin, but under the conditions which prevail when commercial gasolines are handled, there is no such absorption through the skin. In the first place, the concentration is so low that very little would be expected to be absorbed. In the second place, the

of lead in a system represented by gasoline on the one hand and living tissue on the other, favors gasoline to such an extent that we have not been able to find evidence of lead absorption even under the most intensive experimental conditions. Thus, unless individuals in the laboratory are actually handling concentrated ETHYL fluid, there is no possibility of the development of the condition which I have described under the heading of "Tetraethyl Lead Poisoning". Furthermore, under the conditions which prevail in these laboratories, the handling of the minute amount of ETHYL fluid which is used in knock testing, etc., presents no serious possibility for lead absorption. It has been generally required that the concentrated Fluid be handled only in a hood with forced ventilation. This can be done by any reasonably intelligent chemist without

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any danger whatever if proper facilities are available. On the other hand, if samples of the Fluid are analyzed to determine their lead content, precautions are necessary to avoid the inhalation of lead vapors. As a consequence, we have advised the limiting of such analyses to the lowest possible level, and we have insisted upon very excellent hood facilities where such tests are regularly done.

It is my understanding in the case which you report to me, that the total exposure has had to do with various tests upon commercial gasoline. In this situation there can of course be no question of the danger of tetraethyl lead poisoning. Such danger is simply non-existent.

For these reasons I am sending the reprints to you only. If, after having read my letter, you wish me to send similar reprints to Dr. Lummis, I should be pleased to do so. I should point out, however, that it is very necessary that men who have to do with the examination of persons of this type should know definitely the significance or lack of significance of the various types of exposure occasioned by the work. It has been difficult to establish an understanding of the magnitude of these different exposures in the minds of medical men in general. There has been a tendency to ignore completely all of the quantitative aspects in the matter, and to assume that exposure to gasoline is synonymous with exposure to tetraethyl lead.

Very cordially yours,
RAK:EJ

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