

June 16, 1930

Dr. H. H. Harris,

Jacksonville, Fla.

Dear Dr. Harris:

Your letter of May 30 to the chief chemist of the Standard Oil Company, concerning the illness of a filling station attendant, has been referred to me for reply.

For several years I and my associates have been making careful investigation into all reputed injuries from the use and distribution of Ethyl Gasoline. The case which you report, therefore, is one of considerable interest to me, and I should be very much pleased to have the details of the exposure and illness, if you will supply them to me. On four different occasions since 1923 we have examined a large number of men handling Ethyl Gasoline as filling station attendants, garage mechanics, tank wagon handlers, etc. A fair percentage of the original men were examined in the course of the last study. The examinations consisted of careful physical examinations, blood examinations by a very precise technique, and analyses of the excreta for lead by very sensitive methods. In the entire group of men examined we have never found an instance of lead intoxication, nor have we found any reason to conclude from the available data that any of these men were showing an accumulation of lead in their tissues. Furthermore, the examination of cases of complaints of injury in all parts of the country and in Canada, has failed to yield a case of bona fide lead intoxication or lead absorption. The case you cite, therefore, becomes one of extreme interest, and I should very much like to investigate the matter and if possible see the patient. It has been our opinion that unrecognized cases might not be brought to our attention, and we have therefore kept a very sharp lookout for the development of indefinite illnesses, without, however, having discovered any positive cases.

Answering your question as to the form in which lead exists. The lead in Ethyl Gasoline occurs as tetraethyl lead, the concentration in the gasoline never exceeding one part in thirteen hundred parts of gasoline by volume. Tetraethyl lead, as such, is somewhat volatile, but its volatility as compared with gasoline is so low that no measurable quantity of tetraethyl lead may be found in the evaporating gasoline until upwards of twenty per cent of the gasoline has been evaporated away. The chance of absorbing lead by inhalation, therefore, from the handling of ordinary commercial gasoline is almost negligible. The compound tetraethyl lead

is capable of absorption through the skin, but rather elaborate experiments with animals have failed to show that in the low concentration occurring in commercial Ethyl Gasoline there is any absorption through the skin. As result of these experiments and as result of our prolonged observations on men, we have arrived at the tentative conclusion that the absorption of lead by an individual handling commercial Ethyl Gasoline in the normal way is a very remote possibility. We realize, however, that the actual occurrence of a case or cases of poisoning from the absorption of lead would be much more significant than so large a mass of negative information. It is therefore of the utmost importance to me to follow up all cases of reputed injury, in order to establish the facts in the matter in as definite a manner as is possible.

I should appreciate very much indeed any information which you can give me on the case you cite, and even more will I appreciate such cooperation as will make it possible for me to see this case and to study the lead excretion in such a way as to arrive at a definite conclusion if possible.

Very truly yours,

RAK:EJ

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