

July 28, 1948

Mr. T. F. Hatch,
Research Director,
Industrial Hygiene Foundation of America, Inc.,
4400 Fifth Avenue,
Pittsburgh 13, Pennsylvania.

Dear Ted:

Having just returned to my desk I hasten to reply to your letter of July 9 concerning the potential hazard in the use of leaded gasoline for cutting putty. In accordance with your request I am sending you a reprint which gives a small amount of published material from this Laboratory on the subject of the absorption of lead through the skin as the result of contact with leaded gasoline. Additional information concerning experimental work on this problem can be obtained from a report of the Bureau of Mines, entitled "Experimental Studies on the Effect of Ethyl Gasoline and Its Combustion Products." This work was done by Sayers, Yant, et. al. Unfortunately this publication of the Bureau of Mines is out of print at present, and even if you are able to obtain a copy of it, you will find it a very voluminous affair in which the work on the absorption of lead from gasoline is rather well diluted. This represents all of the published work on this subject directly. Indirectly the observations made on filling station employees and the handlers of leaded gasoline constitute much better evidence of the status of the practical hazard. Our published work on this subject is out of print, but I give you two references below.

There is a great deal of unpublished information which bears on this subject, and in addition it is entirely possible that our general experience with the entire problem will give you a better basis for judgment in this instance than would all of the published information. As I see it, the primary problem here is not so much related to the absorption of lead through the skin as it is to the possible inhalation of a volatile lead compound from a finished product. It seems improbable that the quantity of lead would be very significant, but inasmuch as I do not know how the cutting is done or in what quantities, I should hesitate to express an opinion concerning the significance of the inhalation. On the other hand, I am quite prepared to say that this is an unnecessary and inadvisable use of leaded gasoline. It should be no great problem to obtain water white gasoline or other suitable petroleum products for this purpose, and this should by all means be done. Leaded gasoline is intended as a motor fuel. Our observations, and to a lesser degree, those of others, have shown that it is safe when it is handled in accordance with the approved and orthodox methods employed currently by the petroleum industry. Quite a number of observations have shown that it can be unsafe when used

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for other purposes and when handled in an improper manner. I cannot foresee any set of circumstances that would justify its use as an ordinary solvent, as a cleaning agent, or as a fuel for stoves, lamps, blow torches, and the like, except insofar as the latter items may have been designed specifically so as to make safe and proper use of this fuel. I realize now, and have realized in the past, that it is not possible to prevent the use of leaded gasoline for a great variety of purposes for which it is not intended. Thus far, with very few exceptions, these extraneous uses have been sufficiently sporadic and intermittent as to result in very little lead absorption. On the other hand, I have always undertaken to discourage every improper use of this product.

Sincerely yours,

Robert A. Kenoe, M. D.

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References: An Appraisal of the Lead Hazards Associated with the Distribution and Use of Gasoline Containing Tetraethyl Lead. Part I, J.I.H. and T., 16, 100, 1934.
An Appraisal of the Lead Hazards Associated with the Distribution and Use of Gasoline Containing Tetraethyl Lead. II. The Occupational Lead Exposure of Filling Station Attendants and Garage Mechanics. J.I.H. and T., 18, 42, 1936

Enc.: The Behavior of Lead in the Animal Organism, II. Tetraethyl Lead.

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