

November 24, 1937

Dr. S. J. Bradfield
607 Medical Arts Building
Tulsa, Oklahoma

Dear Doctor Bradfield:-

In response to your letter of November 12th, I am sending you herewith two reprints of articles written on the basis of our experimental studies on the problem of leaded gasoline. From the study of these you will find that no cases of lead poisoning have been reported and, moreover, that no cases are expected as the result of contact with either liquid gasoline or its vapors. The quantity of lead in the gasoline is very small, - so small in fact that absorption of the lead compound through the skin is apparently prevented altogether. Moreover the low vapor pressure of the tetraethyl lead and the relatively high vapor pressure of the gasoline result in a situation in which no measureable quantities of lead fumes are found in the vapors rising from ordinary gasoline. From my experience with the commercial product, and from our experimental work in this laboratory, I am convinced that it is not possible to develop lead poisoning as the result of contact with the liquid or vapor of leaded gasoline. If it were possible, I am sure we would have seen cases within the past thirteen years for we have been looking for them over that period of time.

In connection with the case which you mention, but on which you do not give details, I think it is worth while to point out to you that gasoline in itself is a toxic material. Gasoline vapors present in the atmosphere to the extent of one percent by volume produce acute symptoms and unconsciousness results from exposure to vapors very much in excess of this level. Thus short exposure to concentrations of two and two and a half percent will produce unconsciousness with a somewhat delayed post-anaesthetic stage in which there is a considerable amount of central nervous system intoxication, with tremor and other evidences of excitation which may alternate with a depressed nervous state. Recently some cases of chronic injury to the central nervous system have been reported in persons who have been unduly exposed to gasoline vapors. I am very skeptical of these observations and I am disposed to regard them as cases complicated by some other factor, since, in the main, cases of acute gasoline intoxication recover without sequelae. However

it may be that an occasional case manifests unusual sequellae.

Further as to the reason for your finding no literature on the inhalation of tetraethyl lead in gasoline, I can assure you that no cases of poisoning or injury have been reported in any of the medical literature since thus far no cases of this sort have ever been seen.

If there are any further questions which arise from the examination of the articles which I am sending you, I shall be glad to do my best to answer them.

Very truly yours,

RAK:is

Robert A. Kehce, M.D.