

August 13, 1937

Dr. T. Padureano
c/O Romano-Americana
Ploesti
Roumania

Dear Doctor Padureano:

Some days ago I received from Mr. Bevan a copy of your letter of July 7th addressed to Ethyl Export Corporation, in which you asked for certain information about the hazards associated with exposure to aviation benzine as distinguished from automobile benzine. For your information, I wish to call your attention to the fact that aviation benzine does not differ materially in its chemical composition from automobile benzine. To be sure the specifications are somewhat different but one is dealing here with a mixture of hydro-carbons which are not materially different from those which occur in automobile benzine. No specific studies have been made on aviation benzine. Some observations have been made on persons exposed to aviation benzine containing lead concentrations up to as high as 6 cc of tetraethyl lead per American gallon. These results have not been published because they do not differ in any wise from results obtained in the study of persons exposed to automobile benzine. However a very considerable experience has shown that there are no undue hazards associated with the handling of aviation benzine even though it may contain from 4 cc to 6 cc of tetraethyl lead per American gallon. From animal experimentation these results are predictable, and if you will refer to one of the articles which I sent you on "The Behavior of Tetraethyl Lead in the Animal Organism", you will find experimental data on animals which show that tetraethyl lead is not absorbed in appreciable quantity out of benzine, if the concentration is not in excess of one part per thousand. This concentration represents approximately 4 cc of tetraethyl lead per American gallon and is, therefore, well beyond the limits of the lead concentration shown by the products supplied by Romano-Americana.

This evidence, I feel, will serve to answer your question and will also show that the statement in the article by Major Doctor Od. Apostol is based on adequate observation. The symptoms listed in

Dr. Padureano

your letter which Dr. Apostol attributes to the effects of lead absorption, are essentially those of either benzine intoxication or carbon monoxide intoxication, or a combination of the two. I am very certain that the doctor has not seen persons with lead line as a consequence of this type of exposure. I am also quite certain that No.6 in the list of symptoms given by you, can be produced by any type of benzine. Apparently the doctor does not realize that benzine has an irritating effect upon the skin, producing blisters and a type of dermatitis in some persons which does not heal if exposure is continued.

Naturally I can not be sure of the concentrations of tetraethyl lead which are used in aviation benzine in all parts of the world. Military men in some instances have had their own ideas on the proper concentrations to use, and I have known of instances in which benzine containing as much as 20 cc of lead per gallon have been used for experimental purposes. We have always discouraged such practices and we have attempted to keep concentrated Fluid out of the hands of irresponsible persons so that such concentrated fuels would not be made. As you know, we have made every attempt to see that benzine is mixed with tetraethyl lead only at refineries and at approved mixing plants. I am quite sure that commercial aviation benzines as provided by the companies that manufacture leaded benzine present no greater hazard to handlers than is found in the case of automobile benzines.

I trust this will answer your questions and that you will have no difficulty finding the reference in the article which I mentioned. If there are any further difficulties over this matter, I would appreciate your keeping me informed about them.

Cordially yours,

RAK:is

Robert A. Kehoe, M.D.

cc Mr. Bevan

KE 0013364