

December 6, 1966

Umberto Saffiotti, M.D.
Division of Oncology
Institute for Medical Research
The Chicago Medical School
2020 West Ogden Avenue
Chicago, Illinois 60612

Dear Doctor Saffiotti:

I am listing for you, on a separate sheet, a series of references to literature pertinent to the "toxicity" of tetraethyllead and tetramethyllead. I put "toxicity" in quotation marks only because there has been a considerable amount of confusion in the literature and in professional minds as to the practical meaning of the term - whether it relates to the dangers associated with exposure to these materials or to the effects of the quantity (or quantities) of the compound actually absorbed into the tissues under specified conditions. For example, I was ridiculed years ago, and regarded critically recently for certain early statements I made about tetraethyllead, that "Its toxicity varies little from that of other and water soluble lead compounds" and " is a function of the lead (content) of the compound. This statement is true in spite of the pronouncements often made loosely that it is one of the most toxic substances in present use. It is indeed a dangerous material because of certain of its physical properties, as well as because it is handled in large quantities under conditions which (if not controlled) enable it to be absorbed.

Unfortunately, most of the early publications concerning this compound are not available as reprints, so that I can only provide references. Not much of our time and effort was devoted to study of toxicity, per se, since our early problem was to determine how the compound was absorbed and distributed in the body, so as to prevent its absorption, on the one hand, and to interpret the background of the intoxication as it had been observed or might be seen subsequently. Some of the more recent work, both in this and other laboratories has concerned itself with the metabolic behavior of certain of the alkyl compounds, including tetraethyllead. There is, of course, much more to be done, when the opportunity is afforded for doing so.

Most of our further work over the years has concerned itself with the investigation of the practical hazards associated with various occupations within and contiguous to this industry, together with the opportunities presented, on a very nearly world-wide basis, for contact with the decomposition and combustion products of tetraethyllead wherever they may occur in the petroleum, transportation, automotive, and aeronautical industries. To these problems, were added, from the earliest time, that concerned with the potential hazard of the wide distribution of lead from the exhausts of the internal combustion engines of motor cars and aeroplanes that make use of leaded gasoline as fuel.

I speak of these matters so as to inform you of the nature of the available information. Much of that concerned with the practical hazards of the industries

N 6273

concerned exists in the form of reports - too large for the usual avenues of scientific publication - many of which are available and can be supplied to you if they are of interest.

I trust that this information will be helpful but if I can assist you further do not hesitate to let me know.

Cordially yours,

Robert A. Kehoe, M.D.
Professor Emeritus of
Occupational Medicine

RAK:wp

P.S. The list of references is enclosed, but certain reprints are being sent under separate cover. Among these is a copy of the Harben Lectures which I gave in London in 1960. These have little or no direct bearing on the information which you requested, but I think you will find them to be of interest.

RAK

Ferranti, F.: Occupational Tetraethyl Lead Poisoning. Riv. Clin. Med. 1937, 38, 149.

Cassells, D.A.K. and Dodds, E.C.: Tetraethyl Lead Poisoning. Brit. Med. J. 1946, 2, 681.

Walker, G. and Boyd, P.R.: Tetraethyl Lead Poisoning. The Lancet, 1952, 2, 467.

Cremer, J. E. and Callaway, S.: Further Studies on the Toxicity of Some Tetra and Trialkyl Lead Compounds. Brit. J. industr. Med. 1961, 18, 277.

Cremer, J.: The Toxicity of Tetraethyl Lead and Related Alkyl Metallic Compounds. Ann. Occup. Hyg. 1961, 3, 226.

(List of Publications from the Laboratory was also sent)