there appears to be no hygienic reason against its use. The importance of the factor of time, however, in relation to the potential hazard of lead absorption, certain appropriate observations, comparable in principle to those which have characterized this investigation, will be required from time to time in the course of the commercial distribution of gasoline containing tetramethyllead to establish the significance, if any, of the incremental increase in the lead exposure of certain groups of persons who handle gasoline. -- APCA Abstr.

439 Potential Hazard of Exposure to Lead. II. Further Investigations in the Preparation, Handling, and Use of Gasoline Containing Tetramethyllead. R. A. Kehoe, et al. Arch. Environmental Health 6, 255-272 (Feb. 1963).

A survey of the principal points within the area at which gasoline containing tetramethyllead was to be prepared for the market and distributed by an oil company resulted in the selection of sites at which analyses of the air would be carried out systematically. The frequencies of occurrence of the various ranges of the concentration of organolead in the air at several locations in two refineries, the mean levels of concentration, and the deviations are shown. The results of the investigation of the potential hazard of the absorption of lead, in the industrial and commercial activities involved in the handling of an antiknock compound containing tetramethyllead in a petroleum refinery, and with the distribution of gasoline containing this compound of lead have been summarized. The results demonstrate that the exposure of the groups of workmen to tetramethyllead, under the prevalent environmental conditions of their occupations are negligible. -- APCA Abstr.

440 Inhalation of Tetramethyllead and Tetraethyllead. R. K. Davis, et al. Arch. Environmental Health 6, 473-479 (Apr. 1963).

Both tetramethyllead and tetraethyllead have proved to be more toxic for dogs than for rats; tetraethyllead was somewhat more toxic for rats than tetramethyllead, although the difference was not great, while tetramethyllead was considerably more toxic for dogs than was tetraethyllead. Comparison of data obtained by the analysis of the urine indicates that higher concentrations of lead were found in the urine of both species when tetraethyllead was inhaled and that higher concentrations of lead were found in the urine of rats than in that of dogs, regardless of the compound. Thus, no consistent correlation is found between the concentration of lead in the urine and the time of onset or severity of the involvement of the central nervous system of the animals. It is possible that significant correlations may develop out of the use of more refined analytical procedures, capable of distinguishing quantitatively between inorganic lead and various forms of organic lead in the urine. Preliminary experiments in this direction have indicated that almost half of the lead excreted by rats subjected to the inhalation of tetraethyllead is in organic form, un-ionized, or monovalent. The differences in the toxicity of the different degradation products of tetraethyllead, to be shown in a later paper, emphasize the importance of this approach. The concentrations of lead in the kidney and in the urine of rats that had inhaled tetramethyllead, as compared to those in the corresponding speciments from rats that had inhaled tetraethyllead, suggest that the metabolites of tetramethyllead may accumulate or be retained in the kidney to a degree that is reminiscent of the behavior of certain compounds of mercury. -- Cond. from authors' summary

441 The Acute Effects of Lead Alkyls. F. Springman, Eula Bingham, and K. L. Stemmer. Arch. Environmental Health 6, 469-472 (Apr. 1963).

The purpose of this investigation was to make comparisons of the effects exerted upon animals by the various orally administered dosages of each of the compounds, tetramethyllead, tetraethyllead, trimethyllead chloride, triethyllead chloride, and diethyllead dichloride. Triethyllead ion has recently been shown by Cremer and by Stevens, Feldhake, and Kehoe, to be a major metabolic product of tetraethyllead, and some evidence for the formation in the body of the trimethyllead ion from tetramethyllead has been presented recently by Cremer and Callaway. It is possible that the dimethyllead and diethyllead ions are also formed in vivo, but this has not been demonstrated. The observations here reported confirm those of earlier investigators who have described the signs of illness, observed the length of the survival of fatally poisoned animals, and recorded the lethal dosages of tetramethyllead, tetraethyllead, and the organolead