

LEAD INDUSTRIES ASSOCIATION

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A Brief History
of the

RED LEAD PAINT - POTABLE WATER TANK CONTROVERSY
1949 - 1957

Early in 1949, an opinion rendered by a scientist of the U. S. Public Health Service, advising against the use of lead paints in coating the interiors of potable water tanks, led the Army Engineers to prohibit such use of red lead paints in Army installations. This obviously eliminated the Type IV red lead phenolic varnish paint, then relatively new and the standard Federal Specification, as well as the Type I red lead linseed oil paint, from all such use by the Army.

Inquiry by the Lead Industries Association brought out the fact that virtually all potable water tanks in the U.S.A. had been interiorly coated with red lead paints, mainly the Type I, for a period of some fifty years, and with no known adverse effect on the public health. The situation thus presented was placed before the eight members of the Committee on Lead Poisoning of the American Public Health Association, all recognized authorities on this subject, and all of them agreed that any such prohibition of the use of red lead paints, without supporting scientific investigation, was quite without justification.

Despite this evidence and opinion, the scientist above referred to flatly refused to modify the adverse opinion which he had rendered, or, initially, to interest himself in any such investigation as the members of the A.P.H.A. committee deemed essential to any modification of the existing standard.

Faced with this attitude, the Lead Industries Association undertook to support an investigation and arranged with Dr. H. B. Elkins, Chief of Laboratory of the Division of Occupational Hygiene of the Massachusetts Department of Labor and Industries and one of the country's leading scientists in this field, to conduct it. Because the Type IV paint was the sole point at issue, and since field, rather than laboratory tests, could furnish the only conclusive data, supplies of that paint were furnished for the interior coating of two potable water tanks at Massachusetts state institutions and tests of the influent and effluent waters of these tanks have been conducted from the time of painting to the present, over periods of seven and five years, respectively. More limited studies have been made of the waters of five other tanks, two in Massachusetts, coated with a synthetic base, lead chromate pigment paint, and three in New Jersey, coated with the Type IV paint. To the extent found practicable, it is intended to continue Dr. Elkins' study for the life of the paints.

Following a report of Dr. Elkins' findings in his first sixteen tests, the Army Engineers withdrew in 1951 their prohibition relative to the Type IV paint. That this reversal was amply justified is shown by the results of the 81 samplings (62 tank or effluent, 17 influent, 2 others) recorded in Dr. Elkins' interim report dated October 21, 1957, from which he concluded that the possibility of a lead hazard from this paint "would appear to be so remote as to preclude any need for serious consideration." It should here be noted that Massachusetts waters have been found to be more aggressive to lead than are those of most other U.S. areas.



Subsequently to the commencement of Dr. Elkins' field tests, and apparently with the purpose of producing vindication of his adverse opinion, the Public Health Service scientist initiated a series of laboratory beaker tests, subjecting the Type I and Type IV paints, as well as a vinyl base red lead paint and red lead in powdered form, to immersion in waters of varying pH, with additions of various chemicals. Again there was initial refusal to include any field work, although measurements of lead in the effluent waters from several nonpotable storage tanks were ultimately made. The main point brought out by the unpublished report of this investigation was that the solubility of the Type I paint is considerably greater, under laboratory conditions, than that of the two other paints tested. Because (1) these were laboratory beaker tests only, not even simulating field conditions, (2) the A.W.W.A. requirement that the Type I paint be modified by addition of 2 lbs. per gallon of dry litharge was apparently ignored, (3) the field tests were on tanks used for dead storage of water for sprinkler and similar purposes, rather than on potable water tanks, (4) there was little investigation of the nature or condition of the paints in these tanks, and (5) nothing appears to have been known of the lead content of the waters as received into these containers, the findings of this report cannot be considered to have proved anything with regard to the questions of the suitability of the Type I and Type IV paints for the uses at issue.

It had been our understanding, under an agreement with the officer then in charge of the agency of the Public Health Service concerned, that further consideration of these questions would be allowed to await completion of the work by Dr. Elkins, at which time his report and that of the U.S.P.H.S. study would be published simultaneously or in combination. Quite recently, however, apparently as the result of commercially motivated activities of a paint salesman, this use of red lead paints has again been called into question. Statements of dubious validity have been made and, in an effort to enable common sense to prevail, a conference was held in Pittsburgh on October 30th last, at which Mr. H. E. Doyle, Acting Chief, Occupational Health Program, U.S.P.H.S., Washington, Mr. J. O. Jackson, Chairman, Elevated Tank and Standpipe Committee, A.W.W.A., Mr. H. E. Jordan, Secretary, A.W.W.A., Mr. J. D. Keane, Director of Research, Steel Structures Painting Council, Dr. H. E. Stokinger, Chief, Toxicological Services, U.S.P.H.S., Cincinnati, Mr. R. L. Ziegfeld, Secretary-Treasurer, L.I.A., and the undersigned were present.

It was agreed at this conference that an ad hoc committee of unbiased and qualified experts would be asked to consider the Elkins and U.S.P.H.S. reports and to make recommendations as to such further investigation as may be needed to settle the questions of the suitability of the Type I and Type IV red lead paints for interior coating of potable water tanks. Mr. Jackson and Mr. Keane offered to submit their views on this matter. This they have done, and Dr. Elkins has in turn commented on their views. As this is written, it appears that the ad hoc committee will be composed of Dr. R. A. Kahoe, Director, Kettering Laboratory, University of Cincinnati, as Chairman, Dr. E. L. Belknap, industrial medical consultant, Milwaukee, Dr. A. P. Black, Professor of Agricultural Chemistry, University of Florida, and Mr. P. D. Kenney, Chairman, Water Purification Division, A.W.W.A., Kansas City, Mo., and that it will meet in Cincinnati on December 15th.

Nov. 26, 1957

Manfred Bowditch