

July 18, 1932

PAINTING WATER TANKS

Probably the most durable coating to use on the interior of a water tank would be a bituminous enamel and primer of the type mentioned beginning on p. 3 of the inclosed Letter Circular 42. However, attention should be called to the fact that if the water is chlorinated, a bituminous enamel containing coal tar might possibly give a disagreeable taste to the water. We have also been unofficially informed that the Navy Department, which formerly used this type of material on drinking water tanks, has had considerable trouble with the adherence of such material. According to the latest edition of their booklet entitled "Instructions for Painting and Cementing the Vessels of the United States Navy", it appears that the Navy Department is using two coats of a special metallic brown paint for this purpose. A copy of this booklet can be obtained from the Bureau of Construction and Repair, Navy Department, Washington, D.C., and from the same office, information as to the Navy's experience with the bituminous-enamel type of coating.

In regard to using red lead on the inside of a drinking water tank, the following quotations from pp. 19 and 49 respectively of the third edition of the book entitled "Red Lead and How to Use It in Paint" by A. H. Sabin are of interest:

"The engineers of the Metropolitan Board of Water and Sewers in Massachusetts apply to the interior of standpipes and conduits a paint made to contain 22.6 pounds red lead of 98 per cent Pb_3O_4 in a gallon, the oil being a special boiled linseed oil; to this is added about 2.4 pounds powdered litharge, the purpose being to make a paint harder than pure red lead because it is to be constantly under water, and water tends to soften any paint or varnish film. That is also the reason for using boiled oil. They get much better results from this than by using a red lead containing the corresponding amount of litharge; partly because the paint has better working qualities, and also for some unexplained reason the litharge has a different and better effect when used in this way."

"It has been said that red-lead paint is used on interiors of water tanks, standpipes and conduits. Twenty or thirty years ago it was thought that this might contaminate the water with lead salts, which would occasion lead-poisoning; but consideration of the fact that red-lead paint is almost universally used on the outside of ships suggested the

conclusion that as the paint does not decompose, but remains to give good service for years, it must be that the lead does not go into solution, and therefore is perfectly safe. At first attempts were made to evade the question; to get the good qualities the paint was made half red lead and half some other material, as graphite, and the red lead was reduced still more in the finishing coat. Probably this was also done to avoid prejudice, for there was much loose talk about lead-poisoning from lead water pipes; but in later years this has been so completely disproved that the cities of New York and Boston and many more will not allow any but lead pipes to be laid between the street mains and the houses; and now the most eminent sanitary engineers, such as those of the Massachusetts state organization referred to, are using pure red lead for all three coats on such work. No lead is found in the water, and the paint is quite satisfactory."

While no lead was found in the water under the conditions encountered by the Massachusetts authorities quoted by Sabin, other conditions might give different results.

Unless adequate ventilation is provided there will be serious danger to workmen in applying any coating to the interior of a tank.

For painting the outside of a water tank, as for any other piece of structural steel, we believe there is nothing better than to thoroughly clean the metal and apply at least two and preferably three coats of a red lead-linseed oil paint that weighs not less than 25 lbs. to the gallon. Ample time should be allowed for drying between coats. This red lead paint should then be covered by a durable paint for outside exposure. If the color of iron oxide-linseed oil paint is satisfactory, it would be a very good material to use. Also, if the color of an aluminum paint is desired, a paint made of about 2 lbs. of polished aluminum powder to 1 gallon of suitable varnish for mixing with aluminum paint would be a very good color coat. The Federal Specifications Board has in preparation specifications for "Aluminum Powder for Paint" and "Varnish; Mixing, for Aluminum Paint". When issued these specifications can be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C.

