

Lead Industries Association

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February 12, 1949

Robert A. Kehoe, M. D., Director
Kettering Lab. of Applied Physiology
University of Cincinnati
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Eden Avenue
Cincinnati 19, Ohio

Dear Bob:

Enclosed are copies of the first, tenth and eleventh pages of the second draft of Section IV (Part 5) of the Federal Standard Stock Catalog, June 17, 1948, in which you will note that in paragraph I-1c, page 10, "Type IV" paint is specified for use on water storage tanks. The formula of this paint is given in the final column of the table on page 11. Also enclosed is a copy of Bulletin 7H.2-T of the American Water Works Association, October, 1948, in which the use of this same paint is specified in paragraph 2C-3.2.1., page 1113, for painting all interior surfaces of steel water storage tanks.

It is my understanding that the first of these two documents has been circulated among the various departments of the Federal Government concerned, that a proposal that tanks used for potable water supplies be excepted from the specification has passed from a non-medical Army source to Mr. E. F. Hickson, chairman of the Federal Specifications Board of the Bureau of Standards, and that this proposal will come before Mr. Hickson's board for action at a meeting to be held in Washington next Thursday, February 17th.

KE 0014761



Robert A. Kehoe, M. D.

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February 12, 1949

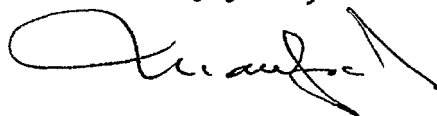
We have ascertained from Mr. Louis R. Howson, chairman of the Joint Committee on Recommended Practices of the American Water Works Association, New England Water Works Association and American Welding Society, that red lead paints have been used for painting the interiors of practically all steel water storage tanks in this country for 40 or 50 years. Mr. Howson knows of no trouble resulting from this practice, even with the soft waters which may adversely affect lead pipes.

It is my personal opinion that data acquired from sound scientific experiments are the only proper basis for either recommending or condemning such use of lead paints. Since the evidence of long usage seems to indicate that this practice involves no toxic hazards of any moment, and in view of the fact that the relatively new "Type IV" paint is far less water-soluble than the lead paints previously so used, I cannot see that reversal of policy is called for unless proved scientifically to be warranted. As no such proof, pro or con, appears as yet to have been sought, it is our purpose to bring about the initiation of a thorough technical investigation of the question as immediately as possible, and let the chips fall where they may.

In the meantime, in order to forestall any ill-considered action adverse to the use of a paint conceded to be physically superior to any other for this purpose, I am writing to you as chairman of the A.P.H.A. Committee on Lead Poisoning, to ask that, if you approve the procedure proposed in the preceding paragraph, you write me to that effect.

I am writing similarly to the other members of the committee. Whatever your opinion, receipt of word from you by Tuesday or Wednesday of next week will be much appreciated.

Sincerely yours,



enc.
mb/sd

P.S.: Sorry to ask this in such a hurry - The whole matter has come before me quite suddenly -

KE 0014762

(Second Draft)

TT-P-86a

June 17, 1948

Superseding

Fed. Spec. TT-P-86

September 9, 1939

Note: This specification, prepared by the Technical Committee on Paint, Varnish, Lacquer, and Related Materials, has not been approved and is subject to further revision.

FEDERAL STANDARD STOCK CATALOG

Section IV (Part 5)

PROPOSED REVISION OF FEDERAL SPECIFICATION

FOR

PAINT; RED-LEAD-BASE, READY-MIXED

(Approval paragraph to be inserted.)

A. APPLICABLE SPECIFICATIONS

A-1. The following Federal Specifications, of the issue in effect on date of invitation for bids, shall form a part of this specification:

- TT-D- - - Driers, Naphthenate, Liquid, Concentrated
- TT-O-369 - Oil; Linseed, Raw (For Use in Organic Coatings)
- TT-P-141 - Paint, Varnish, Lacquer, and Related Materials;
General Specification for/Sampling and Testing
Inspection,
- TT-R-191 - Red Lead; Dry and Paste-In-Oil
- TT-R-266 - Resin, Alkyd; Solutions
- TT-T-291 - Thinner; Paint, Volatile Mineral Spirits
(Petroleum Spirits)

B. TYPES

B-1. Ready-mixed red lead base paint shall be furnished in the following types, as specified in the invitation for bids, contract or purchase order (see par. I-1):

- Type I - Red lead-linseed oil paint
- Type II - Red lead mixed pigment-alkyd varnish-linseed oil paint
- Type III - Red lead-alkyd varnish paint
- Type IV - Red lead mixed pigment-phenolic varnish paint

C. MATERIAL

C-1. See Section E.

D. GENERAL REQUIREMENTS

D-1. See Section E.

I-1a. Type I and Type II paints are intended for use on bridges, similar structural steel and other ferrous metal surfaces. They are suitable for priming and body coats, either in the shop or field, where good resistance to the corrosive effects of usual atmospheric environments is required. Type I paint may be used wherever painting schedules do not demand recoating in less than 36 hours. The vehicle solids, being all linseed oil, offer the best opportunity to wet the metal surface painted and therefore to obtain an intimate bond of the paint with the surface despite the presence of small amounts of corrosion products found impractical to remove. Type II paint is designed for use where painting schedules require handling and recoating in 16 hours. The presence of the specified amount of free linseed oil in this type paint is desirable for the purpose of obtaining intimate bonding with the metal surface due to the wetting characteristics of the oil.

I-1b. Type III paint is intended for use in painting thoroughly clean iron and steel surfaces and for touch-up work where drying within a 6 hour period is desired. It is intended for use on smooth steel particularly, as an industrial primer for priming articles fabricated at the factory, such as railroad cars, window sash, air-conditioning conduits, etc. It may be used as a general maintenance primer for touch-up work on thoroughly cleaned steel where rapid drying is essential and where the application of two coats within a day is desired. It is essential that paints of this type be applied to exceptionally clean surfaces, since due to their fast drying properties and reduced oil content, they do not have the surface wetting properties which characterize paints containing free linseed oil. Thus, because structural steel (bridges, tanks, etc.) is rarely cleaned free of corrosion products, this paint is not generally intended for such use, although with due consideration to surface preparation it can be used for spot priming. ~~Types I, II and III are not to be used for~~ ^{so}
~~XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX~~

I-1c. Type IV paint is intended for use as a primer on iron and steel surfaces particularly, those subjected to severe humid conditions or fresh water immersion. In addition to its excellent water impermeability, the paint film exhibits good resistance to acid and alkaline environments. Water storage tanks, structural work on dams, structural metal and equipment in bottling plants, laundries and mines are typical of the steel surfaces for which this paint is particularly effective as a protective coating. The same precautionary steps should be taken to insure a clean surface for application as required for the Type III paint.

I-2. Samples of delivered paint of Types I, II and III may be taken in the regular manner and submitted for test. In order to determine compliance of Type IV paint with the specification, however, it will be necessary for the purchaser to submit to the testing laboratory samples of the resin and the varnish used in the manufacture of the paint in addition to a sample of the finished paint. The purchaser's attention is also directed to par. E-5k which is an optional 6-month storage stability requirement.

I-3. Typical formulas (with all percentages by weight) for the four types of paint meeting this specification are as follows:

V

	Type I	Type II	Type III	Type IV
Red lead (Fed.Spec. TT-R-191a, Type I, Grade C)	77.53	43.16	67.10	55.97
Red iron oxide Pigment (1) (85% Fe ₂ O ₃)	---	10.62	---	---
Magnesium silicate (Fed.Spec. TT-M-90)	---	9.76	---	4.35
Mica (Navy Spec. 52M3a, Types I or II)	---	2.66	---	---
Diatomaceous silica (Maritime Commission Spec. 52-MC-522, Type I)	---	---	---	5.27
Aluminum stearate (Navy Spec. 52A12a	0.23	0.20	0.20	0.26
Raw linseed oil (Fed.Spec. TT-O-369) (2)	10.90	9.44	---	---
Pale heat-bodied linseed oil (2) (Navy Spec. 52-O-20)	3.78	---	---	---
Alkyd resin varnish (based on TT-R-266, Type III)	---	18.98	27.50	---
Phenolic varnish (3)	---	---	---	25.34
Mineral spirits (Fed.Spec. TT-T-291a, Grade 1)	6.45	4.84	---	---
Aromatic petroleum spirits (TT-T- -)	---	---	4.71	7.62
Dipentene (TT-D-376)	---	---	---	0.94
Antioxidants and wetting aids	---	---	0.39	0.13
Lead naphthenate (24% Pb) (TT-D- -)	---	0.24	---	0.08
Cobalt naphthenate (6% Co) (TT-D- -)	---	0.10	0.10	0.02
Manganese naphthenate (6% Mn) (TT-D- -)	---	---	---	0.02
Liquid drier (TT-D-651a, Type I)	1.11	---	---	---
Pigment volume (PV)	36	38	38	41
Weight per gallon (lbs)	24	17	19	17

(1) A siliceous type of red iron oxide containing not less than 85 percent Fe₂O₃.

(2) Manufacturers of Type I paint are cautioned to use a linseed-oil vehicle having low acid value (not over 8 based on total solids). An important point in this connection is that the heat-bodied oil used in the vehicle should be bodied at a low temperature.