
Standard Specification for

Aluminum Paint

AASHTO Designation: M 69-70 (2004)



1. SCOPE

- 1.1. This specification covers two types of aluminum paint primarily intended for use on steel structures. The purchaser shall designate the type desired.
- 1.2. The values stated in SI units are to be regarded as the standard.

2. REFERENCED DOCUMENTS

- 2.1. *ASTM Standards:*
- D 12, Specification for Raw Tung Oil
 - D 212, Specification for Chrome Green Pigment
 - D 261, Specification for Iron Blue Pigment
 - D 962, Specification for Aluminum Powder and Paste Pigments for Paints
- 2.2. *Federal Standards:*
- Fed. Std. No. 141, Paint, Varnish, Lacquer, and Related Materials: Methods of Inspection, Sampling and Testing.
 - TT-A-468, Aluminum-Pigment, Powder and Paste, for Paint
 - TT-P-320, Pigment, Aluminum: Powder and Paste, for Paint
 - TT-P-38, Paint, Aluminum, Ready-Mixed
 - TT-R-271, Resin, Phenol-Formaldehyde (Para-Phenyl and Para-Butyl)
- 2.3. *Military Standard:*
- MIL-L-15180, Linseed Oil, Alkali-Refined¹

3. CLASSIFICATION

- 3.1. Type I paint is a two-component system consisting of aluminum paste and aluminum mixing varnish that are combined as specified into a paint just prior to use.
- 3.2. Type II paint is a ready-mixed aluminum paint.

4. ALUMINUM PIGMENT PASTE FOR TYPE I PAINT

- 4.1. *General Requirements*—The aluminum pigment paste shall consist of commercially pure aluminum in the form of fine, polished flakes, and a suitable fatty lubricant combined with a volatile thinner. It shall contain no fillers or adulterants such as mica. (See Note 1.)

Note 1—The technical requirements for aluminum pigment paste are the same as ASTM D 962, Type 2 (leafing). Class B (Medium).

4.2. *Detailed Requirements:*

4.2.1. The aluminum pigment paste shall conform to the requirements given in Table 1.

Table 1—Aluminum Pigment Paste Requirements

	Mass, percent	
	Minimum	Maximum
Non-volatile matter at 105° to 110°C (221° to 230°F)	65	—
Easily extracted fatty and oil matter (polishing lubricant)	—	3.0
Total impurities other than fatty and oily matter	—	0.7
Coarse particles retained on an 0.045-mm (No. 325) sieve	—	1.0

4.2.2. *Leafing*—Leafing shall be not less than 50 percent.

4.2.3. *Condition in Container*—The aluminum pigment paste, as received, shall be in a homogeneous condition, and shall be substantially free from separation of pigment from liquid, and shall show no hardening or caking in the container.

4.2.4. *Stability*—The aluminum pigment paste after heating at 45°C for 24 hours in the presence of moisture, shall pass the stability test given in Federal Specification TT-P-320. Paste, which within six months storage in unopened original packages after shipment is found to be unfit for use, will be rejected.

5. ALUMINUM MIXING VARNISH FOR TYPE I PAINT

5.1. *General Requirements*—The aluminum mixing varnish shall be onoleoresinous water-resisting spar varnish meeting the requirements hereinafter specified. The oils used in formulating the varnish shall be composed of not less than 75 mass percent of tung oil and the varnish shall contain no lime-hardened rosin. The tung oil shall comply with the requirements of ASTM D 12.

5.2. *Detailed Requirements*—The aluminum mixing varnish shall conform to the following requirements:

5.2.1. *Appearance*—Clear and transparent.

5.2.2. *Color*—Not darker than a solution of 3 g of reagent grade potassium dichromate in 100 mL of pure sulfuric acid, specific gravity 1.84.

5.2.3. *Non-Volatile Matter*—Not less than 50.0 mass percent.

5.2.4. *Set to Touch*—In not less than two hours and not more than six hours.

5.2.5. *Dry Hard and Tough*—In not more than 24 hours.