

SSPC: The Society for Protective Coatings

PAINT SPECIFICATION NO. 101

Aluminum Alkyd Paint

Leafing (Type I) and Non-Leafing (Type II)

1. Scope

1.1 This specification covers two types of aluminum alkyd paint for steel. Both have good weathering in rural, industrial, and marine atmospheres. They are also excellent paints for interiors. These paints are not intended for use over bare steel.

1.2 These paints are suitable for exposures in Environmental Zones 1A (interior, normally dry) and 1B (exterior, normally dry) and are intended for brush or spray application over rust inhibitive priming paints, over themselves, or over other oleoresinous paints. Each paint is suitable as an intermediate or topcoat and is to be applied in accordance with SSPC PA 1, "Shop, Field, and Maintenance Painting of Steel."

1.3 Two types are available under this specification. Type I covers a leafing aluminum paint intended as a finish paint and Type II covers a non-leafing aluminum paint intended as an intermediate coat to provide contrast with the Type I finish coat.

2. Description

2.1 Type I aluminum alkyd paint consists of a two-component container with leafing-type aluminum paste separated from a long oil alkyd varnish vehicle. The aluminum paste is mixed with the alkyd varnish prior to use. Type II employs non-leafing aluminum, and is usually furnished in a single compartment container. As an intermediate coat it provides a contrast with the Type I finish coat without tinting. Details of the composition are given in Table 1.

2.2 This primer contains approximately 40% by volume of nonvolatile film-forming solids (pigment and binder). The theoretical spreading rate for a 1.5 mil (38 micrometers) dry film thickness is 430 square feet/U.S. gallon (10.5 square meters/liter). Actual spreading rates can be significantly lower.

3. Referenced Standards

3.1 The latest issue, revision, or amendment of the referenced standards in effect on the date of invitation to bid shall govern unless otherwise specified.

3.2 If there is a conflict between the requirements of any of the cited reference standards and this specification, the requirements of this specification shall prevail.

3.3 SSPC STANDARD:

SSPC Guide 13	Guide for the Identification and Use of Industrial Coating Material in Computerized Product Databases
PA 1	Shop, Field, and Maintenance Painting of Steel

3.4 ASTM INTERNATIONAL STANDARDS:

D 154	Guide for Testing Varnishes
D 235	Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)
D 480	Test Methods for Sampling and Testing of Flaked Aluminum Powders and Pastes
D 600	Specification for Liquid Paint Driers
D 962	Specification for Aluminum Powder and Paste Pigments for Paints
D 1296	Test Method for Odor of Volatile Solvents and Diluents
D 1475	Test Method for Density of Liquid Coatings, Inks, and Related Products
D 1542	(Withdrawn) Test Method for Qualitative Detection of Rosin in Varnishes
D 1545	Test Method for Viscosity of Transparent Liquids by Bubble Time Method
D 2369	Test Method for Volatile Content of Coatings
D 3278	Test Methods for Flash Point of Liquids by Small-Scale Closed-Cup Apparatus
D 3925	Practice for Sampling Liquid Paints and Related Pigmented Coatings

3.5 FEDERAL STANDARDS:

TT-R-266	Resin, Alkyd: Solutions
TT-T-291	(Canceled) Thinner, Paint, Mineral Spirits, Regular and Odorless (Refer to A-A-2904)

FED-STD-141 Paint, Varnish, Lacquer and Related Materials: Methods of Inspection, Sampling and Testing

Method 3011	Condition in Container
Method 3021	(Canceled) Skinning (Partially Filled Container)
Method 4053	Nonvolatile Vehicle Content
Method 4061	Drying Time

Method 4203	Reducibility and Dilution Stability
Method 4321	Brushing Properties
Method 4331	Spraying Properties
Method 4541	(Canceled) Working Properties and Appearance of Dried Film

3.6 AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) STANDARD:

Z129.1	Hazardous Industrial Chemicals— Precautionary Labeling
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4. Composition

4.1 Ingredients and proportions of the mixed paint shall be as specified in Table 1.

4.2 The paint based on the specified ingredients shall be uniform, stable in storage, and free from grit and coarse particles. No rosin or rosin derivatives may be used. Beneficial additives such as anti-skinning agents, suspending agents, or wetting aids may be added.

4.3 The alkyd varnish shall conform to the composition (analysis) requirements of Table 2.

5. Properties

5.1 The alkyd varnish shall meet the requirements of Table 3 and Sections 5.2 through 5.17.

5.2 ODOR: The odor shall be normal for the materials permitted (ASTM D 1296).

5.3 COLOR: The color shall be less than “11” on the Gardner 1933 scale.

5.4 COMPATIBILITY: There shall be no evidence of incompatibility of any of the ingredients of the paint when two volumes of the mixed paint are slowly mixed with one volume of mineral spirits (FED-STD-141, Method 4203).

5.5 WORKING PROPERTIES: The paint shall be easily applied by all three methods when tested in accordance with FED-STD-141, Methods 4321, 4331, and 4541. The paint shall show no streaking, running, or sagging after drying.

5.6 CONDITION IN CONTAINER: The ready-to-mix and ready-mixed paint shall show no gas evolution, thickening, curdling, gelling, or hard caking when tested as specified in FED-STD-141, Method 3011, after storage for six months from date of delivery, in a full, tightly covered container, at a temperature of 50-110°F (10 to 43°C).

5.7 SKINNING: There shall be no skinning in a threequarters filled closed container after 48 hours when tested in the standard manner specified in FED-STD-141, Method 3021.

5.8 APPEARANCE OF DRIED FILM: A dried film of the varnish shall be clear, smooth, and glossy.

5.9 FLEXIBILITY: A dried film (thickness 1.0 ± 0.2 mils, 25 ± 5 micrometers) of the varnish shall show no cracking when bent over a 1/8" mandrel after 17 hours air dry, plus 24 hours bake at 215-225°F (102-107°C).

5.10 WATER RESISTANCE: Dried films, prepared as in Section 5.9, shall resist boiling water for ten minutes, and shall

**TABLE 1
COMPOSITION OF MIXED PAINT**

CHARACTERISTICS	REQUIREMENTS		INGREDIENT STANDARDS	
	Min. Wt. %	Max. Wt. %	ASTM	FEDERAL
PIGMENT: (20.3 ± 0.5 wt. %)				
Aluminum Paste ¹	100	—	—	—
VEHICLE: (79 ± 0.5 wt. %)				
Alkyd Varnish Solids ²	50	—	—	TT-R-266, Type I Class A
Mineral Spirit Thinner	—	50	D 235	TT-T-291, Type I
Driers	—	—	D 600, Class B	—

¹ See Sections 5.12 through 5.17.

² See Tables 2 and 3 for analysis and properties of alkyd varnish.