

SSPC: The Society for Protective Coatings

PAINT SPECIFICATION NO. 108

High-Build Thixotropic Leafing Aluminum Paint

1. Scope

1.1 This specification covers a high-build thixotropic leafing aluminum paint primarily intended for the topcoat in a two-coat high-build system, with a thixotropic rust inhibitive primer, or as a one-coat high-build repaint over spot priming.

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

2. Description

2.1 High-build thixotropic aluminum paint contains leafing aluminum pigment and a thixotropic long oil alkyd in a single package. Thixotropic paint appears to possess a high viscosity, which is altered because of a reversible gel structure when the paint is agitated. When the paint is stirred, sprayed, brushed, or rolled, the level of viscosity falls rapidly and the paint becomes liquefied. During application, the appearance is similar to other coatings. However, the liquid state will not remain for long. If undisturbed, the paint will re-gel within a short time. Details of the composition are given in Table 1.

2.2 This paint contains approximately 49% by volume of nonvolatile film-forming solids (pigment and binder). The theoretical spreading rate for a 3.0 mil (76 micrometers) dry film thickness is 260 square feet/U.S. gallon (6.4 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 STANDARDS:

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 185	Test Methods for Coarse Particles in Pigments, Pastes, and Paints
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TABLE 1
COMPOSITION OF PAINT

INGREDIENTS	REQUIREMENTS		INGREDIENT STANDARDS	
	Min. Wt. %	Max. Wt. %	ASTM	FEDERAL
PIGMENT: (26.2% min.) Aluminum Paste, 65% non-volatile	100	—	D 962, Type 2 Class B Class 2	—
VEHICLE: (73.8% max.) Thixotropic Alkyd Solids ¹	55.6	—	—	—
Mineral Spirit Thinner	—	44.5	D 235	—
Driers	—	—	D 600, Class B	—
Additives	—	—	—	—

¹ See Table 2 for analysis of the thixotropic alkyd resin.

- D 235** Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)
- D 562** Test Method for Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using a Stormer-type Viscometer
- D 600** Specification for Liquid Paint Driers
- D 962** Specification for Aluminum Powder and Paste Pigments for Paints
- D 1208** Test Methods for Common Properties of Certain Pigments by Hegman-type Gage
- D 1398** Test Method for Fatty Acid Content of Alkyd Resins and Alkyd Resin Solutions
- 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 1544** Test Method for Color of Transparent Liquids (Gardner Color Scale)
- D 1639** Test Method for Acid Value of Organic Coating Materials
- D 1640** Test Methods for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature
- 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:

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 4021** (Canceled) Pigment Content (Ordinary Centrifuge)
- Method 4053** Nonvolatile Vehicle Content
- Method 4061** Drying Time
- Method 4203** Reducibility and Dilution Stability
- Method 4321** Brushing Properties
- Method 4331** Spraying Properties
- Method 4494** (Canceled) Sag Test (Multinotch Blade)
- 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

4. Composition

4.1 Ingredients and proportions 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. Leafing aids or stabilizers are also permitted if they do not substantially alter the thixotropy of film properties.

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

4.4 The paint shall conform to the composition (analysis) requirements of Table 3.

5. Properties

5.1 The paint shall meet the requirements of Table 4 and Sections 5.2 through 5.8.

5.2 ODOR: Shall be normal for the materials permitted (ASTM D 1296).

5.3 COLOR: A dried film of the paint shall show good leafing as indicated by a bright aluminum surface.

5.4 COMPATIBILITY: There shall be no evidence of incompatibility of any of the ingredients of the paint when two volumes of the 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 paint shall show no thickening, gas evolution, curdling, gelling, or hard caking when tested as specified in FED-STD 141, Method 3011, after storage for 12 months from date of delivery, in a full, tightly covered container, at a temperature of 50-110°F (10-43°C).

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

5.8 FLEXIBILITY: Apply paint with a 1-1/2" (4 cm) brush to a 4" x 12" (10 cm x 30 cm) 0.032" (0.8 cm) thick cold-rolled steel panel with the panel horizontal. Apply paint quickly obtaining a wet film thickness of 7-10 mils (178- 204 micrometers) on as much of the panel as possible. Final brush stroke shall be