

SSPC: The Society for Protective Coatings

PAINT SPECIFICATION NO. 103

Black Phenolic Paint

1. Scope

1.1 This specification covers a quick drying black phenolic paint suitable as an intermediate or finish coat for steel. It has good weather resistance characteristics and good resistance to mild chemical exposure.

1.2 This paint is suitable for exposures in Environmental Zones 1A (interior, normally dry), 1B (exterior, normally dry), and is particularly suited for exposure in Environmental Zone 2A (frequently wet by fresh water), and is intended for brush or spray application over rust inhibitive priming paints, over itself, or over other oleoresinous paints.

1.3 This 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." Oil paints shall be dried hard before coating with phenolic paints otherwise lifting, wrinkling, or checking may occur. This paint will dry in about 12 hours and should be recoated within 24 hours for optimum intercoat adhesion.

2. Description

2.1 The fair weathering ability of this paint is the result of its phenolic varnish vehicle. Details of the composition are given in Table 1.

2.2 This paint contains approximately 57% by volume of nonvolatile film-forming solids (pigment and binder). The theoretical spreading rate for a 1.5 mils (38 micrometers) dry film thickness is 610 square feet/U.S. gallon (15.0 square meters/liter). Actual spreading rates can be significantly lower.

3. Reference Standards

3.1 The standards referenced in this specification are listed in Sections 3.4 through 3.7 and form a part of this specification.

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

3.3 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.

3.4 SSPC STANDARD:

PA 1 Shop, Field, and Maintenance Painting of Steel

3.5 AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARDS:

- D 12 Specification for Raw Tung Oil
- D 154 Guide for Testing Varnishes
- D 185 Test Methods for Coarse Particles in Pigments, Pastes, and Paints
- D 235 Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)
- D 331 Specification for 2-Ethoxyethanol
- D 561 Specification for Carbon Black Pigment for Paint
- D 562 Test Method for Consistency of Paints Using the Stormer Viscometer
- D 600 Specification for Liquid Paint Driers
- D 604 Specifications for Diatomaceous Silica Pigment
- D 801 Methods for Sampling and Testing Dipentene
- D 1208 Test Methods for Common Properties of Certain Pigments
- D 1210 Test Methods for Fineness of Dispersion of Pigment-Vehicle Systems
- D 1296 Test Method for Odor of Volatile Solvents and Diluents
- D 1475 Test Method for Density of Paint, Varnish, Lacquer, and Related Products
- D 1542 Test Method for Qualitative Detection of Rosin in Varnishes
- D 1544 Test Method for Color of Transparent Liquids (Gardner Color Scale)
- D 1545 Test Method for Viscosity of Transparent Liquids by Bubble Time Method
- D 1642 Test Methods for Elasticity or Toughness of Varnishes
- D 2369 Test Method for Volatile Content of Coatings
- D 2371 Test Method for Pigment Content of Solvent-Reducible Paints
- D 3278 Test Methods for Flash Point of Liquids by Setaflash Closed-Cup Apparatus
- D 3734 Specification for High-Flash Aromatic Naphthas
- D 3925 Practice for Sampling Liquid Paints and Related Pigmented Coatings

3.6 FEDERAL STANDARDS:

A-A-59106	Ethylene Glycol Monoethyl Ether, Technical
A-A-59107	Toluene, Technical
A-A-714	Linseed Oil, Alkali Refined
TT-N-97	Naphtha: Aromatic

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

Method 2012	Preparation of Tin Panels
Method 3011	Condition in Container
Method 3021	Skinning (Partially Filled Container)
Method 4021	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	Sag Test (Multinotch Blade)
Method 4541	Working Properties and Appearance of Dried Film

3.7 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.

4.3 The phenolic varnish portion of this paint shall conform to the composition requirements of Table 2.

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

5. Properties

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

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

5.3 COLOR: The color shall be 10 to 12 (ASTM D 1544).

5.4 ELASTICITY: Elasticity shall be 130% using the run kauri method (ASTM D 1642).

5.5 REACTIVITY: The phenolic varnish shall be nonreactive (ASTM D 154).

5.6 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.

5.7 WATER RESISTANCE: Tin panels prepared in accordance with FED-STD-141, Method 2012 shall be dipped in the phenolic varnish, drained, and allowed to dry 72 hours prior to immersion. Immersion shall be in distilled water at

**TABLE 1
COMPOSITION OF THE PAINT**

INGREDIENTS	REQUIRED		TYPICAL COMPOSITION		INGREDIENT STANDARDS	
	Min. Wt. %	Max. Wt. %	Wt.%	Vol.%	ASTM	Federal
PIGMENT: (12.5 ± 1 wt. %)						
Carbon Black	39	—	5.0	3.0	D 561	—
Diatomaceous Silica	—	61	7.5	3.8	D 604	—
VEHICLE: (87.5 ± 1 wt. %)						
Phenolic Varnish	82.9	—	72.4	75.3	—	—
Mineral Spirit Thinner	—	16.5	14.4	17.4	D 235	—
Driers	—	0.6	0.7	0.5	D 600, Class B	—
TOTALS			100.0	100.0		