

## SSPC: The Society for Protective Coatings

# PAINTING SYSTEM GUIDE 3.00

## Guide for Selecting Phenolic Painting Systems

There are no standard painting systems for phenolic paints; however, by using the following Guide a painting system may be selected by the specifier. Select the desired surface preparation, primer, intermediate(s), and topcoat from those listed herein and insert them into the standard SSPC Painting System format. In order to aid in the selection, short comments are given. For additional information consult the "Commentary on Painting Systems" and the referenced standards.

### 1. Scope

1.1 These specifications cover phenolic painting systems for blast cleaned steel.

1.2 These systems are suitable for use on parts or structures exposed in Environmental Zones 1A (interior, normally dry), 1 B (exterior, normally dry), and 2A (frequently wet by fresh water).

1.3 Phenolic paints will normally dry in about 12 hours. For optimum intercoat adhesion recoating should take place in less than 24 hours.

1.4 The color of the finish paint must be specified.

### 2. Description

2.1 This guide outlines the components of a complete phenolic painting system. A standard system consists of surface preparation by commercial blast cleaning or pickling, one coat of phenolic primer, one or two intermediate coat(s), and one finish coat.

### 3. Reference Standards

3.1 The standards referenced in this guide are listed in Sections 3.4 through 3.6 and form a part of the specification.

3.2 The latest issue, revision, or amendment of the reference 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 the specification, the requirements of the specification shall prevail.

### 3.4 SSPC STANDARDS AND JOINT STANDARDS:

<b>PA 1</b>	Shop, Field, and Maintenance Painting of Steel
<b>PA 2</b>	Measurement of Dry Coating Thickness With Magnetic Gages
<b>PA Guide 4</b>	Guide to Maintenance Repainting with Oil Base or Alkyd Painting Systems
<b>Paint 5</b>	Zinc Dust, Zinc Oxide, and Phenolic Varnish Paint
<b>Paint 103</b>	Black Phenolic Paint
<b>SP 5/NACE No. 1</b>	White Metal Blast Cleaning
<b>SP 6/NACE No. 3</b>	Commercial Blast Cleaning
<b>SP 8</b>	Pickling
<b>SP 10/NACE No. 2</b>	Near-White Blast Cleaning

### 3.5 AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARD:

<b>D 3925</b>	Practice for Sampling Liquid Paints and Related Pigmented Coatings
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### 3.6 U.S. COAST GUARD SPECIFICATIONS:

<b>CGS-52</b>	Paint: Aluminum Ready Mixed
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## 4. Surface Preparation

4.1 **SSPC-SP 6**, "Commercial Blast Cleaning," or **SSPC-SP 8**, "Pickling." If specified in the procurement documents, better degrees of blast cleaning shall be substituted (**SSPC-SP 5** or **10**).

COMMENT: Blast cleaning or pickling of the steel is the minimum recommended surface preparation for new work. Better degrees of blast cleaning (**SSPC-SP 5** or **10**) may be substituted. These methods are more thorough, and the better cleaning they provide may be more economical or may be required for moderately corrosive conditions and immersion service.

## 5. Paints

5.1 **PHENOLIC PRIMERS:** After cleaning, the steel shall be primed with one coat of paint conforming with one of the following specifications.

**5.1.1 SSPC-Paint 5, "Zinc Dust, Zinc Oxide, and Phenolic Varnish Paint":**

**COMMENT:** This paint is suitable for fresh water immersion and atmospheric exposure. If used in salt water immersion or in chemical or industrial environments, then an inert topcoat must be used.

**5.1.2 Proprietary Primer:**

**COMMENT:** A proprietary primer of proved performance capability may be substituted for the above if desired by the specifier. Specify the manufacturer, trade name, and product number of the desired proprietary paint. The paint manufacturer should furnish a typical label analysis.

**5.2 INTERMEDIATE COAT(S) FOR PHENOLIC PAINTING SYSTEMS:** The second coat of paint in a three-coat system may be the same as the first coat, but tinted with carbon black or lampblack paste in oil; or when stipulated, it may instead be the same as the finish coat (third coat), but tinted to contrast with the finish coat.

The primers listed above (particularly those of contrasting color) are suitable for intermediate coats. The primer or finish coat may also be used as the third coat of a four-coat system, provided they are tinted to provide contrast with the preceding and following coats. If an aluminum finish coat is used, the next to last coat may be the same as the last (finish) coat except that the corresponding non-leafing aluminum pigment shall be used in place of leafing aluminum.

Alternatively, a proprietary intermediate of proved performance capability may be substituted for any of the above if desired by the specifier. Specify the manufacturer, trade name, and product number to identify the proprietary primer.

**5.3 PHENOLIC FINISH COATS:** The paint shall conform with one of the following specifications.

**5.3.1 U.S. Coast Guard Specification CGS-52, "Paint Aluminum Ready Mixed":**

**COMMENT:** Highly resistant to water immersion, high humidity, condensation, general atmospheric exposure, and mild chemical environments, but should not be used in strong alkaline environments.

**5.3.2 SSPC-Paint 103, "Black Phenolic Paint":**

**COMMENT:** A carbon black and silica phenolic varnish paint which is suitable for water immersion, high humidity, condensation, industrial atmospheres, or chemical environments. Color makes it difficult to inspect inside closed tanks.

**5.3.3 Proprietary Finish Paint:**

**COMMENT:** A proprietary finish paint of proved performance capability may be substituted for any of the above if desired by the specifier. Specify the manufacturer, trade

name, product number, and color of the desired proprietary paint. The paint manufacturer should furnish a typical label analysis.

## 6. Paint Application

**6.1 PAINT APPLICATION:** Follow requirements of SSPC-PA 1, "Shop, Field, and Maintenance Painting of Steel":

**COMMENT:** Due to the hardness of many of the phenolic paints, intercoat adhesion difficulties can develop unless 24 hours or less drying time is allowed between coats.

**6.2 FIELD TOUCH-UP PAINTING:** In accordance with specification SSPC-PA 1, "Shop, Field, and Maintenance Painting of Steel" and in particular with the Section thereof entitled "Field Painting."

**6.3 MAINTENANCE PAINTING:** The provisions of SSPC-PA Guide 4, "Guide to Maintenance Repainting with Oil Base or Alkyd Painting Systems" should be followed.

**COMMENT:** This guide covers the steps necessary for repainting previously painted steel surfaces.

**6.4 NUMBER OF COATS:** A minimum of three.

**COMMENT:** Three coats are required for usual conditions. Two coats will result in an uneconomically thin paint film, poorer coverage of the blast profile pattern, and shorter life in normal atmospheric and immersion exposures. Four coats are recommended in more severe exposures.

**6.5 DRY FILM THICKNESS OF PAINT SYSTEM:** Not less than the following as measured in accordance with SSPC-PA 2, "Measurement of Dry Coating Thickness with Magnetic Gages": primer 50 micrometers (2.0 mils); intermediate 38 micrometers (1.5 mils); finish 25 micrometers (1.0 mil); for a three-coat system 115 micrometers (4.5 mils); for a four-coat painting system 150 micrometers (6.0 mils).

## 7. Inspection

**7.1** All work and materials supplied under this specification is subject to timely inspection by the purchaser or his authorized representative. The contractor shall correct such work or replace such material as is found defective under this specification. In case of dispute, unless otherwise specified, the arbitration or settlement procedure established in the procurement documents shall be followed. If no arbitration procedure is established, the procedure specified by the American Arbitration Association shall be used.

**7.2** Samples of paints under this painting system may be requested by the purchaser and shall be supplied upon request along with the manufacturer's name and identifica-

tion for the materials. Samples may be requested at the time the purchase order is placed, or may be taken from unopened containers at the job site.

**7.3** Unless otherwise specified, the sampling shall be in accordance with ASTM D 3925.

**7.4** The procurement documents should establish the responsibility for samples, testing, and any required affidavit certifying full compliance with the specification.

## **8. Disclaimer**

**8.1** While every precaution is taken to ensure that all information furnished in SSPC standards and specifica-

tions is as accurate, complete, and useful as possible, SSPC cannot assume responsibility nor incur any obligation resulting from the use of any materials, coatings, or methods specified herein, or of the specification or standard itself.

**8.2** This specification does not attempt to address problems concerning safety associated with its use. The user of this specification, as well as the user of all products or practices described herein, is responsible for instituting appropriate health and safety practices and for insuring compliance with all governmental regulations.