

SSPC: The Society for Protective Coatings

PAINTING SYSTEM GUIDE 4.00

Guide for Selecting Vinyl Painting Systems¹

Most needs for vinyl painting systems can be met by the standard SSPC Painting Systems 4.02 and 4.04 in this section. Other combinations of surface preparation, primer, intermediates, and topcoats may be selected for special situations for vinyl painting systems using the following guide. To do so, 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 This guide covers vinyl painting systems for blast cleaned or pickled steel.

1.2 These systems are suitable for use on parts or structures exposed in Environmental Zones 1A (interior, normally dry), 2A (frequently wet by fresh water), 2B (frequently wet by salt water), 2C (fresh water immersion), 2D (salt water immersion), 3A (chemical, acidic), and 3B (chemical neutral).

1.3 The color of the finish paint must be specified.

2. Description

2.1 This guide outlines the components of a complete vinyl painting system. A painting system shall consist of surface preparation by commercial blast cleaning or pickling, one coat of wash primer (when required), one coat of vinyl primer, one or two intermediate coat(s), and one finish coat of vinyl paint.

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 referenced standards and this specification, the requirements of this specification shall prevail.

3.3 SSPC STANDARDS AND JOINT STANDARDS:

PA 1	Shop, Field, and Maintenance Painting of Steel
PA 2	Measurement of Dry Coating Thickness With Magnetic Gages
PA Guide 4	Guide to Maintenance Repainting with Oil Base or Alkyd Painting Systems
Paint 8	Aluminum Vinyl Paint
Paint 9	White (or Colored) Vinyl Paint
Paint 27¹	Basic Zinc Chromate – Vinyl Butyral Wash Primer
PS 4.02	Four-Coat Vinyl Painting System (For Fresh Water, Chemical, and Corrosive Atmospheres)
PS 4.04	Four-Coat White or Colored Vinyl Painting System (For Fresh Water, Chemical, and Corrosive Atmospheres)
SP 2	Hand Tool Cleaning
SP 3	Power Tool Cleaning
SP 5/NACE No. 1	White Metal Blast Cleaning
SP 6/NACE No. 3	Commercial Blast Cleaning
SP 8	Pickling
SP 10/NACE No. 2	Near-White Blast Cleaning

3.4 AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARD:

D 3925	Standard Practice for Sampling Liquid Paints and Related Pigmented Coatings
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3.5 FEDERAL SPECIFICATIONS AND STANDARDS:

MIL-L-2638	Lacquer, Vinyl Resin, Gasoline and Water Resistant (Canceled)
MIL-P-15930	Primer, Vinyl-Zinc Chromate Type, (Formula 120—for Hot Spray) (Canceled)
MIL-E-15935	Enamel, Outside, Gray, Vinyl-Alkyd (Canceled; Use MIL-E-24635)

¹ These paints contain lead or chromate. Users are urged to follow all health, safety, and environmental requirements in applying, handling or disposing of these materials.

MIL-E-15936	Enamel, Exterior, Gray, No. 27 Vinyl- Alkyd (Canceled; Use MIL-E-24635)
MIL-E-16188	Enamel, Exterior, Gray, No. 17 (Vinyl- Alkyd) (Canceled; Use TT-P-645)
MIL-E-16738	Enamel, Exterior, White, (Vinyl-Alkyd) (Canceled; Use TT-P-645)
MIL-E-24292	Enamel, Exterior, Dark Gray (Vinyl-Alkyd) (Canceled; Use MIL-DTL 24441))
MIL-E-24306	Enamel, Exterior, Black (Vinyl-Alkyd) (Canceled; Use MIL-DTL 24441)
MIL-E-24307	Enamel, Exterior, Gray (Vinyl-Alkyd) (Canceled; Use MIL-DTL 24441)
MIL-P-28641	Primer Coating, Vinyl Chloride Copolymer, High-Build (for Steel and Masonry) (Canceled; Use MIL-DTL 24441; MIL-PRF-85285)
MIL-P-28642	Paint (Topcoat), Vinyl Chloride Acetate Copolymer, High Build (for Steel and Masonry) (Canceled; Use MIL-DTL 24441; MIL-PRF-85285)
MIL-E-82401	Enamel, Exterior, Vinyl-Alkyd, Red

3.6 US ARMY CORPS OF ENGINEERS STANDARDS:

CW-09940	Painting Hydraulic Structures and Appurtenant Works
V-106	Vinyl Type Red Oxide (Light or Dark Color) Paint
V-766	Vinyl-Type White (or Gray) Paint
VZ-108	Vinyl-Type Zinc-Rich Paint

3.7 U.S. BUREAU OF RECLAMATION STANDARDS:

VR-3	Vinyl Resin Paint
VR-6	Vinyl Resin Paint
VR-M*	Vinyl Resin Mastic

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. The high degree of cleanliness provided by these cleaning methods may be more economical or may be required for corrosive conditions. In maintenance repainting when only small areas need to be cleaned, hand or power tool cleaning (SSPC-SP 2 or 3) may suffice.

The U.S. Bureau of Reclamation, the Corps of Engineers, and some others require that white metal (SSPC-SP 5) or near-white (SSPC-SP 10) blast cleaning is mandatory for vinyl coatings.

5. Paints

5.1 WASH PRIMER: If specified in the procurement documents, a wash primer complying with SSPC-Paint 27*, "Basic Zinc Chromate - Vinyl Butyral Wash Primer," shall be applied.

COMMENT: Use of a wash primer is recommended for salt water immersion. For fresh water immersion, however, the wash primer is no longer recommended by most manufacturers. The vinyl butyral wash primer should be applied to bare metal only. In spot pretreating care should be taken to minimize overlapping old paint.

5.2 VINYL PRIMERS: After cleaning, the steel shall be primed with one coat of paint conforming with one of the following specifications.

5.2.1 U.S. Bureau of Reclamation Specification, VR-3, "Vinyl Resin Paint."

COMMENT: This high solid vinyl paint is available in white, medium gray, and aluminum colors. The aluminum is recommended as a topcoat only. A three-coat system is used for interior oil service (125 micrometers/5 mils minimum) and four-coat systems are used as interior lining for water service or for exterior service in water and sunlight (150 micrometers/6 mils minimum thickness). The white and medium gray are pigmented with titanium dioxide, extenders, and black tint. They are formulated with vinyl tripolymer and copolymer to meet requirements for overall composition, density, application, dry (three-hour recoat), stability, adhesion and cohesion, flexibility, permeability, resistance to solvent, salt-spray, and abrasion.

5.2.2 U.S. Bureau of Reclamation Specification VR-6, "Vinyl Resin Paint":

COMMENT: This system is similar to VR-3 except that it requires three intermediate coats and two finish coats for a total of 250 micrometers (10.0 mils) minimum dry film thickness. Complete system is intended especially for exterior service in water and sunlight.

5.2.3 Corps of Engineers Specification V-106, "Vinyl Type Red Oxide (Light or Dark Color) Paint":

COMMENT: Corps of Engineers Specification CW-09940, "Painting: Hydraulic Structures and Appurtenant Works."



Documents

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