

SSPC: The Society for Protective Coatings

PAINT SPECIFICATION NO. 31

Single-Package Waterborne Alkyd Primer for Steel Surfaces, Performance-Based

1. Scope

1.1 This specification covers an air-drying, ready-mixed, pigmented, waterborne (i.e., water-reducible) alkyd or modified alkyd pigmented primer for blast cleaned steel. It is intended as the first coat of a waterborne coating system consisting of one or two coats of this primer and one or two coats of a waterborne topcoat.

1.2 This primer is suitable for exposures in Environmental Zones 1A (interior, normally dry), 1B (exterior, normally dry), 2A (frequently wet by fresh water [excluding immersion]) and 2B (frequently wet by salt water [excluding immersion]). See Note 11.1.

1.3 This primer is intended for brush, spray, or roller application over steel surfaces prepared in accordance with SSPC-SP 6, "Commercial Blast Cleaning." It is suitable as a shop primer, field primer, maintenance primer, or intermediate coat, and is to be applied in accordance with SSPC-PA 1, "Shop, Field, and Maintenance Painting of Steel." If the primed part of the structure is to be exposed to the weather, it should be topcoated as soon as practical, according to the manufacturer's published instructions.

1.4 This specification does not include primers based on latex polymers, which are described in SSPC Painting System 24.00.

2. Description

2.1 COMPOSITION

2.1.1 This primer is based on an ambient drying single-package vehicle which is rendered water-reducible via ionic solubility of the resin and appropriate pigments.

2.1.2 The polymer types are alkyds and copolymer alkyds (see Note 11.2). Latex polymers are excluded from this specification.

2.1.3 The major volatile component by weight shall be water; however, volatile organic compounds may be present.

2.2 VOLATILE ORGANIC COMPOUND (VOC) CONTENT:

2.2.1 The VOC content of the primer shall be determined from the coating as applied, after recommended thinning. (See Section 4.2 and Note 11.4.)

2.3 PERFORMANCE LEVELS:

2.3.1 Primers shall be classified according to the performance achieved as follows:

Level 1: Laboratory Testing (Section 5)
Level 2: Exterior Exposure (Section 6)

2.3.2 If no performance level is specified, Level 2 is assumed.

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.

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

3.4 SSPC STANDARDS AND JOINT 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
PA 2	Measurement of Dry Coating Thickness With Magnetic Gages
Paint 25	Red Iron Oxide, Zinc Oxide, Raw Linseed Oil and Alkyd Primer
PS 24.00	Latex Painting System for Industrial and Marine Atmospheres, Performance-Based
SP 5/NACE No. 1	White Metal Blast Cleaning
SP 6/NACE No. 3	Commercial Blast Cleaning

VIS 2 Guide and Reference Photographs
for Evaluating Degree of Rusting
on Painted Steel Surfaces

3.5 ASTM INTERNATIONAL STANDARDS:

- A 569** (Withdrawn) Specification for Steel, Carbon
(0.15 Maximum Percent), Hot-Rolled Sheet
and Strip, Commercial Quality
- B 117** Practice for Operating Salt Spray (Fog)
Apparatus
- D 522** Test Methods for Mandrel Bend Test of
Attached Organic Coatings
- D 562** Test Method for Consistency of Paints
Measuring Krebs Unit (KU) Viscosity Using
a Stormer-type Viscometer
- D 609** Practice for Preparation of Cold-Rolled Steel
Panels for Testing Paint, Varnish, Conversion
Coatings, and Related Coating Products
- D 610** Test Method for Evaluating Degree of Rusting
on Painted Steel Surfaces
- D 714** Test Method for Evaluating Degree of Blis-
tering of Paints
- D 1210** Test Methods for Fineness of Dispersion of
Pigment-Vehicle Systems by Hegman-type
Gage
- D 1212** Test Methods for Measurement of Wet Film
Thickness of Organic Coatings
- D 1308** Test Method for Effect of Household
Chemicals on Clear and Pigmented Organic
Finishes
- D 1475** Test Method for Density of Liquid Coatings,
Inks, and Related Products
- D 1640** Test Methods for Drying, Curing, or Film
Formation of Organic Coatings at Room
Temperature
- D 1654** Test Method for Evaluation of Painted or
Coated Specimens Subjected to Corrosive
Environments
- D 1849** Test Method for Package Stability of Paint
- D 2243** Test Method for Freeze-Thaw Resistance
of Water-Borne Coatings
- D 2247** Practice for Testing Water Resistance of
Coatings in 100% Relative Humidity
- D 2369** Test Method for Volatile Content of Coatings
- D 2574** Test Method for Resistance of Emulsion
Paints in the Container to Attack by Micro-
organisms
- D 3359** Test Methods for Measuring Adhesion by
Tape Test
- D 3363** Test Method for Film Hardness by Pencil
Test
- D 3925** Practice for Sampling Liquid Paints and
Related Pigmented Coatings

- D 3960** Practice for Determining Volatile Organic
Compound (VOC) Content of Paints and
Related Coatings
- D 4400** Test Method for Sag Resistance of Paints
Using a Multinotch Applicator
- D 4417** Test Methods for Field Measurement of
Surface Profile of Blast-Cleaned Steel
- G 92** Practice for Characterization of Atmospheric
Test Sites

3.6 AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) STANDARD:

- Z129.1** Hazardous Industrial Chemicals—
Precautionary Labeling

3.7 FEDERAL STANDARD:

40 CFR 60, Appendix A, Method 24—Determination
of Volatile Matter Content, Water Content, Density, Volume
Solids, and Weight Solids of Surface Coatings

4. Composition

4.1 The manufacturer is given latitude in the selection of
materials and process of manufacture, provided that the primer
meets the requirements of this specification. Materials shall be
those used in good commercial practice and entirely suitable
for the purpose intended under normal conditions of use.

4.2 The VOC content shall be measured by EPA Method
24, ASTM D 3960, or other approved methods. If no method
is specified, use EPA Method 24. Supplier should provide
information on the VOC content of the coating as supplied (in
the container) and as applied (in the field after recommended
thinning).

4.3 Pigments and other primer components shall contain a
maximum of 0.06% by weight of lead or chromate in the dry film.

5. Laboratory Testing

5.1 For Level 1, the paint shall meet the requirements of
Table 1 and Sections 5.2 through 5.12.

**5.2 RESISTANCE TO MICROORGANISM ATTACK IN
THE CONTAINER:** The paint shall be resistant to attack by
microorganisms when tested according to ASTM D 2574.

5.3 LABORATORY APPLICATION PROPERTIES: The
primer shall be readily applied to a smooth steel vertical surface
by brush, spray, or roller. A minimum of 4 mils (100 micrometers)
wet film thickness shall be applied as measured by ASTM D
1212. Drying shall be done in a ventilated room or chamber
free from drafts and dust and in diffused light, not in direct