

SSPC: The Society for Protective Coatings

PAINTING SYSTEM GUIDE NO. 2.00

Guide for Selecting Alkyd Painting Systems¹

Combinations of surface preparation, primers, intermediates, and topcoats may be selected for special situations for alkyd 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 These specifications cover alkyd painting systems for commercial 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) and 1B (exterior, normally dry).

1.3 The color of the finish paint must be specified.

2. Description

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

3. Referenced Standards

3.1 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 11*	Red Iron, Zinc Chromate, Raw Linseed Oil and Alkyd Primer
Paint 21	White or Colored Silicone Alkyd Paint
Paint 25	Red Iron Oxide, Zinc Oxide, Raw

Paint 101	Linseed Oil, and Alkyd Primer
Paint 102	Aluminum Alkyd Paint
Paint 103	Black Alkyd Paint
Paint 104	Black Phenolic Paint
Paint 108	White or Tinted Alkyd Paint
	High-Build Thixotropic Leafing Aluminum Paint
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

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

D 3925	Standard Practice for Sampling Liquid Paints and Related Pigmented Coatings
---------------	---

3.5 FEDERAL SPECIFICATIONS AND STANDARDS:

TT-E-489	Enamel, Alkyd, Gloss (Low VOC Content)
TT-E-527	Enamel, Alkyd, Lusterless (Low VOC Content) [Cancelled]
TT-E-529	Enamel, Alkyd, Semi-Gloss (Low VOC Content) [Cancelled]
TT-P-645B	Primer Paint, Zinc Molybdate, Alkyd Type (Formerly Zinc Chromate)

3.3 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO):

M 69	Aluminum Paint
-------------	----------------

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

¹ This paint contains chromate pigments. Users are urged to follow all health, safety, and environmental requirements in applying, handling or disposing of these materials.

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. In maintenance painting when only small areas need to be cleaned, hand or power tool cleaning (SSPC-SP 2 or 3) may suffice.

5. Paints

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

5.1.1 Federal Specification TT-P-645, “Primer, Paint, Zinc Molybdate, Alkyd Type”:

COMMENT: TT-P-645 is pigmented with titanium dioxide and zinc molybdate (older formulations used zinc chromate.) It is particularly useful for alternate dry and wet areas. The vehicle has non-volatile alkyd resin with 23% phthalic anhydride.

5.1.2 SSPC-Paint 11*, “Red Iron Oxide, Zinc Chromate, Raw Linseed Oil and Alkyd Paint”:

5.1.3 SSPC-Paint 25, “Red Iron Oxide, Zinc Oxide, Raw Linseed Oil and Alkyd Primer”:

COMMENT: SSPC-Paint 25 is an iron oxide, zinc oxide primer similar in composition to SSPC Paint 11 except that zinc chromate is replaced with zinc oxide.

5.1.4 Proprietary Primer:

COMMENT: A proprietary primer 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 of the desired proprietary paint. The paint manufacturer should furnish a typical label analysis.

5.2 INTERMEDIATE COAT(S) FOR ALKYD 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 pigment shall be used in place of leafing aluminum.

Alternatively, the intermediate coat(s) of paint shall conform with the following specification.

5.2.1 SSPC-Paint 101, “Aluminum Alkyd Paint,” Type II, “Non-Leafing”:

COMMENT: This non-leafing aluminum paint is suitable

for use as an intermediate coat where the final paint coat is to be an aluminum paint and where longer weathering without the prime coat showing through the aluminum finish coat is desired.

5.2.2 Proprietary Intermediate:

COMMENT: 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 of the desired proprietary paint. The paint manufacturer should furnish a typical label analyst.

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

5.3.1 SSPC-Paint 101, “Aluminum Alkyd Paint,” Type I “Leafing”:

COMMENT: This aluminum alkyd paint has good stability, drying, and application properties as well as excellent durability in atmospheric exposures. Its lapping properties are fairly good. It is generally mixed on the job by adding two pounds of aluminum paste to one gallon of alkyd varnish vehicle.

5.3.2 SSPC-Paint 108, “High-Build Thixotropic Leafing Aluminum Paint”:

COMMENT: Added protection is possible because of the thicker film which may be applied with this special high build composition.

5.3.3. AASHTO Specification, “Aluminum Paint,” Designation M 69:

COMMENT: This is a ready to mix aluminum finish coat for bridges, and has an oleoresinous tung oil spar varnish vehicle.

5.4 BLACK FINISH COATS: The paint shall conform with one of the following specifications.

5.4.1 SSPC-Paint 102, “Black Alkyd Paint”:

COMMENT: A very durable carbon black and long oil alkyd varnish paint which is recommended for severe exposures such as railroad bridges and industrial atmospheres.

5.4.2 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.

5.5 WHITE OR TINTED FINISH COATS: If a colored finish coat is specified, the color and shade of color should be agreed upon among the contracting parties, using a suitable method of color designation.