Engineering Standard Paint Specification & Procedure

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ENGINEERING REVIEW

SELECT Engineering

- ☐ **REVISE AND RESUBMIT**
- ☐ **REVIEWED, RELEASED FOR DETAIL DESIGN**
- ☐ **REVIEWED AS NOTED, RELEASED FOR DETAIL DESIGN**
- ☑ **REVIEWED, RELEASED FOR FABRICATION**
- ☐ **REVIEWED AS NOTED, RELEASED FOR FABRICATION**

APPROVAL OF THESE DRAWINGS DOES NOT RELIEVE THE FABRICATOR OF RESPONSIBILITY FOR DIMENSIONAL ACCURACY, COMPLIANCE WITHT THE PURCHASE ORDER TERMS AND SPECIFICATIONS, AND COMPLIANCE WITH APPLICABLE CODES AND REGULATIONS.

BY jburton **DATE** 2/13/2026

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1.0 Scope

1.1 This Standard Specification shall constitute the minimum requirements of Tescorp projects for the preparation of external surfaces for painting and coating, the application of paints and coatings, and the materials to be used.

1.2 All Tescorp paint subcontractors are required to follow Tescorp's Engineering Standard Paint Specification & Procedures as outlined in this document.

1.3 This Standard only covers the painting of external surfaces. Internal surface requirements shall be specified elsewhere.

1.4 Color coding and pipe legends are not included in this Standard.

1.5 Where reference is made to steel, it is intended that carbon steel, low chromium (≤1%) alloy steel, and other low alloy steels be included.

1.6 All measurements are expressed in the U.S. Conventional System of measurements, followed by, in parenthesis, the equivalent SI units (metric). All SI units are for reference only and shall not be interpreted as a precise conversion.

1.7 Hierarchy of Documents

1.7.1 In case of a dispute or confusion between governing contractual documents, the following descending order of priority shall apply.

a. Purchase Order
b. This Standard
c. Manufacturer's Paint Data Sheets
d. Reference Documents

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2.0 Codes, Standards, and Regulations

The latest editions of the following Codes and Standards in effect on the date of contract award shall be used, except as otherwise specified.

2.1 American National Standard Institute (ANSI)

Z53.1	Safety Color Code for Marking Physical Hazards

2.2 American Society for Testing Materials (ASTM)

D4285	Test Method for Indicating Oil and Water in Compressed Air (Blotter Test) D610 Evaluating Degree of Rusting on Painted Steel Surfaces

2.3 National Association of Corrosion Engineers (NACE)

TM-01	Visual Standard for Surfaces of New Steel Air blast with Sand Abrasive
TM-01	Visual Standard for Surfaces of New Steel Centrifugally Blast Cleaned with Steel Grit and Shot
RP-0178	Fabrication Details and Surface Finish Requirements
RP-0287	Field Measurement of Surface Profile of Blast Cleaned Steel TPC
9	Appendix E Painting Galvanizing

2.4 Steel Structures Painting Council (SSPC)

SP1	Solvent Cleaning
SP2	Hand Tool Cleaning
SP3	Power Tool Cleaning
SP5	White Metal Blast Cleaning (NACE NO. 1) SP6 Commercial Blast Cleaning (NACE NO. 3)
SP7	Brush Off Blast Cleaning (Nace No. 4)
SP 10	Near White Blast Cleaning (Nace No. 2)
Volume 2	"Systems and Specifications", PA-2

3.0 Definitions

3.1 Definitions for the surface preparation of metal surfaces are defined in the latest copy of the Steel Structures Painting Council Volume 2, "Systems and Specifications".

3.2 DFT: Dry Film Thickness

3.3 Large Area: Areas greater than 288 in^2 (0.187 m^2)

3.4 Small Area: Areas less than or equal to 288 in^2 (0.187 m^2)

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4.0 Tescorp Responsibilities

Shop Painting

4.1 Tescorp and or its subcontractors will supply a Paint Inspection Report when requested by the customer.

4.2 No items shall be handled or shipped until the item is dry to handle, or sufficient curing to prevent damage per paint manufacturers specification.

4.3 No bare chains or unprotected slings shall be used to handle finished painted items or to tie down items during transit.

4.4 Finished painted items shall be stored in such a way as to prevent damage to the paint.

4.5 Weld bevels on pipe shall be covered with tape, end protectors or other means to a distance of 2 in (50 mm) from the weld bevel during the painting process.

4.6 When requested/required by the customer Paint Inspection Reports will be maintained during equipment painting, reports will document the dew point on a daily basis and DFT thickness measurements of each coat per the requirements of SSPC PA-2.

5.0 Materials Handling and Use

5.1 Tescorp and or its subcontractors shall adequately protect all stored paint in paint storage containers or cabinets. Abrasive materials shall be protected from contamination, rain, and weather.

5.2 Each container of paint shall be clearly marked or labeled with the following information as a minimum: paint identification, date of manufacture, shelf life, and batch number. If no date of manufacture is received, then Tescorp and or its subcontractors will assume the paint is 3 months old. Tescorp will write this date on the paint can as the date of manufacture.

6.0 Mixing and Thinning

6.1 Paint thinning shall not exceed the amount specified in the manufacturer's paint application data sheets. No other extraneous materials are to be added, except for thixotropic agents, which may be added to specific conditions.

6.2 Paint pots for highly solid paints, such as zinc rich paints, must be internally agitated.

6.3 All coating materials shall be thoroughly mixed for the appropriate applications. Where two separate components form a coating material, each component shall be separately stirred prior. to mixing them together and induction times shall be followed. All mixed two components systems which exceed the pot life per the manufacturer's pot life temperature time chart shall not be used and must be discarded.

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7.0 Surface Preparation

7.1 Tescorp and or its subcontractors shall protect or remove all valve stems, glass, moving parts, bearings, couplings, shafts, lubricant fittings, or other sensitive parts from damage by painting operations, including over spray, dripping, and blasting. Any paint falling on or applied to such surfaces shall be removed. All such parts may be coated with rust preventatives or strippable coatings. All flange faces and other machined surfaces adjacent to surfaces to be blasted shall be completely covered to prevent damage from sand or grit contamination during blasting.

7.2 All metal surfaces to be coated shall be prepared per the contract requirements. Where contract requirements are not specified then refer to Attachment 1 of this Standard. This attachment contains a list of primers and topcoats preferred by Tescorp. Any other paint systems should otherwise be specified.

7.3 All fabrication, stress-relieving, heat treating, NDE, and surface preparation shall be completed prior to the start of paint operations.

7.4 If oil remains on the equipment surface after blasting, then the coating system shall also include a SP1 solvent cleaning.

7.5 Oil and grease shall be removed by wiping with clean rags soaked in a suitable solvent. Solvent wiping shall continue until no evidence of contamination is visible to the naked eye.

7.6 The following precautions shall be incorporated during the blast cleaning operation:

7.6.1 Blast cleaning is permitted only on surfaces which are greater than 5°F (2.3°C) above ambient air dew point.

7.6.2 Blast cleaning shall not be permitted while there is wet paint within the blasting contamination area.

7.6.3 Only proper sand, grit, or abrasive shall be used.

7.6.4 After blasting, dust and spent grit shall be removed from surfaces by appropriate means.

7.7 All materials (coatings, solvents, tapes, abrasives, etc.) for use on stainless steels shall be free of harmful substances, such as chlorides, sulfur, halogens, or metallic pigments (zinc or lead), which can induce stress corrosion cracking.

7.7.1 Dust, dirt, and loose contamination shall be removed by appropriate means.

7.7.2 Hard to remove dirt may be removed with clean stainless steel wire brushes.

7.7.3 Oil and grease shall be removed by wiping with clean rags soaked in a suitable solvent. Chlorinated solvents shall not be used on stainless steel materials.

7.8 Anchor profile shall be checked to make sure it meets the surface preparation requirements per the contract. If no contract profile is specified then use the SSP requirements in Attachment I. Profile shall be checked / measured per NACE RP-287, Field Measurement Surface Profile of Abrasive Blast Cleaned Steel Surfaces Using a Replica Tape. Surfaces shall be re-blasted if they fail to meet the requirements.

8.0 Paint Application

8.1 Restrictions

8.1.1 Paint shall not be applied if any of the conditions are outside the manufacturer's recommendation.

8.2 Extent of Painting

8.2.1 All external carbon steel surfaces of the equipment that are not galvanized shall be painted according to the contract requirements.

8.2.2 Shop painting of equipment and piping shall be performed after completion of all shop heat treatment, testing, and examinations.

8.3 Items Not to Be Painted

8.3.1 Surfaces used for identification purposes such as nameplates, serial number plates, underwriter's approval plates, and valve identification signs.

8.3.2 Machined contact surfaces of operating equipment.

8.3.3 Valve stems, flanges bolts, and bearings.

8.3.4 Manufactured items with factory paint applied. (ex. Motors, Control Valves, electrical and mechanical instruments)

8.4 Priming

8.4.1 Steel surfaces shall be primed before rust bloom occurs, but in any case, within 8 hours after blasting.

8.4.2 Any steel surface not primed shall be re-blasted if any rust develops before painting, regardless of length of time after blasting.

8.5 Finish Painting

8.5.1 General

a. Intermediate and finish coat painting shall be performed within the minimum and maximum re-coat times specified by the paint manufacturer.

b. The final cured paint film shall exhibit good workmanship and shall be essentially free of runs, sags, pinholes, blisters, and other injurious defects.

c. Paint topcoat colors and VOC constituents of paints used will be in accordance with OSHA and respective plant guidelines.

8.5.2 Piping, Pressure Vessels, and Tankage

a. Paint shall not be applied within 2 in (50 mm) of a welded field joint until after completion of all welding and hydro testing.

9.0 Defects, Damage, and Repair

9.1 Small area coating defects, i.e. runs, sags, etc. shall be removed by hand or power sanding without removing the underlying coat of paint. The cleaned area shall be covered with a fresh application of the same material and color as the original coating. Coating thickness in the repaired area shall not exceed the maximum coating system DFT. The replacement coating can be applied by either brushing, rolling, or spraying.

9.2 Large area defects or excessive thickness shall be abrasive blasted to remove the defective area and recoated. If the underlying paint is exposed, additional application of the paint shall be applied to the defective area prior to re-applying defective coating. The replacement coating can be applied by either rolling or spraying, taking care not to damage, or add millage to the surrounding coating.

9.3 Any area of mechanical damage shall be repainted by hand or power tool sanding to remove the damaged area. The edges of the affected area shall be feathered out two inches from the damaged area and recoated. Refer to manufacturer's recommendations for repair of defects. Inorganic zinc coatings are repairable by spraying only. Other types of coatings may be applied by brushing, rolling, or spraying consistent with manufacturer's recommendations.

9.4 Areas of insufficient thickness shall have an additional coat applied to bring the minimum thickness up to the amount specified, providing the maximum recoat time has not been exceeded. If the maximum recoat time has been exceeded, Tescorp shall be consulted, and the coating shall be sanded and re-applied.

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10.0 Attachment 1 - Paint Systems

Standard Paint Systems

Tescorp Paint System	Surface Preparation	Prime Coat	Mid Coat	Finish Coat
System No.1	Hand Tool Clean Per SSPC-SP2 Solvent Clean Per SSPC-SP1	Paint: Sherwin Williams Macropoxy 646 Dry Mils: 2.5 - 4.0 Spray		Paint: Sherwin Williams Acrolon 218HS Dry Mils: 2.5 - 4.0 Spray / Roller / Brush
System No.2	Commercial Blast Per SSPC-SP6	Paint: Sherwin Williams Macropoxy 646 Dry Mils: 2.5 - 4.0 Spray		Paint: Sherwin Williams Acrolon 218HS Dry Mils: 2.5 - 4.0 Spray / Roller / Brush
System No.3	White Blast Per SSPC-SP10	Paint: Sherwin Williams Macropoxy 646 Dry Mils: 2.5 - 4.0 Spray		Paint: Sherwin Williams Acrolon 218HS Dry Mils: 2.5 - 4.0 Spray / Roller / Brush
System No.4	Hand Tool Clean Per SSPC-SP2 Solvent Clean Per SSPC-SP1	Paint: Sherwin Williams Macropoxy 646 Dry Mils: 2.5 - 4.0 Spray		Paint: Sherwin Williams Hi-Solids Polyurethane Dry Mils:6.7 - 10.0 Spray / Roller / Brush
System No.5	Commercial Blast Per SSPC-SP6	Paint: Sherwin Williams Macropoxy 646 Dry Mils: 2.5 - 4.0 Spray		Paint: Sherwin Williams Hi-Solids Polyurethane Dry Mils:6.7 - 10.0 Spray / Roller / Brush
System No.6	White Blast Per SSPC-SP10	Paint: Sherwin Williams Macropoxy 646 Dry Mils: 2.5 - 4.0 Spray		Paint: Sherwin Williams Hi-Solids Polyurethane Dry Mils:6.7 - 10.0 Spray / Roller / Brush

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System No. 7	White Blast Per SSPC-SP10	Paint: Sherwin Williams Zinc Clad 200 Dry Mils: 3.0 - 5.0 Spray	Paint: Sherwin Williams Epoxy Mastic Aluminum II Dry Mils: 4.0 - 6.0 Spray / Roller / Brush	Paint: Sherwin Williams Macropoxy 646 Dry Mils: 2.5 - 4.0 Spray / Roller / Brush
System No. 8	White Blast Per SSPC-SP10	Paint: Sherwin Williams Zinc Clad 200 Dry Mils: 3.0 - 5.0 Spray	Paint: Sherwin Williams Epoxy Mastic Aluminum II Dry Mils: 4.0 - 6.0 Spray / Roller / Brush	Paint: Sherwin Williams Hi-Solids Polyurethane Dry Mils:6.7 - 10.0 Spray / Roller / Brush
System No. 9	White Blast Per SSPC-SP10	Paint: Sherwin Williams Zinc Clad 200 Dry Mils: 3.0 - 5.0 Spray	Paint: Sherwin Williams Macropoxy 646 Dry Mils: 2.5 - 4.0 Spray / Roller / Brush	Paint: Sherwin Williams Hi-Solids Polyurethane Dry Mils:6.7 - 10.0 Spray / Roller / Brush
System No. 10	Hand Tool Clean Per SSPC-SP2 Solvent Clean Per SSPC-SP1	Paint: Sherwin Williams Epoxy Mastic Aluminum II Dry Mils: 4.0 - 6.0 Spray	Paint: Sherwin Williams Macropoxy 646 Dry Mils: 2.5 - 4.0 Spray / Roller / Brush	Paint: Sherwin Williams Hi-Solids Polyurethane Dry Mils:6.7 - 10.0 Spray / Roller / Brush
System No. 11	White Blast Per SSPC-SP10	Paint: Sherwin Williams Zinc Clad II Dry Mils: 2.5 - 4.0 Spray	Paint: Sherwin Williams Macropoxy 646 Dry Mils: 4.0 - 6.0 Spray / Roller / Brush	Paint: Sherwin Williams Acrolon 218HS Dry Mils:2.0 – 3.0 Spray / Roller / Brush

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System No.12	Hand Tool Clean Per SSPC-SP2 Solvent Clean Per SSPC-SP1	Paint: PPG Industries Amerlock 600 Dry Mils: 4.0 – 6.0 Spray / Roller / Brush		Paint: PPG Industries Pitthane Ultra 95-812 Series Dry Mils:2.0 – 3.0 Spray / Roller / Brush
System No.13 QUOTED TESCORP STANDARD	Commercial Blast Per SSPC-SP6	Paint: PPG Industries Amerlock 600 Dry Mils: 5.0 – 10.0 Spray / Roller / Brush		Paint: PPG Industries Pitthane Ultra 95-812 Series Dry Mils: 2.0 – 3.0 Spray / Roller / Brush
System No.14	White Blast Per SSPC-SP10	Paint: PPG Industries Amerlock 600 Dry Mils: 4.0 – 6.0 Spray / Roller / Brush		Paint: PPG Industries Pitthane Ultra 95-812 Series Dry Mils: 2.0 – 3.0 Spray / Roller / Brush

11.0 References - Paint Inspection Report