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Surface Specification Guide

The following information is for general use and reference. Each project should be reviewed to determine the proper standards and guidelines relevant to it.

SSPC SURFACE PREPARATION STANDARDS

SSPC-SP 1 Solvent Cleaning – Removal of all visible oil, grease, dirt, soil, salts, and contaminants by cleaning with solvent, vapor, alkali, emulsion, or steam.

SSPC-SP 2 Hand Tool Cleaning – Removal of loose rust, loose mill scale, and loose paint, by hand chipping, scraping, sanding, and wire brushing.

SSPC-SP 3 Power Tool Cleaning – Removal of all loose rust, loose mill scale, and loose paint, by power tool chipping, descaling, sanding, wire brushing, and grinding.

SSPC-SP 11 Power Cleaning to Bare Metal – Complete removal of all visible oil, grease, coatings, rust, corrosion products mill scale, and other foreign matter by power tools, with resultant minimum surface profile of 1 mil (25.4 μm). Trace amounts of coating and corrosion products may remain in the bottom of pits if the substrate was pitted prior to cleaning.

SSPC-SP 15 Commercial Grade Power Tool Cleaning – Between SP 3 and SP 11. Complete removal of all visible oil, grease, dirt, rust, coating, mill scale, corrosion products and other foreign matter by power tools, with resultant minimum surface profile of 1 mil. Random staining is limited to no more than 33 percent of each 9 in² (0.005 m²) of surface. Trace amounts of coating and corrosion products may remain in the bottom of pits if the substrate was pitted prior to cleaning

SSPC-SP 16 Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals – Requirements for removing loose contaminants and coating from coated and uncoated galvanized steel, stainless steels, and non-ferrous metals. Cleaned surface is free of all visible oil, grease, dirt, dust, metal oxides (corrosion products), and other foreign matter Requires a minimum 0.75 -mil (19- μm) profile on bare metal substrate.

SSPC-SP 17 Thorough Abrasive Blast Cleaning of Non-Ferrous Metals – Surface preparation using this standard is used to provide a greater degree of cleaning than brush-off blast cleaning of stainless steels and non-ferrous metals (SSPC SP-16). This standard represents a degree of cleaning that is similar to that defined for carbon steel substrates in SSPC-SP 10/NACE 2.



SSPC/NACE JOINT SURFACE PREPARATION STANDARDS

SSPC-SP 5/NACE 1 White Metal Blast Cleaning – Removal of all visible rust, mill scale, paint, and foreign matter by blast cleaning by wheel or nozzle (dry or wet) using sand, grit or shot.

SSPC-SP 5 (WAB)/ NACE WAB1 – Same level of cleanliness as SSPC-SP 5/NACE 1, but achieved by wet abrasive blast cleaning. Level of flash rust permissible immediately prior to coating application must be specified.

SSPC-SP 6/ NACE 3 Commercial Blast Cleaning – Removal of all visible rust, mill scale, paint, and foreign matter by blast cleaning. Staining is permitted on no more than 33% of each 9 in² (0.006 m²) area of the cleaned surface.

SSPC-SP 6 (WAB)/ NACE WAB3 Commercial Wet Abrasive Blast Cleaning – Same level of cleanliness as SSPC-SP 6/NACE No. 3, but achieved by wet abrasive blast cleaning. Level of flash rust permissible immediately prior to coating application must be specified.

SSPC-SP 7/ NACE 4 Brush-Off Blast Cleaning – Removal of all loose contaminants while uniformly roughening the surface. Tightly adhering residues of mill scale, rust, and coatings may remain.

SSPC-SP 7 (WAB)/ NACE-WAB 4 Brush-Off Wet Abrasive Blast Cleaning – Same level of cleanliness as SSPC-SP 7/NACE 4, but achieved by wet abrasive blast cleaning. Level of flash rust permissible immediately prior to coating application must be specified.

SSPC-SP 10/ NACE 2 Near-White Blast Cleaning – Removal of all visible rust, mill scale, paint, and foreign matter by blast cleaning. Staining is permitted on no more than 5% of each 9 in² (0.006 m²) area of the cleaned surface.

SSPC-SP 10 (WAB)/ NACE WAB2 Near-White Metal Wet Abrasive Blast Cleaning – Same level of cleanliness as SSPC-SP 10/NACE 2, but achieved by wet abrasive blast cleaning. Level of flash rust permissible immediately prior to coating application must be specified.

SSPC-SP 13/NACE 6 Surface Preparation of Concrete – Details the requirements for surface preparation of concrete by mechanical and chemical method before the application of protective coatings or lining systems. Also details methods of surface preparation as well as surface cleanliness and profile achievable by each method.

SSPC-SP 14/ NACE 8 Industrial Blast Cleaning – Between SP 7 (brush-off) and SP 6 (commercial). The intent is to remove as much coating as possible. Tightly adhering contaminants can remain on no more than 10% of each 9 in² (0.005 m²) area of the cleaned surface.

SSPC-SP WJ-1/ NACE WJ-1 Water-jet Cleaning of Metals – Clean to Bare Substrate – When viewed without magnification, the metal surface shall have a matte (dull, mottled) finish and shall be free of all visible oil, grease, dirt, rust and other corrosion products, previous coatings, mill scale, and foreign matter



SSPC-SP WJ-2/ NACE WJ-2 Water-jet Cleaning of Metals – Very Thorough Cleaning – When viewed without magnification, the metal surface shall have a matte (dull, mottled) finish and shall be free of all visible oil, grease, dirt, rust, and other corrosion products except for randomly dispersed stains of rust and other corrosion products, tightly adherent thin coatings, and other tightly adherent foreign matter. The staining or tightly adherent matter shall be limited to no more than 5% of each 9 in² (0.006 m²) area of the cleaned surface.

SSPC-SP WJ-3/ NACE WJ-3 Water-jet Cleaning of Metals – Through Cleaning – When viewed without magnification, the metal surface shall have a matte (dull, mottled) finish and shall be free of all visible oil, grease, dirt, rust, and other corrosion products except for randomly dispersed stains of rust and other corrosion products, tightly adherent thin coatings, and other tightly adherent foreign matter. The staining or tightly adherent matter shall be limited to no more than 33% of each 9 in² (0.006 m²) area of the cleaned surface.

SSPC-SP WJ-4/ NACE WJ-4 Water-jet Cleaning of Metals – Light Cleaning – When viewed without magnification, the metal surface shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust and other corrosion products, and loose coating. Any residual material shall be tightly adhered to the metal substrate and may consist of randomly dispersed stains of rust and other corrosion products or previously applied coating, tightly adherent thin coatings, and other tightly adherent foreign matter.

ASTM TESTING STANDARDS

D4263 Standard Test Method for Indicating Moisture in Crete by the Plastic Sheet Method – This test method is used as a go or no-go based on the presence of moisture on the bottom side of the plastic sheet.

F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Sub-floor Using Anhydrous Calcium Chloride – This test method covers the quantitative determination of the rate of moisture vapor emitted from below-grade, on-grade, and above-grade (suspended) bare concrete floors.

PAINT APPLICATION STANDARDS

SSPC-PA1 Shop, Field and Maintenance Coating of Metals – This standard provides basic requirements for best practices for application of industrial protective coatings to coated or uncoated metallic substrates, and is intended for use by both specifiers and contractors, either in it's entirety or by referencing specific sections.

SSPC-PA2 Procedure for Determining to Dry Coatings Thickness Requirements – Describes procedure for determining shop or field conformance to a specified coating dry film thickness (DFT) range on ferrous and non-ferrous metal substrates using nondestructive coating thickness gages (magnetic and eddy current) as described in ASTM D7091.



STANDARD PRACTICES

NACE SP0178 Design, Fabrication, and Surface Finish Practices for Tanks, Vessels to Be lined for Immersion

Service – As described above, this document thoroughly addresses standard practices for design, fabrication, and surface finishes in immersion service. Tanks and vessels may be lined for corrosion control and or to prevent product contamination.

VISUAL STANDARDS

ICRI PC1-10 Concrete Profile Chip Set – Plastic molded chips provide a comparison for surface preparation texture on concrete. Totals of 10 chips start at CSP1 and go up to CSP10. Generally, a range is provided in the specification.

NACE Weld Comparator – Used in conjunction with NACE SP0178 Design, Fabrication, and Surface Finish Practices for Tanks and Vessels to Be Lined for Immersion Service. (Formally RP0178) Refer to Appendix C of NACE SP0178 for the specified weld preparation designation and use the plastic comparator to confirm compliance.