

SSPC: The Society for Protective Coatings

COATING APPLICATION SPECIFICATIONS AND GUIDES

Commentary on Coating Application

1. Introduction

This commentary is for information only and is not part of the standards and guides in this chapter. Its purpose is to present a general description of the sections that comprise this chapter.

The documents in this section focus on aspects of the coating application process. They provide requirements and guidance procedures for applying coatings to both steel and concrete substrates, measuring film thickness on steel and concrete substrates after coating application, safety considerations for coating applicators, and requirements for coating application for specialized services.

Three of the documents in this section are products of cooperative standards development projects. Two were developed in cooperation with NACE International, and the third is the result of a joint project between SSPC and the AASHTO/NSBA Steel Bridge Collaboration.

2. SSPC-PA 1, “Shop, Field, and Maintenance Painting of Steel”

This standard was issued in 2000, and revised in 2001 and 2016. It provides basic requirements for best practices for application of industrial/marine protective coatings to coated or uncoated metallic substrates, and is intended for use by both specifiers and contractors, either in its entirety or by referencing specific sections. It focuses on the coating application process and application-related items that are included as one element of the contractor’s work plan or process control procedures. PA 1 addresses pre-application procedures that are necessary before actual application of paint can begin., such as handling and use of materials, and proper mixing and thinning of paints. Environmental conditions for good application are covered in detail and include proper air temperature, moisture, humidity, cover, and surface temperature. Requirements for proper mixing, handling, and application of liquid coatings applied by brush, spray, or roller are included. Detailed descriptions of site preparation, surface preparation, pretreatments, or selection of primers and finish coats are beyond the scope of this standard. Two appendices provide additional information about the value and use of project-specific contractor work plans, and an example of language that can be used in procurement/specification documents to specify compliance with requirements of SSPC-PA 1.

3. SSPC-PA 2, “Procedure for Determining Conformance to Dry Coating Thickness Requirements”

SSPC-PA 2 was first issued in June 1964, and was revised in 1982, 1991, 1996, 2012, and 2015. It describes a procedure for determining shop or field conformance to a specified coating dry film thickness range on ferrous and non-ferrous metal substrates using nondestructive coating thickness gages (magnetic and eddy current) described in ASTM D7091. As ASTM D7091 provides information on the procedures for acquiring measurements using the gages, the 2015 revision of SSPC-PA 2 focuses on the proper procedures for determining compliance with the required thickness ranges.

4. SSPC-PA Guide 4, “Guide to Maintenance Repainting with Oil Base or Alkyd Painting Systems”

This guide has been prepared specifically for use in repainting with oil base, alkyd, and other solvent-thinned paint systems. It is concerned with procedures necessary to maintain previously painted steel structures so that they continue to provide the corrosion protection as originally intended. Items covered are determining when maintenance painting is required and preparing the existing surface for painting.

5. SSPC-PA Guide 5, “Guide to Maintenance Coating of Steel Structures for Atmospheric Service”

This guide, intended for use primarily by the owner’s representative, covers procedures for developing a maintenance painting program for steel structures. It may be used for one time repaint programs or long range repaint programs.

Planning and implementing maintenance painting programs is presented in a logical sequence of six specific steps. These steps range from assessing the initial condition of the structure to follow-up activities required to implement an on-going maintenance program. Each step is designed such that it may be utilized in sequence with other steps, or independently for those with interest in only one or a few aspects of the program.

6. SSPC-PA 6/NACE No. 10, “Fiberglass-Reinforced Plastic (FRP) Linings Applied to Bottoms of Carbon Steel Aboveground Storage Tanks”

This standard recommended practice specifies the procedures to design, apply, and inspect fiberglass-reinforced plastic (FRP) linings that are applied internally to the bottom of carbon steel aboveground storage tanks (ASTs). PA 6 includes sections on lining materials, tank repair and preparation, applicator qualifications, surface preparation, holding primer, caulking, laminate application, and roof leg bearing plates and a section on lining inspection, testing, and repair.

7. SSPC-PA 7, “Applying Thin Film Coatings to Concrete”

This standard covers methods and procedures for applying thin film organic coatings to concrete surfaces by brush, roller, or spray. It is not intended for coatings applied to concrete floors or similar surfaces where thick coatings or surfacings are applied by trowel or mechanical equipment. Among the topics addressed are materials handling, mixing, thinning, moisture, temperature, topcoating, surface porosity, coating thickness, continuity, and various methods of application.

8. SSPC-PA 8/NACE No. 11, “Thin-Film Organic Linings Applied in New Carbon Steel Process Vessels”

This standard covers methods and procedures for applying thin film (less than 500 μm [20 mils]) organic coatings to new steel vessels. Among the topics addressed in this standard are lining materials, vessel fabrication and preparation, applicator qualifications, surface preparation, lining application, and inspection and repair of vessel lining.

9. SSPC-PA 9, “Measurement of Dry Organic Coating Thickness on Cementitious Substrates Using Ultrasonic Gages”

This standard describes procedures and methods for measuring the thickness of dry, homogeneous coatings applied on cementitious surfaces using commercially available ultrasonic coating thickness gages. Its format is similar to that of SSPC-PA 2, but references ultrasonic gages designed for use on concrete substrates.

10. SSPC-PA Guide 10, “Guide to Safety and Health Requirements for Industrial Painting Projects”

This document provides guidance for facility owners and project specifiers who have a mandate to incorporate

appropriate requirements for safety and health program submittals and associated acceptance criteria in contract documents. It also alerts contractors to their responsibilities to protect workers as required by the U.S. Occupational Safety and Health Administration (OSHA).

11. SSPC-PA Guide 11, “Guide to Protection of Edges, Crevices, and Irregular Surfaces by Stripe Coating”

PA Guide 11 provides guidance for facility owners, project specifiers, and contractors who need to choose among various options for protecting areas of a structure that are susceptible to corrosion due to their configuration. Edge grinding, chamfering, and techniques for proper use and application of stripe coats are discussed.

12. SSPC-PA 12, “Preparation of Uncontaminated Rusted Steel Test Panels”

This is a procedure for preparing standard corroded test panels for use in evaluating coatings in accelerated or fence tests. The procedure is both rapid and reproducible. Steel panels are initially prepared in accordance with SSPC-SP 10 (Near White Metal Blast Cleaning) and then exposed in a cyclic wet/dry cabinet. This produces dense uniform corrosion products. The method employs deionized water and is not intended to deposit soluble ionic species on the substrates.

Test panels prepared in accordance with this procedure are intended primarily for evaluating the performance of coatings that are recommended for use on minimally prepared, minimally contaminated substrates. The test panels are intended to represent the minimally rusted steel surface after being cleaned to SSPC-SP 2 (Hand Tool Cleaning). Test panels prepared in accordance with this procedure should not be used for evaluating the performance of coatings recommended for use over marine and industrial contaminated rusted steel.

13. SSPC-PA Guide 13, “Guide for Application of Coating Systems With Zinc-Rich Primers to Steel Bridges”

Developed in cooperation with the AASHTO/NSBA Steel Bridge Collaboration, this guide represents a consensus on best industry practice for shop application of zinc rich primers to previously uncoated bridge steel and includes the proper preparation of the steel surfaces and the mixing, application, and cure of coatings. To simplify the application parameters for a system based on zinc-rich primers on new steel bridges, a series of charts have been developed. These charts provide a convenient summary listing the detailed requirements for surface preparation, environmental conditions, coating application, curing, and verification testing. The guide addresses a three-coat system consisting of primer, intermediate and