

Maintenance Overcoating of Railcar Exteriors

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Foreword

This standard practice describes overcoating of the exteriors of railcars. The purpose of this standard practice is to provide methods for testing and application of overcoating materials for the benefit of railcar owners, lessees, and maintenance providers who are charged with developing and executing programs for the maintenance painting of railcars.

Scope

This document describes the standard procedure for maintenance overcoating of railcar exteriors.

Rationale

SC 17 determined that a standard should be developed to follow NACE Publication 21414 on “Maintenance Overcoating of Railcar Exteriors.”

Referenced Standards and Other Consensus Documents

The latest edition, revision, or amendment of the referenced standards in effect shall govern unless otherwise dated.

AMPP/NACE/SSPC, www.ampp.org:

NACE Publication 21414	Maintenance Overcoating of Railcar Exteriors
SSPC-PA 2	Procedure for Determining Conformance to Dry Coating Thickness Requirements
SSPC-SP 7/NACE No. 4	Joint Surface Preparation Standard: Brush-Off Blast Cleaning
NACE WJ-4/SSPC-SP WJ-4	Waterjet Cleaning of Metals—Light Cleaning (WJ-4)
SSPC-TU 3	Overcoating
SSPC-TU 1	Surface Tolerant Coatings for Steel
NACE Publication 6G186	Surface Preparation of Soluble Salt Contaminated Steel Substrates Prior to Coating

ASTM, www.astm.org:

ASTM D5065	Standard Guide for Assessing the Condition of Aged Coatings on Steel Surfaces
ASTM D6944	Standard Practice for Resistance of Cured Coatings to Thermal Cycling
ASTM D4541	Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
ASTM D6677	Standard Test Method for Evaluating Adhesion by Knife

Section 1: General

The first section of this standard practice describes laboratory testing protocols and evaluation methods to identify coatings for probable success as overcoating materials. The second section describes scope-of-work limitations and application procedures to promote successful overcoating. The third section describes field adhesion test protocols and evaluation methods to confirm successful overcoating. The fourth section describes methods to evaluate long-term overcoat performance.

Section 2: Laboratory Test Protocol and Evaluation Methods to Identify Overcoating Materials

Screening (selection testing) of overcoating material candidates shall be performed in a laboratory to ensure candidate coatings successfully adhere to minimally prepared substrates before application on in-service railcars. The laboratory test protocol shall include exposure of samples to simulated environments duplicating (as closely as possible) railcar service conditions. Paragraphs 2.1 through 2.6 outline the laboratory protocols and evaluation methods.

2.1 Sample Identification

2.1.1 Collect coated test samples from railcars destined for scrap or repair panels exposed to the expected service environment.

2.1.1.1 Collect or prepare multiple samples of a given coating material to evaluate reproducibility of testing.

2.1.1.2 Collect or prepare samples of each generic coating type (e.g., epoxy, alkyd) that may be overcoated.

2.1.1.3 Samples shall include exposed steel.

2.1.2 Include positive and negative control samples in the test.

2.1.2.1 An example of a positive control is a steel coupon with specified cleanliness and anchor profile coated direct-to-metal (DTM) with a coating known or expected to adhere acceptably under the conditions of the test.

2.1.2.2 An example of a negative control is a steel coupon coated with a coating known or expected to exhibit unacceptable or no adhesion under the conditions of the test.

2.2 Sample Preparation

2.2.1 Measure the dry film thickness (DFT) of the test and control samples in accordance with SSPC-PA 2.

2.2.2 Document the surface condition of the test and control samples with photographs and a condition chart or diagram such as Figure 1 in ASTM D5065.

2.2.3 Include in the test each surface preparation method to be used. Steel grit brush blast and waterjet cleaning are commonly used.

2.2.3.1 Specify the grit size to be used and blast test samples to brush blast cleanliness in accordance with NACE No. 4/SSPC-SP 7.

2.2.3.2 Specify the water pressure to be used and clean the test samples to the waterjet cleanliness level specified in NACE WJ-4/SSPC-SP WJ-4.