



Standard Practice for Evaluating Coatings Applied Over Surfaces Treated With Inhibitors Used to Prevent Flash Rusting of Steel When Water or Water/Abrasive Blasted¹

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1. Scope

1.1 This practice covers procedures to evaluate the compatibility of coatings with inhibitors used with water-blast cleaning surface preparation with or without abrasive to prevent flash rusting of steel prior to application of coatings.

1.2 The manufacturer of the coatings shall be consulted to ensure compatibility of inhibitors with the coatings.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- A 36/36M Specification for Carbon Structural Steel²
- B 117 Practice for Operating Salt Spray (Fog) Testing Apparatus³
- D 714 Test Method for Evaluation Degree of Blistering of Paints⁴
- D 822 Practice for Conducting Tests on Paint and Related Coatings and Materials Using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus⁴
- D 1193 Specification for Reagent Water⁵
- D 1654 Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments⁴
- D 2247 Practice for Testing Water Resistance of Coatings in 100 % Relative Humidity⁴
- D 3359 Test Methods for Measuring Adhesion by Tape Test⁴
- D 4417 Test Methods for Field Measurement of Surface Profile of Blast Clean Steel⁶
- D 4541 Test Methods for Pull-Off Strength of Coatings Using Portable Adhesion Testers⁶

¹ This practice is under the jurisdiction of ASTM D33 on Protective Coating and Lining Work for Power Generation Facilities and is the direct responsibility of Subcommittee D33.05 on Surface Preparation.

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² Annual Book of ASTM Standards, Vol 01.04.

³ Annual Book of ASTM Standards, Vol 03.02

⁴ Annual Book of ASTM Standards, Vol 06.01.

⁵ Annual Book of ASTM Standards, Vol 11.01.

⁶ Annual Book of ASTM Standards, Vol 06.02.

2.2 Other Standards:

- SSPC-SP 5 Surface Preparation Specification No. 5, White Metal Blast Cleaning⁷
- SSPC-SP 12/NACE No. 5 Surface Preparation and Cleaning of Steel and Other Hard Materials by High and Ultrahigh-Pressure Water Jetting Prior to Recoating⁷
- SSPC-TR2/NACE 6C 198 Wet Abrasive Blast Cleaning⁷
- NACE TM-01-74 Laboratory Method for Evaluation of Protective Coatings Used as Lining Materials in Immersion Surfaces⁸

3. Significance and Use

3.1 Water-blast cleaning with or without abrasive results in flash rusting under some environmental conditions. Inhibitors are used to prevent flash rusting while drying and before coating application. The inhibitor or reaction products of the inhibitor on the substrate becomes part of the coating systems. Coating performance may be influenced by the inhibitor. Soluble contaminants or unreacted inhibitors left on the surface under the coating may cause premature failure. This practice includes a comparison of coating performance with and without inhibitors using various laboratory tests to simulate a range of conditions such as high moisture, marine atmospheric or water immersion.

3.2 The user or specifier must determine the specific test methods to be used and exposure conditions. Some test methods referenced may not be applicable to all types of coatings.

4. Specimen Preparation

4.1 Carbon steel samples of an appropriate size, in accordance with Specification A 36/A36M for the specified test method shall be (1) white metal blast-cleaned in accordance with SSPC-SP 5, or (2) wet abrasive blast-cleaned in accordance with SSPC-TR2/NACE 6C 198, or (3) high and ultrahigh-pressured water jetting in accordance with SSPC-SP 12/NACE No. 5 and measure profiled in accordance with Test Methods D 4417. Select an abrasive that is suitable for use with water-blast applications. Control panels shall be coated with

⁷ Available from SSPC, 4400 5th Avenue, Pittsburgh, PA.

⁸ Available from National Association of Corrosion Engineers, P.O. Box 218340, Houston, TX 77218.