



Standard Specification for Sample Preparation for Qualification Testing of Coatings to be Used in Nuclear Power Plants¹

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1. Scope

1.1 This specification defines the size composition and surface preparation requirements for test samples used to evaluate coatings according to the following ASTM test procedures.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 ASTM Standards:

- A 36 Specification for Carbon Structural Steel²
- C 33 Specification for Concrete Aggregates³
- C 150 Specification for Portland Cement⁴
- C 192 Practice for Making and Curing Concrete Test Specimens in the Laboratory³
- C 260 Specification for Air-Entraining Admixtures for Concrete³
- C 494 Specification for Chemical Admixtures for Concrete³
- C 618 Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete³
- D 3911 Test Method for Evaluating Coatings Used in Light-Water Nuclear Power Plants at Simulated Design Basis Accident (DBA) Conditions⁵
- D 3912 Test Method for Chemical Resistance of Coatings Used in Light-Water Nuclear Power Plants⁵
- D 4060 Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser⁶
- D 4082 Test Method for Effects of Radiation on Coatings Used in Light-Water Nuclear Power Plants⁵
- D 4256 Test Method for Determination of the Decontaminability of Coatings Used in Light-Water Nuclear Power Plants⁵
- D 4258 Practice for Surface Cleaning Concrete for Coating⁵

D 4259 Practice for Abrading Concrete⁵

D 4260 Practice for Acid Etching Concrete⁵

D 4541 Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers⁵

2.2 Other Standards:

American Concrete Institute, ACI 301 Specifications for Structural Concrete for Buildings⁷
SSPC-SP-1, 2, 3, 5, 6, 7, 10, or 11⁸

3. Significance and Use

3.1 This specification provide uniform requirements for the preparation of test samples used for qualification testing of coatings used in nuclear power plant construction and maintenance.

4. Steel Samples

4.1 Sample size shall be a minimum of 2-in. wide by 4-in. long by 1/8-in. thick (50.8-mm wide by 101.6-mm long by 3.175-mm thick). Edges and corners may be rounded. A 1/4 in. diameter hole suitably located may be in the test panel as appropriate for the test samples in Test Methods D 3911, D 3912, D 4082 and D 4256.

4.1.1 For Test Method D 4541 the minimum size shall be 3-in. wide by 5 in.-long by 1/4 in.-thick (76.2-mm wide by 127-mm long by 6.35-mm thick).

4.2 All panels should be carbon steel, meeting the requirements of Specification A 36.

4.3 Surface preparation shall be in accordance with SSPC-SP 10 for qualification testing. Other surface preparation as required by the project or specific conditions may be used when testing for evaluation over surfaces other than SSPC-SP 10, such as SSPC-SP 1, 2, 3, 5, 6, 7, or 11.

5. Concrete Blocks

5.1 Applicable to Test Methods D 3911, D 3912, D 4082, D 4256 and D 4541. The minimum size shall be 2-in. by 2-in. deep by 4-in. long (50.8-mm by 50.8-mm deep by 101.6-mm long). The edges may be chamfered up to 1/4 in. (6.35 mm) maximum.

5.2 Composition shall be as follows:

¹ This specification is under the jurisdiction of ASTM Committee D33 on Protective Coating and Lining Work for Power Generation Facilities and is the direct responsibility of Subcommittee D33.02 on Service and Material Parameters.

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² Annual Book of ASTM Standards, Vol 01.04.

³ Annual Book of ASTM Standards, Vol 04.02.

⁴ Annual Book of ASTM Standards, Vol 04.01.

⁵ Annual Book of ASTM Standards, Vol 06.02.

⁶ Annual Book of ASTM Standards, Vol 06.01.

⁷ Available from American Concrete Institute, P.O. Box 19150, Detroit, MI 48219.

⁸ Surface Preparation Standards are available from Steel Structures Painting Council, 4400 5th Ave., Pittsburgh, PA 15213-2683.