



Designation: D5139 – 90 (Reapproved 2001)

## Standard Specification for Sample Preparation for Qualification Testing of Coatings to be Used in Nuclear Power Plants<sup>1</sup>

This standard is issued under the fixed designation D5139; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 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:<sup>2</sup>

- A36/A36M Specification for Carbon Structural Steel
- C33/C33M Specification for Concrete Aggregates
- C150/C150M Specification for Portland Cement
- C192/C192M Practice for Making and Curing Concrete Test Specimens in the Laboratory
- C260 Specification for Air-Entraining Admixtures for Concrete
- C494/C494M Specification for Chemical Admixtures for Concrete
- C618 Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
- C3911 Test Method for Evaluating Coatings Used in Light-Water Nuclear Power Plants at Simulated Design Basis Accident (DBA) Conditions<sup>3</sup>
- D3912 Test Method for Chemical Resistance of Coatings Used in Light-Water Nuclear Power Plants
- D4060 Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser

- D4082 Test Method for Effects of Gamma Radiation on Coatings for Use in Light-Water Nuclear Power Plants
- D4256 Test Method for Determination of the Decontaminability of Coatings Used in Light-Water Nuclear Power Plants<sup>3</sup>
- D4258 Practice for Surface Cleaning Concrete for Coating
- D4259 Practice for Abrading Concrete
- D4260 Practice for Liquid and Gelled Acid Etching of Concrete
- D4541 Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers

#### 2.2 Other Standards:

- American Concrete Institute, ACI 301 Specifications for Structural Concrete for Buildings<sup>4</sup>
- SSPC-SP-1, 2, 3, 5, 6, 7, 10, or 11<sup>5</sup>

### 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 C3911, D3912, D4082 and D4256.

4.1.1 For Test Method D4541 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 A36/A36M.

4.3 Surface preparation shall be in accordance with SSPC-SP 10 for qualification testing. Other surface preparation

<sup>1</sup> 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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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Withdrawn. The last approved version of this historical standard is referenced on www.astm.org.

<sup>4</sup> Available from American Concrete Institute (ACI), P.O. Box 9094, Farmington Hills, MI 48333-9094, http://www.concrete.org.

<sup>5</sup> Surface Preparation Standards are available Society for Protective Coatings (SSPC), 40 24th St., 6th Floor, Pittsburgh, PA 15222-4656, http://www.sspc.org.