



Designation: D6137 – 97 (Reapproved 2004)

Standard Test Method for Sulfuric Acid Resistance of Polymer Linings for Flue Gas Desulfurization Systems¹

This standard is issued under the fixed designation D6137; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method is intended to evaluate the sulfuric acid resistance at elevated temperatures of polymer linings applied to carbon steel substrates subject to sulfuric acid attack.

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.

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:*²

[A36/A36M Specification for Carbon Structural Steel](#)

[C868 Test Method for Chemical Resistance of Protective Linings](#)

[D660 Test Method for Evaluating Degree of Checking of Exterior Paints](#)

[D661 Test Method for Evaluating Degree of Cracking of Exterior Paints](#)

[D714 Test Method for Evaluating Degree of Blistering of Paints](#)

[D772 Test Method for Evaluating Degree of Flaking \(Scaling\) of Exterior Paints](#)

[D1186 Test Methods for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base \(Withdrawn 2006\)](#)³

[D1474 Test Methods for Indentation Hardness of Organic Coatings](#)

¹ This test method 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 D33.09 on Protective Lining for FGD Systems.

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² 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.

³ The last approved version of this historical standard is referenced on www.astm.org.

[D4138 Practices for Measurement of Dry Film Thickness of Protective Coating Systems by Destructive, Cross-Sectioning Means](#)

[D4417 Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel](#)

[D5162 Practice for Discontinuity \(Holiday\) Testing of Non-conductive Protective Coating on Metallic Substrates](#)

2.2 *Steel Structures Painting Council Standards*⁴

[SSPC VIS 1–89 Visual Standard](#)

[SSPC No. SP5 Blast Cleaning to White Metal](#)

3. Significance and Use

3.1 The results obtained by this test method can be used in combination with other test methods for the selection of a lining for surfaces in flue gas desulfurization (FGD) systems that will be exposed to hot unscrubbed flue gas or to scrubbed gas that has been reheated well above the water dew point.

3.1.1 This test method does not evaluate or correlate to areas within the scrubber or scrubbed gas streams at temperatures at or below the water dew point.

3.2 This test method is intended to evaluate the combined effects of heat and exposure to sulfuric acid upon a lining system as applied to a carbon steel substrate. It does not produce the thermal gradient through the lining that may exist in actual applications. Actual lining performance may also be affected by concurrent physical or mechanical effects and other chemicals that may be present in the flue gas.

3.3 This test method evaluates major failure modes of linings applied to square test panels that are cycled from room temperature to a designated elevated temperature.

3.4 The recommended test temperatures of 200°F (93°C) and 350°F (177°C) are based on typical maximum operating zone temperatures in flue gas desulfurization systems. Other temperatures may be evaluated as desired. Cycling to lower temperatures, including freezing, may be considered if applicable.

3.5 The standard acid concentration for all tests is 20 %, recognizing that the concentration will quickly rise to the equilibrium at the selected test temperature.

⁴ Available from The Society for Protective Coatings (SSPC), 40 24th St., 6th Floor, Pittsburgh, PA 15222-4656.