



Designation: D1735 – 21

Standard Practice for Testing Water Resistance of Coatings Using Water Fog Apparatus¹

This standard is issued under the fixed designation D1735; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 This practice covers the basic principles and operating procedures for testing water resistance of coatings in an apparatus similar to that used for salt spray testing.

1.2 This practice is limited to the methods of obtaining, measuring, and controlling the conditions and procedures of water fog tests. It does not specify specimen preparation, specific test conditions, or evaluation of results.

NOTE 1—Alternative practices for testing the water resistance of coatings include Practices [D870](#), [D2247](#), and [D4585](#).

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[B117 Practice for Operating Salt Spray \(Fog\) Apparatus](#)

[D609 Practice for Preparation of Cold-Rolled Steel Panels for Testing Paint, Varnish, Conversion Coatings, and](#)

¹ This practice is under the jurisdiction of ASTM Committee [D01](#) on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee [D01.27](#) on Accelerated Testing.

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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.

Related Coating Products

[D610 Practice for Evaluating Degree of Rusting on Painted Steel Surfaces](#)

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

[D823 Practices for Producing Films of Uniform Thickness of Paint, Coatings and Related Products on Test Panels](#)

[D870 Practice for Testing Water Resistance of Coatings Using Water Immersion](#)

[D1193 Specification for Reagent Water](#)

[D1654 Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments](#)

[D1730 Practices for Preparation of Aluminum and Aluminum-Alloy Surfaces for Painting](#)

[D2247 Practice for Testing Water Resistance of Coatings in 100 % Relative Humidity](#)

[D2616 Test Method for Evaluation of Visual Color Difference With a Gray Scale](#)

[D3359 Test Methods for Rating Adhesion by Tape Test](#)

[D3363 Test Method for Film Hardness by Pencil Test](#)

[D4541 Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers](#)

[D4585 Practice for Testing Water Resistance of Coatings Using Controlled Condensation](#)

3. Summary of Practice

3.1 Coated specimens are placed in an enclosed chamber to permit free settling of fog on all specimens. The temperature of the chamber is usually maintained at 38 °C (100 °F). The exposure condition is varied by selecting the duration of the test. Water permeates the coating at rates that are dependent upon the characteristics of the coating. Any effects such as color change, blisters, loss of adhesion, softening, or embrittlement are observed and reported.

4. Significance and Use

4.1 Water can cause the degradation of coatings, so knowledge of how a coating resists water is helpful in predicting its service life. Failure in water fog tests may be caused by a number of factors, including a deficiency in the coating itself,

*A Summary of Changes section appears at the end of this standard