



Standard Practice for Conducting Exterior Exposure Tests of Paints and Coatings on Metal Substrates¹

This standard is issued under the fixed designation D1014; 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 Department of Defense.

1. Scope*

1.1 This practice covers procedures to be followed for direct exposure of exterior paints and coatings to the environment when applied to metal surfaces. When originators of a weathering test have the actual exposure conducted by a separate agency, the specific conditions for the exposure of test and control specimens should be clearly defined and mutually agreed upon between all parties.

1.2 Experience indicates that the metal used as a test substrate has a significant effect upon weathering results. The purpose of this practice is to define specific steel and other metal surfaces to be used for testing in order to minimize this source of variability.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parenthesis 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 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
- A283/A283M Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
- B209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate
- B449 Specification for Chromates on Aluminum

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.

Current edition approved Feb. 1, 2009. Published March 2009. Originally approved in 1949. Last previous edition approved in 2002 as D1014 – 02. DOI: 10.1520/D1014-09.

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.

- D523 Test Method for Specular Gloss
- D609 Practice for Preparation of Cold-Rolled Steel Panels for Testing Paint, Varnish, Conversion Coatings, and Related Coating Products
- D610 Practice for Evaluating Degree of Rusting on Painted Steel Surfaces
- D660 Test Method for Evaluating Degree of Checking of Exterior Paints
- D661 Test Method for Evaluating Degree of Cracking of Exterior Paints
- D662 Test Method for Evaluating Degree of Erosion 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
- D823 Practices for Producing Films of Uniform Thickness of Paint, Varnish, and Related Products on Test Panels
- D1212 Test Methods for Measurement of Wet Film Thickness of Organic Coatings
- D1654 Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
- D1729 Practice for Visual Appraisal of Colors and Color Differences of Diffusely-Illuminated Opaque Materials
- D1730 Practices for Preparation of Aluminum and Aluminum-Alloy Surfaces for Painting
- D2200 Practice for Use of Pictorial Surface Preparation Standards and Guides for Painting Steel Surfaces
- D2201 Practice for Preparation of Zinc-Coated and Zinc-Alloy-Coated Steel Panels for Testing Paint and Related Coating Products
- D2244 Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates
- D2616 Test Method for Evaluation of Visual Color Difference With a Gray Scale
- D2803 Guide for Testing Filiform Corrosion Resistance of Organic Coatings on Metal
- D3359 Test Methods for Measuring Adhesion by Tape Test
- D4214 Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films

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