



Designation: D 1014 – 95

Standard Practice for Conducting Exterior Exposure Tests of Paints on Steel¹

This standard is issued under the fixed designation D 1014; 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 the determination of the relative service of exterior paints and other materials of similar purpose when applied on steel surfaces exposed out-of-doors.

1.2 Experience indicates that the steel used as a test surface has a marked bearing upon the weathering results. It is the purpose of this test method to minimize the influence of variation in steel surfaces on any series of tests by providing for uniformity in the selection of the steel surface, particularly in cooperative work. This practice also outlines uniform procedures for conducting the exposure tests and for evaluating and recording results.

1.3 The values stated in inch-pound 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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

A 36 Specification for Carbon Structural Steel²

A 283/A283M Specification for Low and Intermediate Tensile Strength Carbon Steel Plates²

D 609 Practice for Preparation of Cold-Rolled Steel Panels for Testing Paint, Varnish, Conversion Coatings, and Related Coating Products³

D 610 Test Method for Evaluating Degree of Rusting on Painted Steel Surfaces⁴

D 659 Methods of Evaluating Degree of Chalking of Exterior Paints⁵

D 660 Test Method for Evaluating Degree of Checking of Exterior Paints³

D 661 Test Method for Evaluating Degree of Cracking of Exterior Paints³

D 714 Test Method for Evaluating Degree of Blistering of Paints³

D 823 Practices for Producing Films of Uniform Thickness of Paint, Varnish, and Related Products on Test Panels³

D 1186 Test Methods for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base³

D 1212 Test Methods for Measurement of Wet Film Thickness of Organic Coatings⁴

D 2200 Pictorial Surface Preparation Standards for Painting Steel Surfaces⁴

D 4141 Practice for Conducting Accelerated Outdoor Exposure Tests of Coatings³

G 7 Practice for Atmospheric Environmental Exposure Testing of Nonmetallic Materials⁶

3. Significance and Use

3.1 The procedures described in this test method are intended to aid in evaluating performance of coatings on either new or previously rusted steel.

3.2 Since the natural environment varies with respect to season and geographic location, test results may not correlate with in-service performance.

4. Base Materials for Test Specimens

4.1 A minimum of two and preferably four test specimens shall be used to evaluate the performance of any paint system.

4.2 The surface preparation for the test panels should be that expected to be done in the field or in-service. The surface preparation shall be the same for all test panels in the test program unless surface preparation is one of the variables to be evaluated. Surface preparation must be essentially identical for all test panels, as the thoroughness of preparation may directly determine the performance life of the applied coating system.

¹ This practice is under the jurisdiction of ASTM Committee D-1 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 *Annual Book of ASTM Standards*, Vol 01.04.

³ *Annual Book of ASTM Standards*, Vol 06.01.

⁴ *Annual Book of ASTM Standards*, Vol 06.02.

⁵ Discontinued; see 1989 *Annual Book of ASTM Standards*, Vol 06.01.

⁶ *Annual Book of ASTM Standards*, Vol 14.02.