



Standard Practices for Producing Films of Uniform Thickness of Paint, Varnish, and Related Products on Test Panels¹

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

^{ε1} NOTE—Figure 3 was replaced and Section 18 was editorially corrected in November 2012.

1. Scope

1.1 Five practices are given for preparing films of uniform thickness of coatings on test panels. These practices are:

Practice A—Automatic Spray Machine Application
Practice B—Motor-Driven Dip Coater Application
Practice C—Motor-Driven Blade Film Application
Practice D—Hand-Held Spray Gun Application
Practice E—Hand-Held Blade Film Application

1.2 The values stated in SI 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

D609 Practice for Preparation of Cold-Rolled Steel Panels for Testing Paint, Varnish, Conversion Coatings, and Related Coating Products
D1005 Test Method for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers
D1186 Test Methods for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base (Withdrawn 2006)³

¹ These practices are under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and are the direct responsibility of Subcommittee D01.23 on Physical Properties of Applied Paint Films.

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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.

D1212 Test Methods for Measurement of Wet Film Thickness of Organic Coatings

D1400 Test Method for Nondestructive Measurement of Dry Film Thickness of Nonconductive Coatings Applied to a Nonferrous Metal Base (Withdrawn 2006)³

D3924 Specification for Environment for Conditioning and Testing Paint, Varnish, Lacquer, and Related Materials

PRACTICE A—AUTOMATIC SPRAY MACHINE APPLICATION

3. Summary of Practices

3.1 A liquid material is applied to a test panel by means of an automatic spray machine consisting of a mounted spray gun and a panel holder. This machine can (1) move the panel holder, with test panel, at a uniform speed through the atomized spray produced by a fixed spray gun, or (2) it can move the gun, with atomized spray, at a uniform speed past the test panel mounted on a fixed panel holder. A machine equipped with a programmable system can index the spray gun vertically for multiple passes and for multiple coats with selective time delay.

3.2 The thickness of coating applied is controlled by the traverse speed of the panel or gun, the fluid delivery rate of the gun, the viscosity of the material, and the amount of nonvolatile matter in the material.

4. Significance and Use

4.1 These practices should be used for those coatings that are designed for spray applications of objects in the factory or in the field. It is particularly important that it be used in the evaluation of metallic coatings for appearance properties, such as gloss and color.

4.2 Coatings applied by this test method may exhibit a slight orange-peel or spray wave.

5. Apparatus

5.1 *Test Panels*, of any smooth, planar material of a size that can be accommodated by the panel holder of the automatic spray machine.