



**Designation: D823 – 18 (Reapproved 2022)**

# Standard Practices for Producing Films of Uniform Thickness of Paint, Coatings and Related Products on Test Panels<sup>1</sup>

This standard is issued under the fixed designation D823; 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 ( $\epsilon$ ) 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 Five practices are given for preparing films of uniform thickness of coatings on test panels. These practices are:

Practice A—Automated 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 use of wire-wound drawdown bars as described in Practice **D4147** may also be an appropriate method for producing films of uniform coating thickness.

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:<sup>2</sup>

**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**

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

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

**D4147 Practice for Applying Coil Coatings Using Wire-Wound Drawdown Bars**

**D4285 Test Method for Indicating Oil or Water in Compressed Air**

**D4414 Practice for Measurement of Wet Film Thickness by Notch Gages**

**D7091 Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals**

## PRACTICE A—AUTOMATED SPRAY MACHINE APPLICATION

## 3. Summary of Practices

3.1 A liquid material is applied to a test panel by means of an automated 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(s) 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 spray gun tip size, the viscosity of the material, and the amount of nonvolatile matter in the material.

## 4. Significance and Use

4.1 This practice should be used for those coatings that are designed for spray applications of objects in the factory or in

<sup>1</sup> 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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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.