



Designation: **D4708 – 12 D4708 – 19**

Standard Practice for Preparation of Uniform Free Films of Organic Coatings¹

This standard is issued under the fixed designation D4708; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope*

1.1 This practice covers the preparation of free films of organic coatings for use in determining the physical properties of the coatings. ~~Procedures are given for preparing free films on three alternative substrates. These substrates are treated FEP (fluorinated ethylene-propylene) sheet, silicone coated paper, and halosilane coated glass plates.~~

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

1.4 *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

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

[D1005 Test Method for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers](#)

[D1653 Test Methods for Water Vapor Transmission of Organic Coating Films](#)

[D2370 Test Method for Tensile Properties of Organic Coatings](#)

[D5590 Test Method for Determining the Resistance of Paint Films and Related Coatings to Fungal Defacement by Accelerated Four-Week Agar Plate Assay](#)

[E96/E96M Test Methods for Water Vapor Transmission of Materials](#)

3. Summary of Test Method

3.1 Free films are prepared by depositing a uniform wet coating of the test material on a release substrate. The applied films are dried or baked, cut into appropriate size for the intended physical property test, and then stripped from the release substrate.

4. Significance and Use

4.1 Free films are required for conducting tests to evaluate physical and mechanical properties such as tensile and elongation (Test Methods ~~D2370~~ and ~~E96/E96M~~), moisture vapor permeability (Test Methods [D1653](#) and [E96/E96M](#)), microbiological activity resistance (Test Method [D5590](#)), and other physical properties of organic coatings where the substrate may interfere with the determination.

5. Apparatus and Materials

5.1 *Equipment*, for applying films of uniform thickness as described in Practices [D823](#).

5.2 *Micrometer Film Thickness Gage*, as described in Test Method [D1005](#).

5.3 ~~Alternative Release Substrates:~~ Substrates, any film releasing flat substrate which does not alter film properties and which allows the casting of coating films with a uniform thickness. Examples of suitable substrates are as follows:

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 [D01.23](#) on Physical Properties of Applied Paint Films.

Current edition approved July 1, 2012 March 1, 2019. Published August 2012 August 2019. Originally approved in 1987. Last previous edition approved in 2007 2012 as ~~D4708 – 07~~ D4708 – 12. DOI: [10.1520/D4708-12](#); [10.1520/D4708-19](#).

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~~ standard's Document Summary page on the ASTM website.

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