



Designation: D3451 – 24

Standard Guide for Testing Coating Powders and Powder Coatings¹

This standard is issued under the fixed designation D3451; 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.

1. Scope

1.1 This guide covers the selection and use of procedures for testing coating powders and powder coatings. The test methods included are listed in [Table 1](#). Where more than one test method is listed for the same characteristic, no attempt is made to indicate superiority of one method over another. Selection of the methods to be followed must be governed by experience and the requirements in each individual case, together with agreement between the purchaser and the seller.

1.2 This guide also refers to methods developed specifically for the coating powder industry by the Powder Coating Institute, PCI, and the International Organization for Standards, ISO.

1.3 This guide describes the testing of coating powders as applied by electrostatic spray, fluidized bed, or any other applicable method.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 *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.*

1.6 *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

[B117 Practice for Operating Salt Spray \(Fog\) Apparatus](#)

¹ This guide is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.51 on Powder Coatings.

Current edition approved Sept. 1, 2024. Published September 2024. Originally approved in 1975. Last previous edition approved in 2017 as D3451 – 06 (2017). DOI: 10.1520/D3451-24.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[D522 Test Methods for Mandrel Bend Test of Attached Organic Coatings](#)
[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](#)
[D658 Test Method for Abrasion Resistance of Organic Coatings by Air Blast Abrasive \(Withdrawn 1996\)³](#)
[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](#)
[D822 Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings](#)
[D870 Practice for Testing Water Resistance of Coatings Using Water Immersion](#)
[D968 Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive](#)
[D1005 Test Method for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers](#)
[D1014 Practice for Conducting Exterior Exposure Tests of Paints and Coatings on Metal Substrates](#)
[D1308 Test Method for Effect of Household Chemicals on Clear and Pigmented Coating Systems](#)
[D1474 Test Methods for Indentation Hardness of Organic Coatings](#)
[D1535 Practice for Specifying Color by the Munsell System](#)
[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](#)

³ The last approved version of this historical standard is referenced on www.astm.org.