



Standard Guide for Evaluation of Coatings Applied to Plastics¹

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1. Scope

1.1 This guide is intended for the evaluation of clear and pigmented coatings designed for use on rigid or semirigid plastic substrates. Coated film and sheeting are not covered by this guide.

1.2 *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:

- D 522 Test Methods for Mandrel Bend Test of Attached Organic Coatings²
- D 523 Test Method for Specular Gloss²
- D 658 Test Method for Abrasion Resistance of Organic Coatings by Air Blast Abrasive³
- D 822 Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings²
- D 870 Practice for Testing Water Resistance of Coatings Using Water Immersion²
- D 968 Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive²
- D 1308 Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes⁴
- D 1729 Practice for Visual Appraisal of Colors and Color Differences of Diffusely Illuminated Opaque Materials²
- D 2199 Test Method for Measurement of Plasticizer Migration from Vinyl Fabrics to Lacquers⁴
- D 2244 Practice for Calculation Color Tolerances and of Color Differences from Instrumentally Measured Color Coordinates²
- D 2246 Test Method for Finishes on Primed Metallic Substrates for Humidity-Thermal Cycle Cracking²

- D 2247 Practice for Testing Water Resistance of Coatings in 100 % Relative Humidity²
- D 3170 Test Method for Chipping Resistance of Coatings⁴
- D 3359 Test Methods for Measuring Adhesion by Tape Test²
- D 3361 Practice for Unfiltered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings²
- D 3363 Test Method for Film Hardness by Pencil Test²
- D 4060 Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser²
- D 4141 Practice for Conducting Black Box and Solar Concentrating Exposures of Coatings²
- D 4587 Practice for Fluorescent UV-Condensation Exposures of Paint and Related Coatings²
- D 5031 Practice for Enclosed Carbon-Arc Exposure Tests of Paint and Related Coatings²
- D 5179 Test Method for Measuring Adhesion of Organic Coatings to Plastic Substrates by Direct Tensile Testing²
- D 6695 Practice for Xenon-Arc Exposures of Paint and Related Coatings²
- G 99 Test Method for Wear Testing with a Pin-on-Disk Apparatus⁵

3. Significance and Use

3.1 This guide is designed to set up a series of screening tests that will indicate the performance level to be expected of a coating or coating system on a given plastic substrate.

3.2 Plastic substrates vary widely in their acceptance characteristics for a given coating.

NOTE 1—Not all tests apply to all plastics.

3.3 Surface cleaning or preparation prior to application of the coating can be critical to the proper performance of the coating.

4. Test Panels and Panel Preparation

4.1 Unless directed otherwise, conduct performance tests on coatings of specified thickness applied to a normally molded sample of the designated plastic.

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 D01.55 on Factory Applied Coatings on Preformed Products.

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² Annual Book of ASTM Standards, Vol 06.01.

³ Discontinued; see 1998 Annual Book of ASTM Standards, Vol 06.01.

⁴ Annual Book of ASTM Standards, Vol 06.02.

⁵ Annual Book of ASTM Standards, Vol 03.02.