



Designation: D2454 – 14

Standard Practice for Determining the Effect of Overbaking on Organic Coatings¹

This standard is issued under the fixed designation D2454; 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 practice covers the determination of the time-temperature effect of overbaking on the physical and chemical properties of organic coatings.

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

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 whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* Specific hazard statements are given in Section 7.

2. Referenced Documents

2.1 ASTM Standards:²

- 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
- D823 Practices for Producing Films of Uniform Thickness of Paint, Varnish, and Related Products on Test Panels
- D1005 Test Method for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers
- D1308 Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes
- D1640 Test Methods for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature
- 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
- D1731 Practices for Preparation of Hot-Dip Aluminum Surfaces for Painting
- D2197 Test Method for Adhesion of Organic Coatings by Scrape Adhesion
- D2201 Practice for Preparation of Zinc-Coated and Zinc-Alloy-Coated Steel Panels for Testing Paint and Related Coating Products
- D2244 Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates
- D2794 Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
- D3359 Test Methods for Measuring Adhesion by Tape Test
- D3363 Test Method for Film Hardness by Pencil Test
- D6386 Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting
- 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
- D7396 Guide for Preparation of New, Continuous Zinc-Coated (Galvanized) Steel Surfaces for Painting
- E805 Practice for Identification of Instrumental Methods of Color or Color-Difference Measurement of Materials

3. Terminology

3.1 Definitions:

3.1.1 *overbaking, n*—an exposure of the coating to a moderately higher temperature or to a longer period of baking, or both, than recommended by the manufacturer of the coating for normal curing.

3.1.1.1 *Discussion*—This condition is in contrast to “heat resistance” which is a parameter relating to the service life of a coating.

4. Summary of Practice

4.1 Four panels are prepared and baked at the schedule normally recommended for the coating. Two of the panels are then removed and the remaining two are subjected to an additional overbake in which the time and temperature are mutually agreed upon between the purchaser and the seller. The sets of panels, after a suitable conditioning interval, are

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 D01.27 on Accelerated Testing.

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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.

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