Designation: D 2454 – 95 (Reapproved 2002)

Standard Practice for Determining the Effect of Overbaking on Organic Coatings[1]

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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 *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:*

D 522 Test Methods for Mandrel Bend Test of Attached Organic Coatings[2]

D 523 Test Method for Specular Gloss[2]

D 609 Practice for Preparation of Cold-Rolled Steel Panels for Testing Paint, Varnish, Conversion Coatings, and Related Coating Products[2]

D 823 Practices for Producing Films of Uniform Thickness of Paint, Varnish, and Related Products on Test Panels[2]

D 1005 Test Method for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers[2]

D 1186 Test Methods for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base[2]

D 1308 Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes[3]

D 1400 Test Method for Nondestructive Measurement of Dry Film Thickness of Nonconductive Coatings Applied to a Nonferrous Metal Base[2]

D 1640 Test Methods for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature[2]

D 1729 Practice for Visual Appraisal of Colors and Color Differences of Diffusely-Illuminated Opaque Materials[2]

D 1730 Practices for Preparation of Aluminum and Aluminum-Alloy Surfaces for Painting[4]

D 1731 Practices for Preparation of Hot-Dip Aluminum Surfaces for Painting[4]

D 2092 Guide for Preparation of Zinc-Coated (Galvanized) Steel Surfaces for Painting[3]

D 2197 Test Method for Adhesion of Organic Coatings by Scrape Adhesion[2]

D 2201 Practice for Preparation of Zinc-Coated and Zinc-Alloy-Coated Steel Panels for Testing Paint and Related Coating Products[2]

D 2244 Test Method for Calculation of Color Differences From Instrumentally Measured Color Coordinates[2]

D 2794 Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)[2]

D 3359 Test Methods for Measuring Adhesion by Tape Test[2]

D 3363 Test Method for Film Hardness by Pencil Test[2]

E 805 Practice for Identification of Instrumental Methods of Color or Color-Difference Measurement of Materials[2]

3. Terminology

3.1 *Definition*:

3.1.1 *overbaking*—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. 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 then evaluated for the properties that are compatible with the substrate. Among these are gloss, color, flexibility, adhesion, impact resistance, and resistance to reagents. Note that glass

[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] *Annual Book of ASTM Standards*, Vol 06.01.

[3] *Annual Book of ASTM Standards*, Vol 06.02.

[4] *Annual Book of ASTM Standards*, Vol 02.05.