



Standard Test Method for Stain Removal From Multicolor Lacquers¹

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1. Scope

1.1 This test method covers a procedure for the removal of pencil, crayon, and grease stains from multicolor lacquer films that have been applied to primed steel panels.

NOTE 1—Due to the nature of the test, comparable results can be obtained only when exactly the same materials and apparatus are used. In this test method it has not been found possible to describe the materials and apparatus adequately in more than general terms.

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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

A 109 Specification for Steel, Strip, Carbon (0.25 Maximum Percent), Cold-Rolled²

A 366/A 366M Specification for Commercial Steel (CS), Sheet, Carbon (0.15 Maximum Percent), Cold-Rolled, Commercial Quality³

D 209 Specification for Lampblack Pigment⁴

D 609 Practice for Preparation of Cold-Rolled Steel Panels for Testing Paint, Varnish, Conversion Coatings, and Related Coating Products⁵

2.2 U. S. Federal Specifications:⁶

Fed. Spec. EE-0-451C Specification for Oleo (Margarine)

Fed. Spec. TTV-121C Specification for Varnish, Spar, Water Resisting

Fed. Spec. VV-0-551 Specification for Oil, Lubricating, Marine and Engine, Mineral

Fed. Spec. VV-P-236 Specification for Petrolatum

2.3 U. S. Military Specification:⁶

MIL-P-11414A Specification for Primer Coating, Lacquer, Rust Inhibiting

3. Summary of Test Method

3.1 Three 165 by 430 mm (6½ by 17 in.) primed steel panels are sprayed with multicolor lacquer and allowed to dry for 24 h. Varnish is then applied to the ends of the panels and allowed to dry 72 h. The three stains are applied by a mechanical apparatus and removed by washing.

4. Significance and Use

4.1 The procedure described in this test method is intended as an aid in evaluating the ease of removal for surface stains encountered by surfaces coated with multicolor lacquers.

5. Apparatus and Materials

5.1 *Steel Panels*, 165 by 430 mm (6½ by 17 in.), 20-gage cold-rolled steel conforming to Specification A 109 or Specification A 366/A 366M.

5.2 *Washability Machine*,⁷ The washability machine should be capable of moving the abrasion boat linearly across the sample with a reciprocating motion. The speed should be 37 ± 1 cycles (double strokes) per minute over a 10 in. travel.

5.3 *Lacquer Primer*, conforming to MIL-P-11414A.

5.4 *Drafting Pencil*.

5.5 *China Marking Crayon*.

5.6 *Wetting Agent*.⁸

5.7 *Silica*.⁹

5.8 *Diaper Cloth*.

5.9 *Varnish*, clear and waterproof, conforming to Fed. Spec. TT-V-121C or equal cut in mineral spirits.

5.10 *Carriage*, for mounting pencil and crayon.

5.11 *Arm*, extendible, for mounting mohair roller.

5.12 *Mohair Roller*, 40 mm (1½ in.), for application of grease stain.

5.13 *Glass Plate*, 100 by 175 mm (4 by 7 in.), for holding grease stain.

¹ This test method 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 01.03.

³ Discontinued; see *Annual Book of ASTM Standards*, Vol 01.03.

⁴ *Annual Book of ASTM Standards*, Vol 06.03.

⁵ *Annual Book of ASTM Standards*, Vol 06.01.

⁶ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098.

⁷ A list of machines suitable for this purpose is found in supporting data available from ASTM International Headquarters. Request RR: D01-1124.

⁸ Triton X-100, available from Dow Chemical, 2040 Dow Center, Midland, MI 48674, has been found suitable for this purpose.

⁹ A list of silicas suitable for this purpose is found in supporting data available from ASTM International Headquarters. Request RR: D01-1125.