



Designation: F2109 – 01 (Reapproved 2005)

Standard Test Method to Determine Color Change and Staining Caused by Aircraft Maintenance Chemicals upon Aircraft Cabin Interior Hard Surfaces¹

This standard is issued under the fixed designation F2109; 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 test method covers the determination of color change and staining from liquid solutions, such as cleaning or disinfecting chemicals or both, on painted metallic surfaces and nonmetallic surfaces of materials being used inside the aircraft cabin. The effects upon the exposed specimens are measured with the AATCC Gray Scale for Color Change and AATCC Gray Color Scale for Staining.

NOTE 1—This test method is applicable to any colored nonmetallic hard surface in contact with liquids. The selected test specimens are chosen because these materials are present in the majority of aircraft cabin interiors.

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:*²

D1193 Specification for Reagent Water

2.2 *Industry Standard:*

AMS QQ-A-250/13 Aluminum Alloy Plate and Sheet³

3. Significance and Use

3.1 The findings generated by this test method shall be part of the approval of maintenance chemicals to be used on, or to come in contact with, airplane interior surfaces during routine operations. The test method screens these chemicals to ensure that no discoloration or staining or both is liable to occur by use of the liquid chemical product.

¹ This test method is under the jurisdiction of ASTM Committee F07 on Aerospace and Aircraft and is the direct responsibility of Subcommittee F07.07 on Qualification Testing of Aircraft Cleaning Materials.

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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.

³ Available from SAE World Headquarters, 400 Commonwealth Dr., Warrendale, PA 15096-0001.

4. Apparatus

4.1 AATCC Gray Scale for Color Rating⁴

4.2 AATCC Gray Color Scale for Staining⁴

4.3 Tungsten Filament Lamps, operating at a color temperature of 2854, 4800, and 6500 K.⁵

4.4 The Macbeth Daylight, a tungsten filament lamp operating at a color temperature of 7500 K.⁶

5. Materials

5.1 Bottles, polyethylene with spray applicator.

5.2 Bottles, polyethylene, wash bottle type with nozzle.

5.3 Leather, PO-8-XXXX series.⁷

5.4 Naugahyde, Uniroyal Spirit of 76 pattern, Flammability treated.⁸

5.5 Paper Towels, white, reinforced.

5.6 Sponges, cellulose.

5.7 AMS QQ-A-250/13 Aluminum Alloy Plate and Sheet, Alclad 7075-T6 coated.

5.8 Wipers, cheesecloth, gauze or cotton cloths.⁹

6. Test Specimens

6.1 Prepare two 200- by 200-mm (8- by 8-in.) test panels of each of the following materials:

6.1.1 Aluminum QQ-A-250/13 Aluminum Alloy Plate and Sheet, Alclad 7075-T6 coated, covered with a paint system as required by the customer.

6.1.2 Tedlar-covered surfaces in accordance with the requirements of the customer.

6.1.3 Vinyl-covered surfaces in accordance with the requirements of the customer.

6.1.4 Leather surfaces.

⁴ Available from AATCC, 1 Davis Dr., Research Triangle Park, NC 27709–2215.

⁵ Available from SDL, 1900 Center Park Dr., Suite 1000, Charlotte, NC 28217–2956.

⁶ Available from GretagMacbeth, 617 Little Britain Rd., New Windsor, NY 12553.

⁷ Available from Lackawanna Leather Company, P. O. Box 1008, Canover, NC 28613.

⁸ Available from Van Waters and Rogers, 8201 212th Street, Kent, WA 98031.

⁹ These materials should be washed before use since new unwashed wipers, in contact with the chemicals under test, may leave deposits on the surface of the test specimens.