



Standard Test Method for Cleanability of Surface Finishes¹

This standard is issued under the fixed designation C 756; 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 numerical evaluation of the ease or difficulty of cleaning soiled surface finishes. This test method is applicable to all surface finishes not affected by water.

1.2 Values given in SI units are to be regarded as the standard. Inch-pound units are provided 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:

C 282 Test Method for Acid Resistance of Porcelain Enamels (Citric Acid Spot Test)²

C 614 Test Method for Alkali Resistance of Porcelain Enamels²

3. Summary of Test Method

3.1 The test method consists of applying an exact amount of a fluorescent water-soluble soiling agent to a specimen surface and then cleaning the surface with a reproducible machine-wiping technique. The soil remaining on the specimen after wiping is extracted with a water solvent and the fluorescence of the solution measured. A standard reference surface is treated in a similar manner. The cleanability index of the surface under test is expressed as the ratio of the fluorescence of the solutions extracted from the test surface and from the standard reference surface. Cleanability indexes greater than 1.0 indicate that the test surface is more difficult to clean than the standard reference surface, while indexes less than 1.0 indicate that the test surface is more easily cleanable than the standard of comparison.

3.2 The soiling agent used consists of polyethylene glycol, a black dye, and a fluorescent tracer, each of which is readily water soluble.

4. Significance and Use

4.1 This test method was developed to guide the user in selecting a finish coating or material that is resistant to soiling in a particular application.

4.2 The numerical values derived by this test method enables the user to rank finish coatings and materials in regard to soil retention or ease of soil removal.

5. Apparatus

5.1 *Motor-Driven Lapping Plate*, 203-mm (8-in.) diameter, speed 163 r/min.³

5.2 *Automatic Polishing Unit*, 11-s cycle, adjustable to 48-mm (1 $\frac{7}{8}$ -in.) stroke.⁴

5.3 *Hypodermic Syringe*, glass, 2-mL capacity, without needle.

5.4 *Repeating Pipet*, 0.025 mL (25 μ L) capacity.

5.5 *Repeating Pipet*, 10-mL capacity.

5.6 *Desiccator* approximately 254 mm (10 in.) diameter.

5.7 *Cleaning Head*, brass, 57 mm (2 $\frac{1}{4}$ in.), with worm-driven hose clamp for attachment of cleaning tissues (Fig. 1).

5.8 *Soiling Head*, brass, 25 mm (1 in.) diameter, with 25-mm (1-in.) diameter facing of polytetrafluoroethylene attached with a water-proof household cement (Fig. 1).

5.9 *Extraction Cell*, fitted with a fluorosilicone O-ring, size 3.2 by 57 mm ($\frac{1}{8}$ by 2 $\frac{1}{4}$ in.) (Fig. 2).⁵

5.10 *Fluorometer*, for measuring the fluorescence of solutions.⁶

5.11 *0.9 Neutral Density Filter*, 50.8 by 50.8 mm (2 by 2 in.) glass mounted (transmission 12.5 %).

5.12 *Beakers*, borosilicate, 100-mL capacity.

³ Suitable lapping plates are available from Buehler Ltd., 2120 Greenwood St., Evanston, IL 60204; Struers, Inc., 20102 Progress Drive, Cleveland, OH, 44136; or other Metallurgical Supply Sources.

⁴ An Olsen "S.M." Automatic Polisher has been found suitable and is available under the code name OLPOL from Struers, Inc., 20102 Progress Drive, Cleveland, OH 44136.

⁵ O-rings must be fluorosilicone polymer; consult Precision Associates, 742 N. Washington Ave., Minneapolis, MN 55401; Parker Seal Co., 10567 W. Jefferson Blvd., Culver City, CA 90230; & B. W. Rogers (Parker Dis.) 1000 Brookpark Rd., Cleveland, OH 44109. Also see other sources in Thomas Register under SEALS: "O" RINGS. A suitable device for clamping the cell to a specimen is shown in Fig. 3 and Fig. 5.

⁶ Turner Fluorometer, Model 111 (Turner 111-003) available from Curtin Matheson Scientific, Inc., 10727 Tucker St., Beltsville, MD 20705, Sequoia-Turner Dial Model 111, Fisher Scientific Co., 711 Forbes Ave., Pittsburgh, PA 15219, and other principal cities for both.

¹ This test method is under the jurisdiction of ASTM Committee B-8 on Metallic and Inorganic Coatings and is the direct responsibility of Subcommittee B08.12 on Materials for Porcelain Enamel and Ceramic-Metal Systems.

Current edition approved Aug. 28, 1987. Published October 1987. Originally published as C 756 – 73. Last previous edition C 756 – 79.

² *Annual Book of ASTM Standards*, Vol 02.05.