



Designation: C641 – 09

Standard Test Method for Iron Staining Materials in Lightweight Concrete Aggregates¹

This standard is issued under the fixed designation C641; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 This test method covers the testing of lightweight concrete aggregates to evaluate the potential degree of staining from iron compounds.

1.2 The values stated in SI units are to be regarded as the standard. The inch-pound values given in parentheses are provided for information only.

1.3 *This standard does not purport to address the safety problems 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

C330 Specification for Lightweight Aggregates for Structural Concrete

C331 Specification for Lightweight Aggregates for Concrete Masonry Units

C702 Practice for Reducing Samples of Aggregate to Testing Size

D75 Practice for Sampling Aggregates

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

E832 Specification for Laboratory Filter Papers

3. Significance and Use

3.1 This test method evaluates the potential degree of staining attributable to the presence of iron compounds in a lightweight aggregate sample primarily by means of a visual classification method. Such compounds may or may not

¹ This test method is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.21 on Lightweight Aggregates and Concrete.

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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.

produce stains on the surface of the concrete in which the aggregate is incorporated.

4. Apparatus

4.1 *Balance*—A balance or scale accurate to within 0.1 % of the test load at any point within the range of use.

4.2 *Sieves*—9.5-mm ($\frac{3}{8}$ -in.) and 600- μ m (No. 30) sieves conforming to Specification E11.

4.3 *Filter Paper*—shall comply with Specification E832 class E2 with a minimum diameter of 250 mm.

4.4 *Cheesecloth Wrapping*—Two thicknesses, reagent grade cheesecloth, approximately 457 mm (18 in.) square is sufficient for wrapping each sample.

4.5 *Steam Bath*—Any suitable apparatus that will meet the requirement of the test procedure. Water in the steam bath, and makeup water, shall be iron-free water or distilled water.

NOTE 1—An oven top glassware sterilizer made of nonferrous materials is satisfactory.

5. Reagents

5.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.³

5.2 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean distilled water or water of equal purity.

5.3 Concentration of Reagents:

5.3.1 *Concentrated Acid and Ammonium Hydroxide*—When reagents are specified by name it shall be understood that concentrated reagents of the following specific gravity are intended:

Hydrochloric acid (HCl)	sp gr 1.19
Ammonium hydroxide (NH ₄ OH)	sp gr 0.90

³ "Reagent Chemicals, American Chemical Society Specifications," Am. Chem. Soc., Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see "Reagent Chemicals and Standards," by Joseph Rosin, D. Van Nostrand Co., Inc., New York, NY, and the "United States Pharmacopeia."

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

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