



Designation: C123 – 04

American Association State
Highway and Transportation Standard
AASHTO No.: T 113

Standard Test Method for Lightweight Particles in Aggregate¹

This standard is issued under the fixed designation C123; 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 Department of Defense.

1. Scope

1.1 This test method covers the determination of the percentage of lightweight particles in aggregate by means of sink-float separation in a heavy liquid of suitable specific gravity.

1.2 The values given 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.* For a specific hazard statement, see 6.1.4.

2. Referenced Documents

2.1 *ASTM Standards:*²

C33 Specification for Concrete Aggregates

C125 Terminology Relating to Concrete and Concrete Aggregates

C127 Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate

C128 Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate

C702 Practice for Reducing Samples of Aggregate to Testing Size

C1005 Specification for Reference Masses and Devices for Determining Mass and Volume for Use in the Physical Testing of Hydraulic Cements

D75 Practice for Sampling Aggregates

D3665 Practice for Random Sampling of Construction Materials

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

E100 Specification for ASTM Hydrometers

3. Terminology

3.1 For definitions of terms used in this test method, refer to Terminology **C125**.

4. Significance and Use

4.1 This test method is used to determine conformance with provisions of Specification **C33** pertaining to the amount of lightweight material in fine and coarse aggregates. A heavy liquid with a specific gravity of 2.0 is used to separate particles which may be classified as coal or lignite. Heavier liquids are to be used to check the percentages of other lightweight particles such as chert and shale having a specific gravity less than 2.40.

4.2 The test method is useful in identifying porous aggregate particles in research activities or in petrographic analyses.

5. Apparatus

5.1 **Balances**—For determining the mass of fine aggregates, a balance having a capacity of not less than 500 g, sensitive to at least 0.1 g; for determining the mass of coarse aggregate, a balance having a capacity of not less than 5000 g, sensitive to at least 1 g. Both balances shall conform to the accuracy criterion of the applicable sections of Specification **C1005**.

5.2 **Containers** suitable for drying the aggregate sample, and containers suitable for holding the heavy liquid during the sink-float separation.

5.3 **Skimmer**—A piece of 300- μ m (No. 50) sieve cloth, conforming to Specification **E11**, of suitable size and shape for separating the floating particles from the heavy liquid.

5.4 **Hot Plate or Oven**.

5.5 **Sieves**, 300- μ m (No. 50) and 4.75-mm (No. 4) conforming to Specification **E11**.

5.6 **Specific Gravity Measurement**—A hydrometer conforming to the physical requirement sections for individual hydrometers of Specification **E100**, or a suitable combination of graduated glassware and balance capable of measuring the liquid specific gravity within ± 0.01 .

¹ This test method is under the jurisdiction of ASTM Committee **C09** on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee **C09.20** on Normal Weight Aggregates.

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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.