



Designation: C331/C331M – 17

Standard Specification for Lightweight Aggregates for Concrete Masonry Units¹

This standard is issued under the fixed designation C331/C331M; 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 specification covers lightweight aggregates intended for use in concrete masonry units when a prime consideration is to reduce the density of the units.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard. Some values have only SI units because the inch-pound equivalents are not used in practice.

NOTE 1—Sieve size is identified by its standard designation in Specification E11. The alternative designation given in parentheses is for information only and does not represent a different standard sieve size.

1.3 The text of this specification references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

C29/C29M Test Method for Bulk Density (“Unit Weight”) and Voids in Aggregate

C40 Test Method for Organic Impurities in Fine Aggregates for Concrete

C114 Test Methods for Chemical Analysis of Hydraulic Cement

¹ This specification 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.

Current edition approved June 15, 2017. Published July 2017. Originally approved in 1953. Last previous edition approved in 2014 as C331/C331M – 14. DOI: 10.1520/C0331_C0331M-17.

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.

C125 Terminology Relating to Concrete and Concrete Aggregates

C136 Test Method for Sieve Analysis of Fine and Coarse Aggregates

C142 Test Method for Clay Lumps and Friable Particles in Aggregates

C151 Test Method for Autoclave Expansion of Hydraulic Cement

C157/C157M Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete

C641 Test Method for Iron Staining Materials in Lightweight Concrete Aggregates

C702 Practice for Reducing Samples of Aggregate to Testing Size

C1262 Test Method for Evaluating the Freeze-Thaw Durability of Dry-Cast Segmental Retaining Wall Units and Related Concrete Units

D75 Practice for Sampling Aggregates

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this specification, refer to Terminology C125.

4. Aggregate Types

4.1 Three general types of lightweight aggregates are covered by this specification, as follows:

4.1.1 Aggregates prepared by expanding, pelletizing, or sintering products such as blast-furnace slag, clay, diatomite, fly ash, shale, or slate, and

4.1.2 Aggregates prepared by processing natural materials, such as pumice, scoria, or tuff, and

4.1.3 Aggregates consisting of end products of coal or coke combustion.

4.2 The aggregates shall be composed predominately of lightweight-cellular and granular inorganic material.

5. Chemical Composition

5.1 Lightweight aggregates shall not contain excessive amounts of deleterious substances, as determined by the following limits:

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