



Designation: C404 – 11 (Reapproved 2017)

Standard Specification for Aggregates for Masonry Grout¹

This standard is issued under the fixed designation C404; 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 specification covers aggregate for use in grout for masonry.

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

1.3 The following precautionary caveat pertains only to the test methods portion, Section 8 of the standard. *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

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

- C33 Specification for Concrete Aggregates
- C40 Test Method for Organic Impurities in Fine Aggregates for Concrete
- C87 Test Method for Effect of Organic Impurities in Fine Aggregate on Strength of Mortar
- C88 Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
- C117 Test Method for Materials Finer than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing
- C123 Test Method for Lightweight Particles in Aggregate

¹ This specification is under the jurisdiction of ASTM Committee C12 on Mortars and Grouts for Unit Masonry and is the direct responsibility of Subcommittee C12.04 on Specifications for Aggregates for Mortars.

Current edition approved Dec. 15, 2017. Published January 2018. Originally approved in 1957. Last previous edition approved in 2011 as C404-11. DOI: 10.1520/C0404-11R17.

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.

- C127 Test Method for Relative Density (Specific Gravity) and Absorption of Coarse Aggregate
- C128 Test Method for Relative Density (Specific Gravity) and Absorption of Fine Aggregate
- C136 Test Method for Sieve Analysis of Fine and Coarse Aggregates
- C142 Test Method for Clay Lumps and Friable Particles in Aggregates
- C144 Specification for Aggregate for Masonry Mortar
- C476 Specification for Grout for Masonry
- D75 Practice for Sampling Aggregates

3. General Characteristics

3.1 Aggregates shall consist of natural sand or manufactured sand, used alone or in combination with coarse aggregate as described in this specification. Manufactured sand is the product obtained by crushing stone, gravel, or air-cooled iron blast-furnace slag. Coarse aggregate shall consist of crushed stone, gravel, or air-cooled iron blast-furnace slag processed to assure suitable gradation.

NOTE 1—Care should be taken to ensure a suitable particle shape, since excessive quantities of flat and elongated particles have historically caused problems with workability.

4. Grading

4.1 Grading shall conform to the requirements in Table 1 or shall comply with the requirements of 4.2.

NOTE 2—Size No. 1 is that specified for concrete sand in Specification C33; Size No. 2 is that specified for masonry mortar in Specification C144; and Sizes 8 and 89 are standard sizes as given in Specification C33.

4.2 Aggregates of gradations other than those covered by Table 1 are permitted if all of the requirements of 4.2.1, 4.2.2, and 4.2.3 are met.

4.2.1 One hundred percent of the fine aggregate shall pass the 9.5-mm ($\frac{3}{8}$ -in.) sieve and no more than 5 % natural sand or 10 % for manufactured sand shall pass the 75- μ m (No. 200) sieve.

4.2.2 One hundred percent of the coarse aggregate shall pass the 12.5-mm ($\frac{1}{2}$ -in.) sieve and no more than 5 % shall pass the 600- μ m (No. 30) sieve.

4.2.3 The compressive strength of grout shall be specified and meet the requirements of Specification C476.