



Designation: **C404 – 18 C404 – 24**

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 text of this standard 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 this standard.

1.4 The following precautionary caveat pertains only to the test methods portion, Section 9 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.*

1.5 *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

[ASTM C404-24](#)

<https://standards.iteh.ai/catalog/standards/astm/db7bfce9-3097-449a-a5d0-6139bb208555/astm-c404-24>

2.1 ASTM Standards:²

[C33/C33M Specification for Concrete Aggregates](#)

[C40/C40M Test Method for Organic Impurities in Fine Aggregates for Concrete](#)

[C87/C87M Test Method for Effect of Organic Impurities in Fine Aggregate on Strength of Mortar](#)

[C88/C88M Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate](#)

[C117 Test Method for Materials Finer than 75- \$\mu\$ m \(No. 200\) Sieve in Mineral Aggregates by Washing](#)

[C123/C123M Test Method for Lightweight Particles in Aggregate](#)

[C127 Test Method for Relative Density \(Specific Gravity\) and Absorption of Coarse Aggregate \(Withdrawn 2024\)³](#)

[C128 Test Method for Relative Density \(Specific Gravity\) and Absorption of Fine Aggregate](#)

[C136/C136M Test Method for Sieve Analysis of Fine and Coarse Aggregates](#)

[C142/C142M Test Method for Clay Lumps and Friable Particles in Aggregates](#)

[C144 Specification for Aggregate for Masonry Mortar](#)

[C476 Specification for Grout for Masonry](#)

¹ This specification is under the jurisdiction of ASTM Committee [E5C12](#) on [Manufactured Masonry Units, Mortars and Grouts for Unit Masonry](#) and is the direct responsibility of Subcommittee [E5.30C12.04](#) on [Specifications for Mortars and Grouts/Aggregates for Mortars](#).

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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.

³ The last approved version of this historical standard is referenced on www.astm.org.

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

3. Terminology

3.1 For definitions of terms used in this specification, refer to Terminology **C1180**.

4. General Characteristics

4.1 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.

5. Grading

5.1 Grading shall conform to the requirements in **Table 1** or shall comply with the requirements of **5.2**.

NOTE 2—Size No. 1 is that specified for concrete sand in Specification **C33/C33M**; 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/C33M**.

5.2 Aggregates of gradations other than those covered by **Table 1** are permitted if all of the requirements of **5.2.1**, **5.2.2**, and **5.2.3** are met.

5.2.1 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- mm (No. 200) sieve.

5.2.2 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.

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

6. Deleterious Substances

6.1 The amounts of deleterious substances in either fine or coarse aggregate shall not exceed the following:

TABLE 1 Grading Requirements

Sieve Designation	Amounts Finer than Each Laboratory Sieve Designation, weight %				
	Fine Aggregate			Coarse Aggregate	
	Size No. 1	Size No. 2		Size No. 8	Size No. 89
	Natural	Manufactured			
12.5-mm ($\frac{1}{2}$ -in.)	...	...	...	100	100
9.5-mm ($\frac{3}{8}$ -in.)	100	...	...	85 to 100	90 to 100
4.75-mm (No. 4)	95 to 100	100	100	10 to 30	20 to 55
2.36-mm (No. 8)	80 to 100	95 to 100	95 to 100	0 to 10	5 to 30
1.18-mm (No. 16)	50 to 85	70 to 100	70 to 100	0 to 5	0 to 10
600- μ m (No. 30)	25 to 60	40 to 75	40 to 75	...	0 to 5
300- μ m (No. 50)	5 to 30	10 to 35	20 to 40	...	...
150- μ m (No. 100)	0 to 10	2 to 15	10 to 25	...	...
75- μ m (No. 200)	...	0 to 5	0 to 10	...	...