



Designation: C265 – 08

Standard Test Method for Water-Extractable Sulfate in Hydrated Hydraulic Cement Mortar¹

This standard is issued under the fixed designation C265; 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 test method covers the measurement of water-extractable SO_3 in hardened hydraulic cement mortar. This measurement is assumed to represent unreacted, available sulfate remaining in the mortar.

1.1.1 **Warning**—Fresh hydraulic cementitious mixtures are caustic and may cause chemical burns to skin and tissue upon prolonged exposure.

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 Values in SI units were obtained by measurement in SI units or by appropriate conversion using the Rules for Conversion and Rounding given in Standard [IEEE/ASTM SI-10](#) of measurements made in other units.

1.4 *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.*

2. Referenced Documents

2.1 ASTM Standards:²

[C109/C109M Test Method for Compressive Strength of Hydraulic Cement Mortars \(Using 2-in. or \[50-mm\] Cube Specimens\)](#)

[C114 Test Methods for Chemical Analysis of Hydraulic Cement](#)

[C150 Specification for Portland Cement](#)

[C219 Terminology Relating to Hydraulic Cement](#)

[C305 Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency](#)

[C563 Test Method for Approximation of Optimum \$\text{SO}_3\$ in Hydraulic Cement Using Compressive Strength](#)

[C595 Specification for Blended Hydraulic Cements](#)

[C778 Specification for Sand](#)

[C1157 Performance Specification for Hydraulic Cement](#)

[D1193 Specification for Reagent Water](#)

[E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves](#)

[IEEE/ASTM SI-10 Standard for Use of the International System of Units \(SI\): The Modern Metric System](#)

3. Terminology

3.1 *Definitions*—The terms used in this test method are defined in accordance with Terminology [C219](#).

4. Significance and Use

4.1 Excess soluble sulfate ions in hardened cement can result in reduced durability. This test method is intended to show whether calcium sulfate has been used in cement in such amount to leave excess soluble sulfate in hardened mortar. The test method is used to establish compliance in Specification [C595](#) for those cements in which optimized SO_3 exceeds the table limit. This test method also can provide useful information on other hydraulic cements, such as those specified in Specifications [C150](#) and [C1157](#).

4.2 When this test method is used in conjunction with Test Method [C563](#), use the appropriate age of test specimens (24 h, 3 days, or 7 days) to coincide with the age of specimens used in Test Method [C563](#).

5. Apparatus

5.1 *Sieve*—A 2.36-mm (No.8) sieve conforming to Specification [E11](#).

5.2 *Mixer, Bowl, and Paddle*—An electrically driven mechanical mixer equipped with a paddle and bowl, as specified in the Apparatus section of Practice [C305](#).

5.3 *Polyethylene Containers*—Watertight polyethylene bags of 1-L (1-qt) capacity or approximately 360-mm (14-in.) sheet material, made using polyethylene at least 0.10-mm (0.004-in.) in thickness.

¹ This test method is under the jurisdiction of ASTM Committee C01 on Cement and is the direct responsibility of Subcommittee C01.28 on Sulfate Content

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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.

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