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AMERICAN SOCIETY FOR TESTING AND MATERIALS
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Standard Test Method for Calcium Sulfate in Hydrated Portland Cement Mortar[1]

This standard is issued under the fixed designation C 265; 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-soluble (water-extractable) SO_3 in hardened hydraulic cement mortar. This measurement is assumed to represent unreacted, free calcium sulfate remaining in the mortar.

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 Practice E 380 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:*

C 109/C 109M Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)[2]

C 114 Test Methods for Chemical Analysis of Hydraulic Cement[2]

C 150 Specification for Portland Cement[2]

C 219 Terminology Relating to Hydraulic Cement[2]

C 305 Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency[2]

C 595M Specification for Blended Hydraulic Cements [Metric][2]

C 778 Specification for Standard Sand[2]

C 1157 Performance Specification for Blended Hydraulic Cement [Metric][2]

D 1193 Specification for Reagent Water[3]

E 11 Specification for Wire-Cloth Sieves for Testing Purposes[4]

IEEE/ASTM SI-10 Standard for Use of the International System of Units (SI): The Modern Metric System[4]

3. Terminology

3.1 *Definitions*—The terms used in this test method are defined in accordance with Terminology C 219.

4. Significance and Use

4.1 This test method is intended for use by manufacturers of hydraulic cement and those interested in research on a suitable method for determining whether calcium sulfate has or has not been used in an amount considered to be optimum. Also, for any such cement having an above optimum SO_3 content, this test method establishes whether that excess exceeds the limit allowed in Specification C 595. This test method also can provide useful information on other hydraulic cements, such as those specified in Specifications C 150 and C 1157.

5. Apparatus

5.1 *Sieve*—A 2.36-mm (No.8) sieve conforming to Specification E 11.

5.2 *Mixer, Bowl, and Paddle*—An electrically driven mechanical mixer of the type equipped with a paddle and bowl, as specified in the Apparatus section of Practice C 305.

5.3 *Polyethylene Containers*—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. Bags, if used, must be watertight.

5.4 *Mortar and Pestle*—A mortar of 1.5-L (1½-qt) size, and a pestle, both of which shall be iron or porcelain.

5.5 *Water Bath*—A water bath thermostatically controlled at 23 ± 0.15°C (73.4 ± 0.3°F).

6. Reagents and Materials

6.1 *Mixing Water*—Reagent water conforming to the numerical limits of Type II of Specification D 1193.

6.2 *Graded Sand*—Graded sand conforming to the requirements for graded sand in Specification C 778.

7. Temperature and Humidity

7.1 Maintain the temperature of the molding room at 24 ± 4°C (75.2 ± 7.2°F). Adjust the temperature of the dry materials and the mixing water, prior to mixing, so that the temperature of the mortar, immediately upon completion of mixing is 23 ± 1°C (73.4 ± 1.8°F).

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

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[2] *Annual Book of ASTM Standards*, Vol 04.01.

[3] *Annual Book of ASTM Standards*, Vol 11.01.

[4] *Annual Book of ASTM Standards*, Vol 14.02.