



Designation: C 807 – 03

Standard Test Method for Time of Setting of Hydraulic Cement Mortar by Modified Vicat Needle¹

This standard is issued under the fixed designation C 807; 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 determination of the time of setting of hydraulic cement mortar by means of the modified Vicat needle.

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

1.3 *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. (Warning—Fresh hydraulic cementitious mixtures are caustic and may cause chemical burns to skin and tissue upon prolonged exposure. The use of gloves, protective clothing, and eye protection is recommended. Wash contact area with copious amounts of water after contact. Wash eyes for a minimum of 15 min. Avoid exposure of the body to clothing saturated with the liquid phase of the unhardened material. Remove contaminated clothing immediately after exposure.)*

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 183 Practice for Sampling and the Amount of Testing of Hydraulic Cement²
- C 187 Test Method for Normal Consistency of Hydraulic Cement²
- C 219 Terminology Relating to Hydraulic Cement²
- C 305 Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency²
- C 511 Specification for Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes²
- C 778 Specification for Standard Sand²

¹ This test method is under the jurisdiction of ASTM Committee C01 on Cement and is the direct responsibility of Subcommittee C01.30 on Time of Set.

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

C 845 Specification for Expansive Hydraulic Cement²

C 1005 Specification for Reference Masses and Devices for Determining Mass and Volume for Use in the Physical Testing of Hydraulic Cements²

D 1193 Specification for Reagent Water³

3. Terminology

3.1 Terms used in this standard are defined in Terminology C 219.

4. Summary of Test Method

4.1 A mortar is prepared with the cement to be tested, using stipulated quantities of cement and water, and sufficient standard sand to produce a required consistency as determined by a stipulated penetration using the plunger of the modified Vicat apparatus. Mortar of the proper consistency is then tested for time of setting, using the needle of the modified Vicat apparatus for the determination of a stipulated penetration. The time required to obtain the stipulated penetration of the modified Vicat needle is the time of setting.

5. Significance and Use

5.1 The purpose of this test method is to establish whether or not a cement complies with a specification limit on time of setting. It has been found to be particularly applicable for the determination of the setting time of expansive cements (see Specification C 845).

6. Apparatus

6.1 *Tamper and Trowel*, conforming to the requirements of Test Method C 109.

6.2 *Vicat Apparatus*, conforming to the requirements of Test Method C 187, with the following modifications:

6.2.1 For consistency determination, the plunger end of the movable rod shall be 17.5 ± 0.5 mm in diameter instead of 10 mm, and the total mass of the movable rod (including the 17.5-mm plunger) shall be 400 ± 0.5 g.

6.2.2 For time of setting determination, a 2 ± 0.05 -mm stainless steel needle shall be substituted for the 1-mm needle. The total mass of the movable rod with the 2-mm needle shall be 300 ± 0.5 g.

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