



Designation: C953 – 17

Standard Test Method for Time of Setting of Grouts for Preplaced-Aggregate Concrete in the Laboratory¹

This standard is issued under the fixed designation C953; 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 method covers the determination test of time of setting of hydraulic cement grout mixtures used in preplaced-aggregate (PA) concrete using the Vicat apparatus.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

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, health, and environmental 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.²

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:*³

[C125 Terminology Relating to Concrete and Concrete Aggregates](#)

[C191 Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle](#)

[C219 Terminology Relating to Hydraulic Cement](#)

[C938 Practice for Proportioning Grout Mixtures for](#)

[Preplaced-Aggregate Concrete](#)

[C511 Specification for Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes](#)

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this test method, refer to Terminologies [C125](#) and [C219](#).

4. Summary of Method

4.1 The time of setting, initial and final, of a sample of fluid grout is determined using the Vicat apparatus.

5. Significance and Use

5.1 This test method determines the time of setting of grout mixed to the fluid consistency required for its use in PA concrete.

5.2 The time of setting is also useful in determining the acceptability of components of grout that must be mixed to the fluid consistency required for production of PA concrete.

6. Apparatus

6.1 *Vicat Apparatus*, in accordance with Test Method [C191](#).

6.2 *Moist Room*, maintained in accordance with Specification [C511](#).

7. Test Sample

7.1 The test sample shall consist of at least 300 mL of grout taken from a freshly-mixed batch prepared in accordance with Practice [C938](#) obtained from a mixer at the laboratory or construction site.

8. Procedure

8.1 Warm the Vicat conical ring and base plate to approximately 100 °C.

8.2 Apply a thin film of paraffin wax to the base of the conical ring and place the waxed conical ring on the base plate. Place a weight on the conical ring to ensure intimate contact with the base plate and allow the conical ring and plate to cool to room temperature.

¹ This test method is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.41 on Hydraulic Cement Grouts.

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² Section on Safety Precautions, *Manual of Aggregate and Concrete Testing*, Annual Book of ASTM Standards, Vol. 04.02.

³ 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