Designation: C941 – 23

Standard Test Method for Water Retentivity of Grout Mixtures for Preplaced-Aggregate Concrete in the Laboratory[1]

This standard is issued under the fixed designation C941; 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 procedure for determining the water retentivity of freshly mixed hydraulic cement grout mixtures for preplaced-aggregate (PA) concrete.

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 The text of this standard refers to notes and footnotes that provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

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, 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 exposed skin and tissue upon prolonged exposure.[2])

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

2.1 *ASTM Standards:*[3]

C125 Terminology Relating to Concrete and Concrete Aggregates

C219 Terminology Relating to Hydraulic and Other Inorganic Cements

E832 Specification for Laboratory Filter Papers

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 Test Method

4.1 The time required for the extraction of a standard amount of water by vacuum from a grout specimen is measured.

5. Significance and Use

5.1 This test method measures the ability of a grout mixture to retain its mixing water.

5.2 It is used for qualifying grout fluidifiers to be used in the production of PA concrete.

5.3 It may be used to compare the effects of various admixtures or materials combinations on the water retentivity properties of any cement-water grout.

6. Apparatus

6.1 *Extraction Apparatus,* assembled as in Fig. 1, including the following:

6.1.1 *Funnel,* porcelain Büchner filtering, 111 mm inside diameter at the perforated plate and 500 mL in volume.

6.1.2 *Filter Paper,* Specification E832, Type 2, Class G, disk, 11-cm diameter filter paper.

6.1.3 *Graduated Cylinder,* 250 mL cut down to about 130 mL.

6.1.4 *Vacuum Gage* or manometer graduated in increments of 1 kPa to 100 kPa vacuum.

6.1.5 *Vacuum Pump* or other source of reduced pressure, capable of maintaining a minimum vacuum of 95 kPa on a system having a volume of not less than 1 L.

6.2 *Stop Watch,* having a least reading of not more than 0.2 s.

6.3 *Thermometer,* accurate to 0.5 °C, for measuring ambient and grout temperatures.

[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.

Current edition approved June 15, 2023. Published July 2023. Originally approved in 1981. Last previous edition approved in 2016 as C941 – 16. DOI: 10.1520/C0941-23.

[2] See 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**