



Designation: C 942 – 99

Standard Test Method for Compressive Strength of Grouts for Preplaced-Aggregate Concrete in the Laboratory¹

This standard is issued under the fixed designation C 942; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This test method covers the determination of the compressive strength of hydraulic cement grout for preplaced-aggregate (PA) concrete.

1.2 The values stated in SI units are to be regarded as 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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

C 31/C 31M Practice for Making and Curing Concrete Test Specimens in the Field²

C 109/C 109M Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)³

C 937 Specification for Grout Fluidifier for Preplaced-Aggregate Concrete²

C 938 Practice for Proportioning Grout Mixtures for Preplaced-Aggregate Concrete²

C 939 Test Method for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method)²

3. Summary of Test Method

3.1 Compressive strength of hardened grout is determined using top-restrained cubes as defined in Test Method C 109/C 109M.

4. Significance and Use

4.1 This test method affords a means for determining the compressive strength of grouts that expand and, in use, harden under conditions of partial to total restraint.

4.2 It is particularly applicable for determining the effect on compressive strength of grout fluidifier to be used with grout for PA concrete. (See Specification C 937.)

5. Apparatus

5.1 *Scales, masses, sieves, glass graduates, and three-gang molds*, for 2-in. (or 50-mm) cube specimens, baseplates, trowel, and testing machine as specified in Test Method C 109/C 109M.

5.2 *Plates*, to cover specimen molds, capable of supporting the weight or being held down by C-clamps, as described in 9.3.

5.3 *Mass of 7 kg (or 15 lb) or C-clamps*, for holding down the cover plates.

6. Temperature and Humidity

6.1 Temperature and humidity conditions for tests performed in the laboratory shall be in accordance with Test Method C 109/C 109M unless otherwise specified.

6.2 Temperature and humidity conditions for tests performed in the field shall be as prescribed for curing cylinders in Practice C 31/C 31M.

7. Sampling

7.1 The test sample shall consist of approximately 1500 mL of grout and shall be representative of the material in the mixer.

7.2 Grout proportioned at the mixer from hydraulic cement(s) with or without other materials shall be mixed in accordance with Specification C 937.

7.3 Packaged grouts requiring only the addition of water or other fluid shall be mixed in accordance with the manufacturer's printed recommendations.

8. Preparation of Specimen Molds

8.1 Prepare the molds as specified in Test Method C 109/C 109M.

9. Procedure

9.1 Determine the consistency of grout as follows:

9.1.1 Use the flow cone, Test Method C 939, for grout to be used for PA concrete or whenever the consistency is less than 35 s.

¹ This test method is under the jurisdiction of ASTM Committee C-9 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.41 on Concrete for Radiation Shielding.

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² *Annual Book of ASTM Standards*, Vol 04.02.

³ *Annual Book of ASTM Standards*, Vol 04.01.