



## Standard Specification for Grout Fluidifier for Preplaced-Aggregate Concrete<sup>1</sup>

This standard is issued under the fixed designation C 937; 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 reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

### 1. Scope

1.1 This specification covers fluidifier for grout used for preplaced-aggregate (PA) concrete.

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

1.3 The following precautionary caveat pertains only to the test method portion, Section 8, of this standard: *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 33 Specification for Concrete Aggregates<sup>2</sup>
- C 150 Specification for Portland Cement<sup>3</sup>
- C 618 Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete<sup>2</sup>
- C 637 Specification for Aggregates for Radiation-Shielding Concrete<sup>2</sup>
- C 938 Practice for Proportioning Grout Mixtures for Preplaced-Aggregate Concrete<sup>2</sup>
- C 939 Test Method for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method)<sup>2</sup>
- C 940 Test Method for Expansion and Bleeding of Freshly Mixed Grouts for Preplaced-Aggregate Concrete in the Laboratory<sup>2</sup>
- C 941 Test Method for Water Retentivity of Grout Mixtures for Preplaced-Aggregate Concrete in the Laboratory<sup>2</sup>
- C 942 Test Method for Compressive Strength of Grouts for Preplaced-Aggregate Concrete in the Laboratory<sup>2</sup>
- C 943 Practice for Making Test Cylinders and Prisms for Determining Strength and Density of Preplaced-Aggregate Concrete in the Laboratory<sup>2</sup>
- C 953 Test Method for Time of Setting of Grouts for

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee C-9 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C9.41 on Concrete for Radiation Shielding.

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<sup>2</sup> Annual Book of ASTM Standards, Vol 04.02.

<sup>3</sup> Annual Book of ASTM Standards, Vol 14.01.

TABLE 1 Expansion Limits

Alkali Content of Cement, % Expressed as Na <sub>2</sub> O	Expansion Limits, %
0.80 or more	7 to 14
0.40 to 0.79	5 to 12
0.39 or less	3 to 9

Preplaced-Aggregate Concrete in the Laboratory<sup>2</sup>

### 3. Ordering Information

3.1 The purchaser shall specify the material desired as “grout fluidifier for preplaced-aggregate concrete”. The material shall meet the requirements of this specification.

### 4. Materials

4.1 Grout ingredients shall conform to the following requirements:

4.1.1 Portland cement shall meet the requirements of Specification C 150 for the type to be used.

4.1.2 Pozzolan shall meet the requirements of Specification C 618.

4.1.3 Fine aggregate shall meet the requirements of Specification C 33 except that grading shall conform to Specification C 637, Table 2, Grading 1 for Fine Aggregate.

### 5. Physical Requirements

5.1 The fluidifier, when tested in grout as specified herein, shall conform to the following requirements:

Reduction in mixing water, min, % of control (Test Method C 941)	3
Expansion, 3 h after mixing, (Test Method C 940)	See Table 1
Bleeding, 3 h after mixing, (Test Method C 940), max, %	2
Increase in water retentivity (Test Method C 941), min, % of control	60
Initial setting time, min, h (Test Method C 953)	4
Final setting time, max, h (Test Method C 953)	24
Compressive strength at 7 days and 28 days, (Test Method C 942), min, % of control	90

### 6. Composition

6.1 The fluidifier shall be composed of materials that will yield a product having the properties stipulated under Physical Requirements when tested in accordance with this specification.

### 7. Sampling

7.1 The test sample of fluidifier shall have a mass of at least