
Test Procedure for**FLOW OF GROUT MIXTURES (FLOW CONE METHOD)****TxDOT Designation: Tex-437-A***Effective Date: July 2008*

1. SCOPE

- 1.1 This test method covers two procedures, used both in the laboratory and in the field, for determining the time of efflux of a specified volume of fluid hydraulic cement grout through a standardized flow cone.
- 1.2 The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.
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2. APPARATUS

- 2.1 Refer to ASTM C 939 for the test apparatus.
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PART I—METHOD 1

3. SCOPE

- 3.1 Use this method with neat grout, grout containing fine aggregate all passing a No. 8 (2.36 mm) sieve, and grout having an efflux time of 35 sec. or less.
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4. PROCEDURE

- 4.1 Refer to ASTM C 939 for the test procedure.
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PART II—METHOD 2

5. SCOPE

- 5.1 Use this method for thixotropic grouts with a required efflux time of 9 to 20 sec. immediately after mixing and 30 sec. maximum with 30 min. standing time after initial mixing and remixed for 30 sec. before testing.
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6. PROCEDURE

- 6.1 Use a test sample of at least 4600 mL and representative of the grout in the mixer. When sampling and testing for the purpose of proportioning or comparing mixes or for qualifying materials, the temperature of the dry materials and mixing water should be such that the temperature of the freshly mixed grout is $23 \pm 1.7^{\circ}\text{C}$ ($73.4 \pm 3^{\circ}\text{F}$), unless otherwise specified.
- 6.2 Moisten the inside of the flow cone by filling the cone with water. One min. before introducing the grout sample, allow the water to drain from the cone. Close the outlet of the discharge tube with a finger or a stopper.
- 6.3 Introduce the grout, immediately after mixing, into the cone until the grout reaches the top surface of the cone. Start the stopwatch and simultaneously remove the finger or stopper.
- 6.4 Stop the watch when the receiving container is filled to the 1000 mL calibration mark. The time indicated by the stopwatch is the grout efflux time. The efflux time of the grout immediately after mixing will be between 9 and 20 sec. for 1000 mL discharge. If it is not between 9 and 20 sec., retest.
- 6.5 Let the grout stand for 30 min. without further agitation. Remix for 30 sec. and perform Sections 6.2–6.4 again on this sample. The test time of efflux will not be more than 30 sec. for 1000 mL discharge.

7. REPORT

- 7.1 Include the following in the report:
- identification of the sample;
 - identification of materials in the sample, the proportions, and whether the tested sample represents laboratory-prepared or field-production mix;
 - average time of efflux to the nearest 0.2 sec. and the time interval from sampling to testing; and
 - ambient temperature and sample temperature at the time of test.

8. ARCHIVED VERSIONS

- 8.1 Archived versions are available.