Test Procedure for

**WICK-INDUCED BLEED TEST OF FRESHLY MIXED GROUTS**

**TxDOT Designation: Tex-441-A**

*Effective Date: June 2003*

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**1. SCOPE**

1.1 This field test determines the amount of water that bleeds from freshly mixed grout. Grout is placed in a graduated cylinder, and changes in the grout volume or accumulation of bleed water on the surface of the grout are recorded over time.

1.2 This procedure is a modification of ASTM C 940.

1.3 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 *Digital pocket thermometer*, with stainless steel probe accurate to within ± 2°F.

2.2 *Clear plastic graduated cylinder*, 1000 mL, reading to 10 mL, 2.5 to 3.5 in. wide.

2.3 *Clear plastic graduated cylinder*, 25 mL, reading to 0.5 mL.

2.4 *Plastic bucket*.

2.5 *Wick*, made of a 20-in. length of seven-wire 1/2-in. diameter strand, meeting the requirements of DMS-4500.

2.6 *Duct or electrical tape*, 2 in. wide.

2.7 *Degreasing solvent, acetone, or hexane solvent*.

2.8 *Wire brush*.

2.9 *Plastic wrap*.

2.10 *Plastic pipette or medicine dropper*.
3. TEST SAMPLE

3.1 The grout field-test sample is approximately 1500 mL and representative of the grout in the mixer.

4. PROCEDURE

4.1 Conduct all testing at an air temperature of 50–90°F. Test samples at field conditions.

4.2 Prepare wire strand

4.2.1 Measure out 20 in. of wire strand.

4.2.2 Wrap the strand with 2-in. wide duct or electrical tape at each end before cutting to avoid splaying of the wires when cut.

4.2.3 Cut wire to 20-in. length.

4.2.4 Remove tape from strand.

4.2.5 Degrease with acetone or hexane solvent.

4.2.6 Use a wire brush to remove any surface rust on the strand.

4.3 Sample approximately 1500 mL of grout from mixer for field test, with bucket.

4.4 Place 800 ± 20 mL of the mixed grout into the 1000-mL graduated cylinder.

4.5 Immediately record the temperature of the grout and ambient temperature of the test area.

4.6 Completely insert the strand into the graduated cylinder.

4.7 Center and fasten the strand so that it remains parallel to the vertical axis of the cylinder.

4.8 Wrap plastic wrap around the interface between the strand and the top of the graduated cylinder.

4.9 Measure the level of the bleed water every 15 min. for the first hour and hourly for two successive readings thereafter.

4.10 Draw the water off with a pipette or large medicine dropper into a 25-mL graduate.

4.11 Record the final volume of bleed water to the nearest 0.5 mL.

4.12 Calculate the bleed water. Note if:

- the bleed water remains above or below the top of the original grout height and
- any bleed water is absorbed into the specimen during the test.
5. **CALCULATIONS**

5.1 Determine the bleed water of the specimen as follows:

\[ F = \frac{V_w \times 100}{V_s} \]

Where:
- \( F \) = Final bleeding, %
- \( V_s \) = Volume of sample at beginning of test, mL
- \( V_w \) = Volume of bleed water, mL