
Test Procedure for**DETERMINING FLAKINESS INDEX****TxDOT Designation: Tex-224-F****Effective Date: August 2016**

1. SCOPE

- 1.1 Use this test method to determine the percentage of particles in a coarse aggregate material that have a thickness (smallest dimension) of less than one-half of the nominal size.
- 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 *Standard U.S. sieves*, meeting the requirements of Tex-907-K, in the following sizes:
- 7/8 in. (22.4 mm)
 - 5/8 in. (16.0 mm)
 - 3/8 in. (9.5 mm)
 - 1/4 in. (6.3 mm).
- 2.2 *Metal thickness gauge*, made of 12-gauge carbon steel sheet.
- 2.3 *Miscellaneous laboratory equipment*, including a scoop, brass wire brush, bristle brush, metal pan for heating aggregates, and gloves for handling hot equipment .
- 2.4 *Sample splitter, quartering machine, quartering cloth, or shovel, and a smooth surface.*
- 2.5 *Forced-draft oven*, capable of maintaining 100–300°F (38–150°C).
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3. PROCEDURE

- 3.1 Obtain a representative sample of processed aggregates in accordance with Tex-221-F.
- 3.2 Spread the sample to an even thickness in a metal pan. Place the sample and pan in an oven and dry at a temperature between 100 and 300°F (38 and 150°C) until sufficiently dry for testing.
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- 3.3 Allow the sample to cool to room temperature. Quarter the aggregate sample to obtain a minimum of 200 particles passing the 7/8-in. (22.4-mm) sieve and retained on the 1/4-in. (6.3-mm) sieve.
- 3.3.1 Sieve the quartered sample through the 7/8-in. (22.4-mm), 5/8-in. (16.0-mm), 3/8-in. (9.5-mm), and 1/4-in. (6.3-mm) sieves. Discard the material retained on the 7/8-in. (22.4-mm) sieve and passing the 1/4-in. (6.3-mm) sieve.
- 3.3.2 Count the aggregate particles obtained in Section 3.3.1. The total sample count must be more than 200 particles.
- 3.4 Try to pass each particle retained on the 5/8-in. (16.0-mm) sieve through the 3/8-in. (9.5-mm) slot in the thickness gauge. Separate the particles passing through the gauge from those retained on the gauge.
- 3.5 Try to pass each particle retained on the 3/8-in. (9.5-mm) sieve through the 1/4-in. (6.3-mm) slot in the thickness gauge. Separate the particles passing through the gauge from those retained on the gauge.
- 3.6 Try to pass each particle retained on the 1/4-in. (6.3-mm) sieve through the 5/32-in. (4.0-mm) slot in the thickness gauge. Separate the particles passing through the gauge from those retained on the gauge.
- 3.7 Combine all particles retained on the gauge and count. The total is the Retained Sample Particle Count.
- 3.8 Combine all particles passing through the appropriate slots and count. The total is the Passing Sample Particle Count.
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4. CALCULATIONS

- 4.1 Calculate Flakiness Index:

$$\text{Flakiness Index} = \frac{\text{Passing Sample Particle Count}}{\text{Retained Sample Particle Count} + \text{Passing Sample Particle Count}} \times 100$$

- 4.2 Report the Flakiness Index to the nearest whole number.
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5. REPORT FORMS

- 5.1 [Determining Flakiness Index](#)
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6. ARCHIVED VERSIONS

- 6.1 Archived versions are available.
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