



Standard Test Procedures Manual

Section: AGGREGATES

Subject: PERCENT OF FRACTURED FACES
IN AGGREGATE

1. SCOPE

1.1 Description Of Tests

This method describes the procedure for determining the percentage of aggregate having at least one fractured face after crushing on that portion of the material retained on a 5.00 mm sieve.

1.2 Units Of Measure

Expressed as a percentage of aggregates having at least one fractured face after crushing on that portion of the material retained on a 5.00 mm sieve.

2. DEFINITIONS

A crushed particle is defined as a piece of coarse aggregate with at least one well defined face resulting from fracture. Particles with smooth faces and/or round edges are not considered crushed.

3. APPARATUS AND MATERIALS

3.1 Equipment Required

- Balance - sensitive to 0.1 g
- Sieve - a No. 5.00 mm sieve with pan
- Sample splitter
- Containers - suitable pans for handling the sample
- Drying Apparatus - suitable pans and stove for drying the sample
- Mechanical sieve shaker

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3.2 Materials Required

A sample of crushed material

3.3 Sample To Be Tested

Obtain a sample from the crusher or other source as described in STP 105.

3.4 Data Required

Sample information such as contract number, pit file or land location, date sampled, operation that aggregate is used for, sample number and control section.

4. PROCEDURE

4.1 Description Of Equipment Preparation

Ensure that the mechanical sieve shaker is set with sieves and ready to operate.

4.2 Sample Preparation

Reduce the large sample obtained from the crusher or other source by means of a sample splitter or method of quartering to approximately 1 000 g. The sample may be part of a sample selected for sieve analysis.

4.3 Test Procedure

Dry the sample carefully and separate using the 5.00 mm sieve with pan.

Place in mechanical shaker for five minutes and discard material passing the 5.00 mm sieve and remaining in pan.

Weigh the material retained on the sieve and record as "weight retained on the No. 5.00 mm sieve". Examine each particle individually and manually separate into two piles.

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Particles having at least one fresh face broken or fractured by the crushing operation will be called "fractured particles", unfractured particles will be set aside in the second pile.

Weigh the fractured particles and record as the "weight of fractured particles retained on the 5.00 mm sieve".

5. RESULTS AND CALCULATIONS

5.1 Collection Of Test Results

The results should be recorded on the required Department forms.

5.2 Calculations

Calculate the percent fracture using the following formula; record to the nearest whole number.

$$\text{Percent Fracture} = \frac{\text{weight of fractured particles retained on the 5.00 mm sieve}}{\text{weight of aggregate retained on the 5.00 mm sieve}} \times 100$$

5.3 Reporting Results

Results should be reported on the required Department forms.

6. CALIBRATIONS, CORRECTIONS, REPEATABILITY

6.1 Equipment Calibration

Ensure that the 5.00 mm sieve is not damaged and that sieve openings have been checked for proper size openings. Ensure that balance is weighing accurately.

6.2 Corrections To Results

There are no corrections to the results required.

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6.3 Tolerances And Repeatability

There are no tolerances of repeatability requirements for this test procedure.

6.4 Sources Of Error

Errors may be introduced by inaccurate weigh measurements.

7. ADDED INFORMATION

7.1 Sample Retention

The material retained on the 5.00 mm sieve after sieve test STP 206-1 is completed may also be used for fractured faces.

7.2 Other

Wash and oven dry dirty aggregates if a coating or dust film obscures the surface, making it difficult to inspect the particles for fractured faces. The material should be dried before weighing.