



******THIS IS A NEW IM. – PLEASE READ CAREFULLY.******

**FIELD METHOD TO DETERMINE PERCENTAGE OF
FRACTURED PARTICLES IN COARSE AGGREGATE GRAVELS**

SCOPE

This test method is used for evaluating the crushed content of gravel by determining the amount of fractured particles. For this method, a fractured face is an angular or broken surface caused by mechanical crushing. A face is considered a “fractured face” whenever one-half or more of the surface has been broken, with sharp and well defined edges, when looking directly at the fracture. A fractured particle is a particle having at least one fractured face.

PROCEDURE

A. Apparatus

1. Sieves - a 3/8 in. (9.5 mm) sieve having wire cloth conforming to AASHTO M-92
2. Oven or hot plate
3. Balance - A balance having a capacity of at least 5000 grams, accurate to 0.5 gram

B. Sample

Obtain a representative sample by appropriate methods as detailed in [Materials IM 301](#). The weight of the representative sample after reduction must be large enough to yield a minimum of 2500 grams of material after sieving over a 3/8 in. (9.5 mm) sieve.

C. Sample Preparation

The sample must be sieved on the 3/8 in. (9.5 mm) sieve and the material passing the 3/8 in. (9.5 mm) sieve is discarded.

D. Test Procedure

1. Wash and decant the sample to remove dust from the surface of the aggregate particles.
 2. Dry the sample to a constant mass (weight) in an oven at a temperature of $230^{\circ}\text{F} \pm 9^{\circ}\text{F}$ ($110^{\circ}\text{C} \pm 5^{\circ}\text{C}$) or on a hot plate at low heat setting. Cool and weigh total sample to the nearest 0.5 gram and record as: *Dry Mass (Wt.) of Original Sample*.
 3. Spread the sample out on a flat surface. Visually examine the aggregate particles and remove fractured aggregate particles.
 4. Weigh the total amount of fractured particles to the nearest 0.5 gram.
-

E. Calculations

1. Calculate the percent of fractured particles based upon the total mass (weight) of the sample [plus 3/8 in. (9.5 mm)].
- 2.

PERCENT FRACTURED PARTICLES =

$$\frac{\text{Dry Mass (Wt.) of Fractured Particles}}{\text{Dry Mass (Wt.) of Original Sample}} \times 100$$