

5.16.31 DETERMINATION OF PERCENTAGE OF CRUSHED PARTICLES IN CRUSHED GRAVEL  
(Kansas Test Method KT-31)

**a. SCOPE**

This method of test covers the procedure for determining the percent, by mass, of particles, which by visual inspection, exhibit characteristics of crushed aggregate.

**b. REFERENCED DOCUMENTS**

- b.1.** KT-1; Sampling Aggregates
- b.2.** AASHTO M 92; Wire-Cloth Sieves for Testing Purposes
- b.3.** AASHTO M 231; Balances Used in the Testing of Materials

**b. APPARATUS**

- b.1.** The balance shall conform to the requirements of AASHTO M 231 for the class of general purpose balance required for the principal sample mass of the sample being tested.
- b.2.** Sieves meeting AASHTO M 92 of appropriate sizes.
- b.3.** Drying Pans.
- b.4.** Oven capable of maintaining a uniform temperature of  $230 \pm 9^{\circ}\text{F}$  ( $110 \pm 5^{\circ}\text{C}$ ).

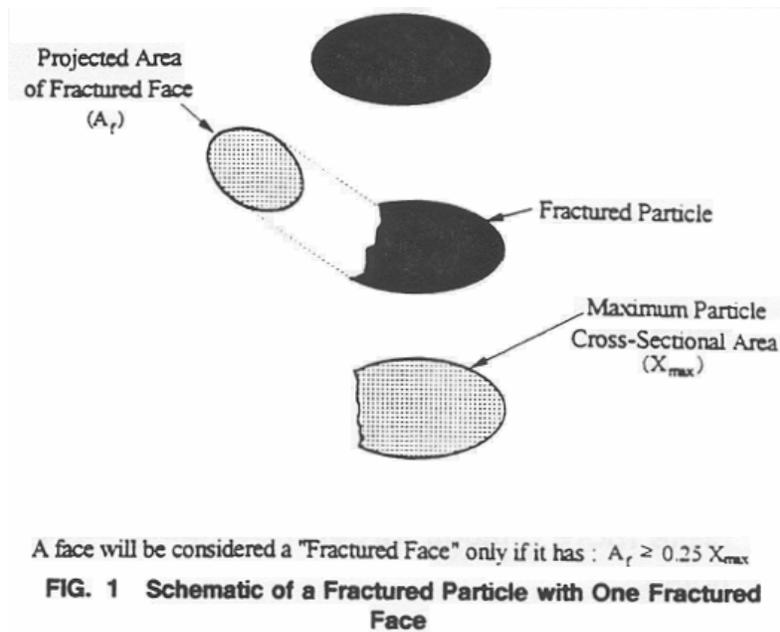
**c. SAMPLE PREPARATION**

Obtain the test sample by quartering or splitting according to KT-1 from material which has been thoroughly mixed. The sample shall be of sufficient size to yield a minimum of 2,500 g of material retained on the No. 4 (4.75 mm) sieve. Screen the sample over a No. 4 (4.75 mm) sieve and discard all material passing the sieve. Wash the retained material over a No. 4 (4.75 mm) sieve and dry the sample to constant mass at  $230 \pm 9^{\circ}\text{F}$  ( $110 \pm 5^{\circ}\text{C}$ ).

**d. TEST PROCEDURE**

- d.1.** Weigh the material retained on the No. 4 (4.75 mm) sieve to the nearest gram. Record this mass as the Original Dry Mass.
- d.2.** Spread the material in a thin layer on a clean flat surface so that each particle can be examined.
- d.3.** Separate the crushed particles<sup>a</sup> from uncrushed particles. Any particle appearing to have one or more fractured faces shall be considered a crushed particle. Determine the mass to the nearest gram and record as Mass of Crushed Particles.

NOTE a: Crushed particles are defined as 25% or more of the particle having a fractured face. A fractured face is defined as an angular, rough, or broken surface of an aggregate particle. (See Figure 1.)



#### e. CALCULATIONS

Compute the percentage of crushed particles using the following formula:

$$\text{Percent Crushed Particles} = \frac{100(\text{Mass of Crushed Particles})}{(\text{Original Dry Mass})}$$