

**Determining the Percentages of Fractured Particles in Coarse Aggregate  
ASTM D5821 - 13**

**APPARATUS / SECTION 5**

- 1. Balance / Clause 5.1 – Accurate and readable to within 0.1% of the test sample mass  
At any point within the range of use ..... \_\_\_\_\_
- 2. Sieves / Clause 5.2 - Conforming to ASTM E11..... \_\_\_\_\_
- 3. Splitter / Clause 5.3 ..... \_\_\_\_\_
- 4. Spatula / Clause 5.4 ..... \_\_\_\_\_

**SAMPLE PREPARATION / CLAUSE 6.1 & SECTION 7**

- a. Field Sample / Clause 6.1
  - Sampled in accordance with ASTM D75 ..... \_\_\_\_\_
- b. Sample Preparation / Section 7
  - Sample sufficiently dried to separate CA and FA material on 4.75mm (No. 4) sieve? ..... \_\_\_\_\_
  - R/4.75mm material reduced in accordance with ASTM C702 to appropriate test size? ..... \_\_\_\_\_
  - Mass of sample shall be at least large enough so that the largest particle is not more than 1% of the sample mass? ..... \_\_\_\_\_

Or

The test sample shall be at least as large as indicated in chart below, whichever is smaller? ..... \_\_\_\_\_

Nominal Maximum Size Square Opening, mm (in.)	Minimum Test Sample Mass, gms (Approx. lb)
9.5 (3/8)	200 (0.5)
12.5 (1/2)	500 (1.0)
19.0 (3/4)	1,500 (3.0)
25.0 (1.0)	3,000 (6.5)
37.5 (1 1/2)	7,500 (16.5)
50 (2.0)	15,000 (33.0)
63 (2 1/2)	30,000 (66.0)
75 (3)	60,000 (132)
90 (3 1/2)	90,000 (198)

Note 1: Samples of nominal maximum size 19.0 mm or larger, the portion passing 9.5 mm sieve may be further reduced in accordance with the ASTM C702 to a minimum of 200 g. Determine fracture count on both portions and determine weighted average percentage of fractured particles (Refer to clause 7.3).

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**PROCEDURE / SECTION 8**

- a. Washed sample over 4.75 mm or smaller designated sieve and oven dried? ... \_\_\_\_\_
- b. Determined mass to the nearest 0.1% of the original dry sample mass? ..... \_\_\_\_\_
- c. Spread sample on a suitably large clean flat surface area and separate into two categories? ..... \_\_\_\_\_
  - Fractured particles having the required number of fractured faces according to specifications? ..... \_\_\_\_\_
  - Particles not meeting the specified criteria?..... \_\_\_\_\_

**Definitions:**

Fractured Face: Fractured face representing at least ¼ of the **maximum** cross-sectional area of the particle. Face has a sharp or slightly blunt edge.

Fractured Particle: Particle having at least the minimum number of fractured faces specified.

- d. Determine the mass or count of particles in the fractured particle category and the mass or count of the non fractured category? ..... \_\_\_\_\_
- e. Calculate % fractured particles? ..... \_\_\_\_\_

**REPORT / SECTION 9**

- a. Mass or count percentage reported to the nearest 1%? ..... \_\_\_\_\_

Note 2: Refer to clause 9.1 for further details in reporting.

**COMMENTS:**

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