Performance Examination - Aggregate

Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate (ASTM D5821-13 (2017))

Candidate Name: _____ **NICET ID:** _____

Apparatus	Trial 1	Trial 2
Balance Accurate and readable to within 0.1% of sample mass		
Sieves Conforming to E11		
Sample splitter Sample splitter as specified in C702		
Spatula		

Nominal Maximum Size Square Openings, mm (in.)	Minimum Test Sample Mass, g (Approx. lb)
9.5 (⅜)	200 (0.5)
12.5 (½)	500 (1)
19.0 (¾)	1500 (3)
25.0 (1)	3000 (6.5)
37.5 (1 ½)	7500 (16.5)
50.0 (2)	15000 (33)
63.0 (2 ½)	30000 (66)
75.0 (3)	60000 (132)
90.0 (3 ½)	90000 (198)

Procedures	Trial 1	Trial 2
Sample Preparation		
1. Aggregate sampled in accordance with D75 and reduced in accordance with C702		
2. Sample dried sufficiently to obtain a clean separation of fine and coarse material in sieving operation		
3. Sample sieved over the 4.75-mm (No. 4) sieve, or another specified sieve, in accordance with C136		
4. Portion retained on sieve reduced to the appropriate size for the test using a splitter		
5. Mass of test sample at least large enough so that largest particle is not more than 1% of sample mass		

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Procedures (continued)	Trial 1	Trial 2
6. For aggregate with the nominal maximum size of 19.0 mm (¾ in.) or larger, where the fracture particle content is to be determined for material retained on the 4.75-mm (No. 4) or smaller sieve, test sample may be separated on the 9.5-mm (⅜-in.) sieve		
7. Portion passing 9.5-mm (⅜-in.) sieve further reduced by C702, to a minimum of 200 g (0.5 lb)		
8. Percent fractured particles determined on each portion		
9. Weighted average percentage of fractured particles calculated based on the mass of each of the portions to reflect the total percentage of fractured particles in the entire sample		
Method Procedure	**Trial 1**	**Trial 2**
1. Sample washed over sieve designated for determination of fractured particles and dried to constant mass		
2. Mass of test sample, and any subsequent masses, determined to nearest 0.1% of original dry sample mass		
3. Dried sample spread on a clean flat surface large enough to permit careful inspection of each particle		
4. Particle held so that face is viewed directly		
5. If the face constitutes at least 1/4 of the maximum cross-sectional area of the particle (and the face has sharp, well-defined edges excluding small nicks), face considered a fractured face		
6. Using a spatula or similar tool, particles separated into two categories: (1) fractured particles based on whether the particle has the required number of fractured faces, (F), and (2) particles not meeting the specified criteria, (N)		
7. If the required number of fractured faces is not given to applicable specifications, the determination made on the basis of a minimum of one fractured face		
8. Mass or count of particles in each of the two categories determined		
9. Mass (of particles) used to calculate percent fractured particles, unless percentage by particle count is specified		
10. If more than one number of fractured faces is specified (for example, 70% with one or more fractured faces and 40% with two or more fractured faces), the procedure repeated on the same sample for each requirement		

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Calculation	Trial 1	Trial 2
Mass percentage or count percentage of particles with the specified number(s) of fractured faces reported to the nearest 1% in accordance with the following equation: $$P = [F/(F+N)] \times 100$$		

First Attempt: Pass: _____ Fail: _____ **Second Attempt:** Pass: _____ Fail: _____

Exam Administration: Remote _____ In-Person _____

Comments:

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_____

Examiner Name: _____ **Examiner Signature**: _____ **Date:** _____