



Standard Test Method for Adherent Fines¹

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1. Scope

1.1 This test method covers the determination of the percent by mass of fine dust, clay or silt, or both, present as a coating on coarse aggregate particles. The nature of the fines adhering to the coarse aggregate is not determined.

NOTE 1—The nature of the fines can be determined by other tests such as Test Methods D 2419 and D 4318.

1.2 This proposed test method is intended for use with 50 mm (2 in.) maximum size aggregate and smaller.

1.3 The values shown in SI units are to be regarded as the standard, except for the frame size of testing sieves, for which inch-pound units are to be regarded as standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

C 136 Test Method for Sieve Analysis of Fine and Coarse Aggregates²

C 702 Practice for Reducing Samples of Aggregate to Testing Size²

D 75 Practice for Sampling Aggregates³

E 11 Specification for Wire-Cloth Sieves for Testing Purposes⁴

D 2419 Test Method for Sand Equivalent Value of Soils and Fine Aggregate³

D 4318 Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils⁵

3. Terminology

3.1 Definitions:

3.1.1 *adherent fines, n*—fine particles smaller than 75 μm created from handling or silt or clay that sticks (adheres) to the coarse aggregate particles.

3.1.2 *coarse aggregate, n*—aggregate predominately retained on the 4.75 mm (No. 4) sieve.

4. Summary of Test Method

4.1 A sample of dry aggregate of known mass is separated through a series of sieves of progressively smaller openings to remove loose (non-adhering) fines from the sample. After determining the mass, the sample is then slaked and washed to remove the fines still adhering to the coarse aggregate particles. The sample is dried and the mass measured to determine the quantity of fines removed during washing.

5. Significance and Use

5.1 This proposed test method assigns a measurable value to the amount of fine material adhering to the coarse aggregate due to handling or contamination by silt or clay.

6. Apparatus

6.1 *Balances*—Balances or scales used in testing shall have readability and accuracy to 0.1 g at any point within the range of use.

6.2 *Sieves*—Three 8-in. (203.2 mm) round sieves, a 4.75-mm (No. 4), a 9.5-mm (¾-in.), and a 75 μm (No. 20) conforming to the requirements of Specification E 11.

6.3 *Mechanical Sieve Shaker*—A mechanical sieve shaker shall impart a vertical, or lateral and vertical, motion to the sieve, causing the particles thereon to bounce and turn so as to present different orientations to the sieving.

NOTE 2—Tyler Rotap, Soiltest model CL-305A and Tyler RX-8 shakers have been found to be acceptable.⁶ Others which provide comparable results to these models are also acceptable.

6.4 *Oven*—An oven of appropriate size capable of maintaining a uniform temperature of 110 ± 5°C (230 ± 9°F).

7. Sampling

7.1 Sample the aggregate in accordance with Practice D 75. The mass of the field sample shall be the mass shown in Practice D 75 or four times the mass required in 8.2, whichever is greater.

7.2 Thoroughly mix the sample and reduce it to an amount suitable for testing using the applicable procedures described in

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² *Annual Book of ASTM Standards*, Vol 04.02.

³ *Annual Book of ASTM Standards*, Vol 04.03.

⁴ *Annual Book of ASTM Standards*, Vol 14.02.

⁵ *Annual Book of ASTM Standards*, Vol 04.08.

⁶ Available from W. S. Tyler, 3200 Bessemer City Road, Box 8900, Gastonia, NC 28053, and Soiltest Inc., 86 Albrecht Dr., P.O. Box 8004, Lake Bluff, IL 60044-8004.