



Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate¹

This standard is issued under the fixed designation D 2419; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This test method is intended to serve as a rapid field-correlation test. The purpose of this test method is to indicate, under standard conditions, the relative proportions of clay-like or plastic fines and dust in granular soils and fine aggregates that pass the 4.75-mm (No. 4) sieve. The term “sand equivalent” expresses the concept that most granular soils and fine aggregates are mixtures of desirable coarse particles, sand, and generally undesirable clay or plastic fines and dust.

NOTE 1—Some agencies perform the test on material with a top size smaller than the 4.75-mm (No. 4) sieve. This is done to avoid trapping the clay-like or plastic fines and dust below flaky shaped 4.75 to 2.36 mm (No. 4 to 8) sized particles. Testing smaller top sized material may lower the numerical results of the test.

1.2 Units of Measurement:

1.2.1 The values stated in SI units are to be regarded as the standard, with the exception of the dimensions of the special sand equivalent test apparatus described in Fig. 1, in which the the inch dimensions are standard. Values in parentheses are for information only.

1.3 *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 670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials²

C 702 Practice for Reducing Samples of Aggregate to Testing Size²

D 8 Terminology Relating to Materials for Roads and Pavements³

D 75 Practice for Sampling Aggregates³

D 653 Terminology Relating to Soil, Rock, and Contained Fluids⁴

E 11 Specification for Wire-Cloth and Sieves for Testing Purposes⁵

2.2 AASHTO Standard:

T 176 Standard Method of Test for Plastic Fines in Graded Aggregates and Soils by Use of Sand Equivalent Test⁶

3. Terminology

3.1 Definitions:

3.1.1 *fine aggregate*—aggregate passing the 9.5-mm (3/8-in.) sieve and almost entirely passing the 4.75-mm (No. 4) sieve and predominantly retained on the 75-μm (No. 200) sieve (see Terminology D 8).

3.1.2 *sand equivalent*—a measure of the amount of silt or clay contamination in the fine aggregate (or soil) as determined by test (see Terminology D 653). (For further explanation, see Summary of Test Method and Significance and Use.)

3.1.3 *soil*—sediments or other unconsolidated accumulations of solid particles produced by the physical and chemical disintegration of rocks which may or may not contain organic matter (see Terminology D 653).

4. Summary of Test Method

4.1 A measured volume of soil or fine aggregate and a small quantity of flocculating solution are poured into a graduated plastic cylinder and are agitated to loosen the claylike coatings from the sand particles in the test specimen. The specimen is then “irrigated” using additional flocculating solution forcing the claylike material into suspension above the sand. After a prescribed sedimentation period, the height of flocculated clay is read and the height of sand in the cylinder is determined. The sand equivalent is the ratio of the height of sand to the height of clay times 100.

5. Significance and Use

5.1 This test method assigns an empirical value to the relative amount, fineness, and character of claylike material present in the test specimen.

¹ This test method is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.51 on Aggregate Tests.

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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 04.08.

⁵ *Annual Book of ASTM Standards*, Vol 14.02.

⁶ Available from American Association of State Highway and Transportation Officials, 444 N. Capitol St. NW, Suite 225, Washington, DC 20001.