



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

This standard is issued under the fixed designation D2419; 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 U.S. 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-size 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 some fine aggregates are mixtures of desirable coarse particles, sand-size particles, and generally undesirable clay or plastic fines and dust.

NOTE 1—For fine aggregates containing clean dust of fracture (clay-size particles that are not clay minerals), test results will depend on the amount of fines present in the material. In this case other tests such as Methylene Blue Value (AASHTO T330) or X-Ray Diffraction (XRD) may be needed to determine if the fines are deleterious.

NOTE 2—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-size 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 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.2.1 Regarding sieves, per Specification E11 Section 1.2, “the values stated in SI units shall be considered standard for the dimensions of the wire cloth openings and the diameter of the wires used in the wire cloth. The values stated in inch-pound units shall be considered standard with regard to the sieve frames.” When sieve mesh sizes are referenced, the alternate inch-pound designations are provided for information purposes and enclosed in parentheses.

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.*

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.

Current edition approved June 1, 2014. Published September 2014. Originally approved in 1965. Last previous edition approved in 2009 as D2419 – 09. DOI: 10.1520/D2419-14.

2. Referenced Documents

2.1 ASTM Standards:²

C670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials

C702 Practice for Reducing Samples of Aggregate to Testing Size

D8 Terminology Relating to Materials for Roads and Pavements

D75 Practice for Sampling Aggregates

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

2.2 AASHTO Standard:

T 176 Standard Method of Test for Plastic Fines in Graded Aggregates and Soils by Use of Sand Equivalent Test³

3. Terminology

3.1 Definitions:

3.1.1 *clay size*—that portion of the soil or aggregate finer than 0.002 mm (0.005 mm in some cases) (see Terminology D653).

3.1.2 *fine aggregate*—aggregate passing the 9.5-mm ($\frac{3}{8}$ -in.) sieve and almost entirely passing the 4.75-mm (No. 4) sieve and predominantly retained on the 75- μ m (No. 200) sieve (see Terminology D8).

3.1.3 *sand*—particles of rock that will pass the 4.75 mm (No. 4) sieve and be retained on the 0.075 mm (No. 200) sieve (see Terminology D653).

3.1.4 *sand equivalent*—a measure of the amount of silt, clay contamination, or clay-size aggregate particles in the fine aggregate (or soil) as determined by test (see Terminology D653). (For further explanation, see Section 4 and Section 5.)

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Suite 249, Washington, DC 20001, <http://www.transportation.org>.