



Designation: ~~D5779-95a (Reapproved 2001)~~ Designation: D 5779 – 08

Standard Test Method for Field Determination of Apparent Specific Gravity of Rock and Manmade Materials for Erosion Control¹

This standard is issued under the fixed designation D 5779; 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.

1. Scope

~~1.1 This test method covers the determination of the specific gravity of rock for erosion control. This test method can be used for all types of materials, both naturally occurring or manmade.~~

~~1.2 This is a field test method to measure apparent specific gravity. For laboratory determination of bulk specific gravity see Test Methods C97*~~

1.1 This test method covers the determination of the specific gravity of rock or man-made materials for erosion control.

1.2 This is a field test method to measure apparent specific gravity. For laboratory determination of bulk specific gravity see Test Method D 6473.

1.3 The values stated in SI units are to be regarded as the standard.

1.4

1.3 Units—The values stated in SI units are to be regarded as the standard. The inch-pound units in parentheses are given for information only.

1.4 All observed and calculated values shall conform to the guidelines for significant digits and rounding established in Practice D 6026.

1.5 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: C97 Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone*²

C 670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials

D 653 ~~Terminology Relating to Soil, Rock, and Contained Fluids~~³ Terminology Relating to Soil, Rock, and Contained Fluids

D 3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

D 4753 ~~Specification Guide for Evaluating, Selecting, and Specifying Balances and Seals~~ Standard Masses for Use in Soil, Rock, and Related Construction Materials Testing

D 4992 Practice for Evaluation of Rock to be Used for Erosion Control ;

D 6026 Practice for Using Significant Digits in Geotechnical Data

D 6473 Test Method For Specific Gravity And Absorption of Rock For Erosion Control

3. Terminology

3.1 *Definitions:*

~~3.1.1~~ *Definitions:* For definitions specific to this standard refer to Terminology D 653.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *field apparent specific gravity*—the ratio of the ~~weight~~ mass in air of a unit volume of impermeable rock or man-made material, to the ~~weight~~ mass of an equal volume of water. This is similar to the definition of apparent specific gravity in Terminology D 653 except that non-distilled water is used for the test and the test can be run under a variety of temperatures.

¹ This test method is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.17 on Rock for Erosion Control.

Current edition approved Dec. 10, 1995. Published March 1996. Originally published as D5779-95. Last previous edition D5779-95.

Current edition approved April 1, 2008. Published April 2008. Originally approved in 1995. Last previous edition approved in 2001 as D 5779 – 95a (2001).

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* Vol 04.07, volume information, refer to the standard's Document Summary page on the ASTM website.

*A Summary of Changes section appears at the end of this standard.

4. Summary of Test Method

4.1 A specimen (block, chunk, slab, or piece) of rock or manmade material is weighed in air and then weighed again while immersed in water. Using the weights, masses, the field specific gravity is calculated. The determined specific gravity can then be used to determine a mass per unit volume.

5. Significance and Use

5.1 Specific gravity is one factor used to determine the required mass of individual particles used as gabion-fill, riprap, armor stone, breakwater stone, or other types of rock products used for erosion control applications, and acceptability of these materials for their intended use.

NOTE 1—The agency performing this test method can be evaluated in accordance with Practice D 3740. Notwithstanding statements on precision and bias contained in this test method: The precision of this test method is dependent on the competence of the personnel performing it and the suitability of the equipment and facilities used. Agencies that meet the criteria of Practice D 3740 are generally considered capable of competent and objective testing. Users of this test method are cautioned that compliance with D 3740 does not in itself ensure reliable testing. Reliable testing depends on many factors; Practice D 3740 provides a means of evaluating some of those factors.

6. Apparatus

6.1 *Balance*—A balance or scale conforming to the requirements of Specification D 4753 readable (with no estimation) to 1 % or better of the mass of the test specimen and which has provisions for attaching to a specimen container. For masses over 50 kg a load-cell, spring scale, or some other device accurate to within 1 % of the mass may be used.

6.2 *Specimen Container*—A wire basket or sling or pan capable of holding a specimen of rock and suspending it in water. —A wire basket or sling or pan to be attached to the scale and capable of holding the specimen and suspending it in water.

6.3 *Water*—A volume of water large enough to submerge the specimen and its container. Water bath—A vessel filled with a volume of water large enough to submerge the specimen container without touching any of the vessel's sides.

6.4 An example apparatus is shown in Fig. 1.

7. Sampling

7.1 A source of rock to be sampled shall be guided by Practice D 4992. ~~A source that is macroscopically uniform in color, texture, mineralogy, or some other visual property shall be represented by a sample consisting of a minimum of five specimens of rock. A macroscopically nonuniform source shall be represented by a minimum of eight samples of rock. Rock types that comprise less than 5% of the total source, as determined from their macroscopic properties, may be ignored, unless their presence will greatly affect the test results and subsequent proposed use of the rock. Sample the rock types in their approximate proportion to the types that occur at the source.~~

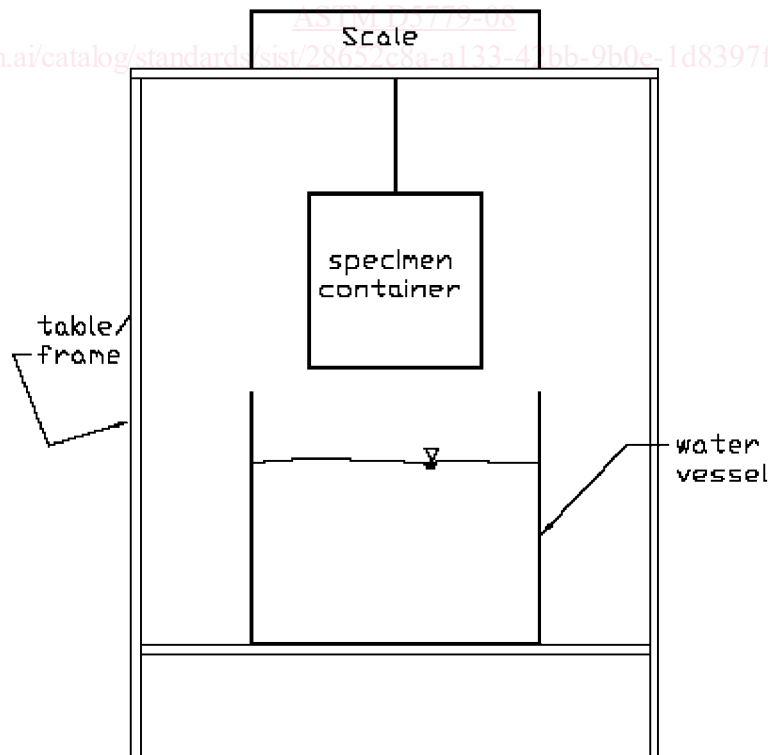


FIG. 1 Example Apparatus