



# Standard Test Method for Field Determination of Apparent Specific Gravity of Rock and Manmade Materials for Erosion Control<sup>1</sup>

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 ( $\epsilon$ ) 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 C 97.

1.3 The values stated in SI units are to be regarded as the 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 97 Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone<sup>2</sup>

C 670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials<sup>3</sup>

D 653 Terminology Relating to Soil, Rock, and Contained Fluids<sup>3</sup>

D 4753 Specification for Evaluating, Selecting, and Specifying Balances and Scales for Use in Testing Soil, Rock, and Related Construction Materials<sup>3</sup>

D 4992 Practice for Evaluation of Rock to Be Used for Erosion Control<sup>4,5</sup>

## 3. Terminology

### 3.1 Definitions:

3.1.1 *field apparent specific gravity*—the ratio of the weight in air of a unit volume of impermeable rock or manmade material, to the weight of an equal volume of water. This is

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 04.07.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 04.02.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 04.08.

<sup>5</sup> *Annual Book of ASTM Standards*, Vol 04.09.

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.

## 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, 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.

## 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. 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.

6.3 *Water*—A volume of water large enough to submerge the specimen and its container.

## 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.