



Standard Test Methods for Particle Size Analysis of Natural and Man-Made Riprap Materials¹

This standard is issued under the fixed designation D5519; 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 These test methods cover the particle size and mass analysis of natural and man-made riprap and related materials, including filter stone or coarse bedding materials.

1.2 These test methods are generally intended for riprap and related materials. They are applicable for mixtures of stones screened from natural deposits, blast rock, processed materials from quarried rock, or recycled concrete. They are applicable for sizes 3 in. (75 mm) and above, with the upper size limited only by equipment available for handling and determining the mass of the individual particles.

1.3 Four alternate procedures are provided. There is a wide range in the level of effort and the precision of the test procedures. It is important for specifiers to indicate the test procedure. Test reports should clearly indicate which procedure was used.

NOTE 1—While conducting these test methods, it may be convenient to collect data on other attributes, such as the amount of slab pieces and deleterious materials.

1.4 All observed and calculated values shall conform to the guidelines for significant digits and rounding established in Practice D6026, unless superseded by this standard.

1.4.1 For purposes of comparing measured or calculated value(s) with specified limits, the measured or calculated value(s) shall be rounded to the nearest decimal or significant digits in the specified limits.

1.4.2 The procedures used to specify how data are collected/recorded or calculated, in this standard are regarded as the industry standard. In addition, they are representative of the significant digits that generally should be retained. The procedures used do not consider material variation, purpose for obtaining the data, special purpose studies, or any considerations for the user's objectives; and it is common practice to increase or reduce significant digits of reported data to be commensurate with these considerations. It is beyond the scope

of this standard to consider significant digits used in analytical methods for engineering design.

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

1.5.1 The gravitational system of inch-pound units is used when dealing with inch-pound units. In this system, the pound (lbf) represents a unit of force (weight), while the unit for mass is slugs.

1.6 *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. Specific precautionary statements are given in Section 7.*

2. Referenced Documents

2.1 ASTM Standards:²

- C136 Test Method for Sieve Analysis of Fine and Coarse Aggregates
- D653 Terminology Relating to Soil, Rock, and Contained Fluids
- D3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
- D4992 Practice for Evaluation of Rock to be Used for Erosion Control
- D5240 Test Method for Testing Rock Slabs to Evaluate Soundness of Riprap by Use of Sodium Sulfate or Magnesium Sulfate
- D5312 Test Method for Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions
- D5313 Test Method for Evaluation of Durability of Rock for Erosion Control Under Wetting and Drying Conditions
- D6026 Practice for Using Significant Digits in Geotechnical Data

¹ These test methods are under the jurisdiction of ASTM Committee D18 on Soil and Rock and are the direct responsibility of Subcommittee D18.17 on Rock for Erosion Control.

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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.