



Designation: **D7986—17** **D7986 – 17a**

# Standard Practice for Preparing Specimens of Hydraulic Erosion Control Products for Index Property Testing<sup>1</sup>

This standard is issued under the fixed designation D7986; 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~~ Scope\*

1.1 This practice specifies a set of instructions for preparing samples of hydraulic erosion control products (HECPs) for index property testing.

1.2 All observed and calculated values shall conform to the guidelines for significant digits and rounding established in Practice **D6026**.

1.2.1 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.

1.2.2 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 measured. The procedures used do not consider material variation, purpose for obtaining the data, special purpose studies, or any considerations for the users objectives; and it is common practice to increase or reduce the 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 the analytical methods for engineering design.

1.3 *Units*—The values stated in SI units are being regarded as standard. No other units of measurement are included in the practice.

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.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

**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

**D4753** Guide for Evaluating, Selecting, and Specifying Balances and Standard Masses for Use in Soil, Rock, and Construction Materials Testing

**D6026** Practice for Using Significant Digits in Geotechnical Data

**E145** Specification for Gravity-Convection and Forced-Ventilation Ovens

## 3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of common technical terms used in this standard, refer to Terminology **D653**.

3.2 *Definitions of Terms Specific to This Standard:*

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee **D18** on Soil and Rock and is the direct responsibility of Subcommittee **D18.25.01** on Mulches. Current edition approved Feb. 15, 2017/July 15, 2017. Published February 2017/July 2017. Originally approved in 1999. Last previous edition approved in 2015/2017 as **D7986—15—17**. DOI: 10.1520/D7986-17. DOI: 10.1520/D7986-17A.

<sup>2</sup> 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.

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

3.2.1 *Hydraulic Erosion Control Product (HECP), n—in erosion control*, a manufactured, temporary, degradable, pre-packaged fibrous material that is mixed with water and hydraulically applied as a slurry to reduce soil erosion and assist in the establishment and growth of vegetation.

3.2.2 *index property test, n—in erosion control*, a standard test that may be used to compare the relative material properties of erosion control products.

#### 4. Summary of Practice

4.1 A representative sample of dry HECP is mixed with water in an amount corresponding to the desired mixing rate. The resulting slurry is spread evenly on a metal sheet pan in an amount corresponding to the desired field application rate. The material is dried and the resulting sample is removed and cut to sizes appropriate for index property tests.

#### 5. Significance and Use

5.1 This practice is intended to simulate mixing of HECP products as would be mixed on a job or project site but in a laboratory environment on a smaller scale. Dried samples are not necessarily intended to represent a field application of HECP products but would be representative of the correct amount of material applied to a known area and provide a basis for consistent and repeatable index property testing.

NOTE 1—The quality of the result produced by this standard 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 D3740 are generally considered capable of competent and objective testing/sampling/inspection/etc. Users of this standard are cautioned that compliance with Practice D3740 does not in itself assure reliable results. Reliable results depend on many factors; Practice D3740 provides a means of evaluating some of those factors.

#### 6. Apparatus

6.1 *Baking Pan*—Fabricate a stainless steel straight-sided (not tapered), metal baking pan having dimensions of  $280 \pm 5$  mm by  $380 \pm 5$  mm by  $6.5 \pm 0.5$  mm tall. Retain fabricated pan for future testing.

6.2 *Stand Mixer*—A device capable of maintaining a speed between 60 and 90 rpm on the low setting and equipped with a 4 L stainless steel mixing bowl with a coated flat beater attachment.

6.3 *Drying Oven*—Thermostatically-controlled, preferably of the forced-draft type, meeting the requirements of Specification E145 and capable of maintaining a uniform temperature of  $93 \pm 5^\circ\text{C}$ .

6.4 *Balance*—Balances shall conform to the requirements of Specification D4753.

6.4.1 To determine the mass of the specimen, the balance shall have readability without estimation of 0.01 g. The capacity of this balance will need to exceed the mass of the container plus a specimen. In general, a balance with minimum capacity of 600 g is sufficient.

6.5 *Graduated Cylinders*—Two cylinders, one graduated for 1000 mL and one graduated for 10 mL.

6.6 *Timing Device*—A clock, stopwatch, digital timer, or device readable to one second or better.

6.7 *Test Fluid*—Distilled or demineralized water is the only permissible test fluid. The use of tap water is not permitted.

6.8 *Metal Pipe*—A galvanized pipe having a minimum length of 600 mm and a 25 mm outside diameter.

6.9 *Miscellaneous Items*—Items such as a large flat solid plastic spatula, scissors or cutting dies, 4 L zip top bags, and non-stick cooking spray.

#### 7. Hazards

7.1 *Safety Hazards*—HECP products can be dusty. Eye protection and a dust mask are recommended to be worn during the procedure.

#### 8. Procedure

8.1 Obtain a 500 g or sufficient amount of representative sample of the HECP from the middle of the bag or bale to satisfy 8.2. For those products with uneven bag distribution of proper chemistry, the manufacturer is required to supply the correct amounts of fiber and chemicals needed to produce the necessary quantity.

8.2 Determine and record the required amount of HECP using an application rate of kg/hectare. If the application rate is given in lb/acre, then multiply that value by 1.12 to get kg/hectare.

Then, use the following equation to determine the required amount of HECP,  $F$ , in grams for use in this procedure.

$$F = (\text{kg/hectare} \times 0.1) \times A \quad (1)$$

where:

$F$  = required amount of HECP, nearest 0.01 g and

$A$  = area of the baking pan, nearest  $0.001 \text{ m}^2$ .