Designation: D2980 – 04 (Reapproved 2010)

Standard Test Method for Volume Mass, Moisture-Holding Capacity, and Porocity of Saturated Peat Materials[1]

This standard is issued under the fixed designation D2980; 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 was designed to evaluate the aeration, water penetration, and water retention properties of peat under field conditions of water saturation.

1.2 *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:*[2]

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D2974 Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils

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

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

3. Summary of Test Method

3.1 The test method sets up standardized conditions for measuring the volume and mass of saturated peat. From these data, saturated volume masses, moisture-holding capacity (on a mass and volume basis), dry peat volumes, and porocity can be determined.

4. Significance and Use

4.1 This test method measures the air spaces of peat and the moisture-holding capacity on either a mass and/or a volume basis under conditions of saturation. If large spaces are present, water and air can penetrate easily. If spaces are smaller, the water holding capacity is increased. Water holding capacity is larger in humified peat materials (small inter-particulate spaces), whereas water and air-penetration is larger in unhumified peat (larger inter-particulate spaces). The spaces can also be aan indication of the oxygen available to the plant roots.

4.2 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.

5. Apparatus

5.1 *Dispensing Apparatus*—Two dispensing burets, 250-mL capacity in 1-mL subdivisions, ±2-mL tolerance, pinch-cock type; a one-hole No. 6 rubber stopper; straight polyethylene drying tube with serrated rubber tubing fittings, 150 mm long, 19 mm (¾ in) in outside diameter, 16 mm (⅝ in.) in inside diameter;[3] a 4-mesh sieve; a balance; a moisture–proof (air-tight) container; a 5-gal (20-L) bottle equipped with a siphon device; and a stainless steel sieve circle about 16 mesh and 28.7 mm in diameter to be attached to one end of the drying tube and sealed. (A soldering iron is useful.) Adjust the length of the tube to match conveniently the graduation of the buret; then scallop the end without the sieve to allow for water drainage, and insert the tube into the dispensing buret with the sieve side up.

[1] This test method is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.22 on Soil as a Medium for Plant Growth.

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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.

[3] A Cenco No. 14782-2 drying tube has been found suitable for this purpose. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,[1] which you may attend.