



Designation: D4427 – 07

Standard Classification of Peat Samples by Laboratory Testing¹

This standard is issued under the fixed designation D4427; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This classification is a system for subdividing and assigning nomenclature to peat samples through laboratory tests.

1.2 *This standard does not purport to address all of the safety problems, 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

D1997 Test Method for Laboratory Determination of the Fiber Content of Peat Samples by Dry Mass

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

D2976 Test Method for pH of Peat Materials

D2980 Test Method for Volume Mass, Moisture-Holding Capacity, and Porosity of Saturated Peat Materials

D3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

3. Terminology

3.1 Definitions:

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

3.1.2 *peat*—a naturally-occurring highly organic substance derived primarily from plant materials. Peat is distinguished from other organic soil materials by its lower ash content (less

than 25 % ash by dry weight (see Test Methods D2974)), and from other phylogenetic material of higher rank (that is, lignite coal) by its lower calorific value on a water saturated basis.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *absorbency*—the maximum amount of moisture (by weight) that can be held by the peat. This is expressed in terms of the water-holding capacity as measured using Test Method D2980.

3.2.2 *acidity*—this is expressed as the pH of the peat in water as measured using Test Method D2976.

3.2.3 *ash content*—the percentage by dry weight of material remaining after the oven dry peat is burned, using the methods described in Test Methods D2974.

3.2.4 *botanical composition*—the dominant plant genus, genera, or informal plant group identified by visual inspection as comprising a portion of the fiber in the peat.

3.2.5 *fiber content*—the dry weight of fibers remaining on a 100 mesh sieve after wet sieving. Fiber content is expressed as a percentage of the original dry weight, using the method described in Test Method D1997.

4. Significance and Use

4.1 The purpose of this classification is to standardize the naming of peat materials so that the peat-producer can better identify the product and the peat-consumer better select peat materials to meet requirements. This system may also be used for peat resource evaluations, environmental impact reports, and preliminary engineering studies. The parameters selected for use in this classification are ones which have been determined to relate to the agricultural/horticultural, geotechnical, and energy uses of peats.

NOTE 1—The quality of the results 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/and the like. Users of this standard are cautioned that compliance with Practice D3740 does not in itself assure reliable testing. Reliable testing depends on many factors; Practice D3740 provides a means of evaluating some of those factors.

5. Sample

5.1 Representative samples of the peat should be used. The size and type of sample required is dependent on the tests to be

¹ This classification is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.07 on Identification and Classification of Soils.

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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.

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