



Designation: D4427 – 23

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 U.S. 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 Peat is considered to be a naturally occurring organic soil primarily derived from decomposing plant material that has sedentarily accumulated in water-saturated, anaerobic environments. It is found in peatlands, bogs, mangroves, mires, moors, and muskegs and is generally composed of mosses, grasses, leaves, sedges, and shrubs. Changes in depositional environment can create subsurface peat deposits underlying inorganic soils. Typically, peat has a low density, high water content, and is quite compressible when compared to other types of soil

1.3 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *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:*²

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D1997 Test Method for Laboratory Determination of the Fiber Content of Peat and Organic Soils by Dry Mass

D2974 Test Methods for Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils

D2976 Test Method for pH of Peat Materials

D2980 Test Method for Saturated Density, 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

D5715 Practice for Estimating the Degree of Humification of Peat and Other Organic Soils (Visual/Manual Method)

3. Terminology

3.1 *Definitions:*

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

3.2 *Definitions of Terms Specific to This Standard:*

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

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

3.2.3 *ash content*—the percentage by dry mass 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 observation as comprising a portion of the fiber in the peat.

3.2.5 *fiber content*—the dry mass of fibers remaining after wet sieving over a No. 100 (150-μm) sieve. Fiber content is expressed as a percentage of the original dry mass, 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 can 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

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