



Designation: ~~D5715 – 00 (Reapproved 2006)~~ D5715 – 14

Standard Test Method Practice for Estimating the Degree of Humification of Peat and Other Organic Soils (Visual/Manual Method)¹

This standard is issued under the fixed designation D5715; 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 covers a system for visually discriminating peat and other highly organic soils on the basis of degree of humification.

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~~

~~D4427 Classification of Peat Samples by Laboratory Testing~~

3. Terminology

3.1 *Definitions:*

3.1.1 For common definitions of terms in this test method, refer to Terminology ~~D653~~.

3.1.2 *degree of humification*—as defined by this test method refers to any one of ten categories (indicated by the letter “H”), with H1 being the least humified and H10 being the most humified. In general, the term *humification* relates to the degree of biochemical decomposition of original starting plant components. However, this terminology actually refers to the present visual composition of the peat and highly organic soils regardless of the genesis of this composition.

3.1.3 *organic soils*—soil with a high organic content. In general, organic soils are very compressible and have poor load sustaining properties.

3.1.4 *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 mass—see Test Method ~~D2974~~) and from other phytogenic material of higher rank (that is, lignite coal) by its lower calorific value on a water saturated basis.

4. Significance and Use

4.1 The purpose of this test method is to standardize the routine description of peat and other organic soils for various uses (such as, peatland inventories and resource evaluations). This test method is a modified version of a widely used system originally developed by L. von Post.³ This test method should be used to supplement other field information, such as, site location, surface morphology, surface vegetation, water table, moisture content, fiber content, wood content, and visually identifiable plant types and parts:

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.

Current edition approved Nov. 1, 2006/Nov. 1, 2014. Published December 2006/November 2014. Originally approved in 1995. Last previous edition approved in 2000/2006 as ~~D5715 – 00~~/D5715 – 00(2006). DOI: ~~10.1520/D5715-00R06~~/10.1520/D5715-14.

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

4.2 It should be stressed that this is a visual/manual method and is not meant to replace the more precise method of laboratory classification of peat (see Classification [D4427](#)). It should also be noted that this test method is independent of the determination of whether a particular deposit contains peat that is defined in Classification [D4427](#) on the basis of laboratory determination of ash content (see Test Method [D2974](#)).

NOTE 1—The quality of the result produced by this test method 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 test method 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. Procedure

5.1 The sample used for this test method can be collected by any of a number of means as long as it still retains its original in-situ composition (that is, moisture as well as solid components). In practice the sample is usually collected using a Macaulay Sampler, Hiller Borer, or similar field reconnaissance peat sample; but, it may be collected by more sophisticated piston coring devices or simply as a grab sample (that is, by hand) or a block sample.

5.2 A representative sample is picked up with the hand and squeezed firmly. The color of the water expelled between the fingers upon squeezing the sample or the amount of amorphous matter expelled is used (along with the intactness of the original plant components), or both, to place the peat into one of the categories described below.

6. Basis for Classification

6.1 *H1*—Completely undecomposed peat that, when squeezed, releases almost clear water. Plant remains are intact and easily identifiable. No amorphous material is present.

6.2 *H2*—Almost completely undecomposed peat that, when squeezed, releases yellowish water. Plant remains are still relatively intact. No amorphous material is present.

6.3 *H3*—Very slightly decomposed peat that, when squeezed, releases turbid brown water, but in which no amorphous peat passes between the fingers.

6.4 *H4*—Slightly decomposed peat that, when squeezed, releases very dark water. No peat passes between the fingers but the plant remains are somewhat visibly altered and less distinct. The residue left in hand appears slightly pasty.

6.5 *H5*—Moderately decomposed peat that, when squeezed, releases through the fingers very turbid water containing a small amount of amorphous granular peat. The residue remaining in hand is strongly pasty in consistency and the tissues of the original source plants are difficult to recognize.

6.6 *H6*—Moderately decomposed peat that, when squeezed, releases through the fingers about one-third of the peat. The residue remaining after squeezing is strongly pasty. Very little plant structure is visible before squeezing; but, some small amount of intact debris becomes more visible after squeezing.

6.7 *H7*—Strongly decomposed peat that, when squeezed, releases through the fingers about one-half of the peat. The water released, if any, is very dark and pasty. The residue remaining after squeezing is primarily composed of amorphous material with little recognizable plant tissue.

6.8 *H8*—Very strongly decomposed peat that, when squeezed, releases through the fingers about two-thirds of the peat. The water released, if any, is very dark and pasty. The residue remaining after squeezing is primarily composed of amorphous material with very little intact plant tissue.

6.9 *H9*—Almost completely decomposed peat that, when squeezed, almost entirely releases through the fingers as a fairly uniform dark paste. Almost no recognizable plant structures are evident in the residue.

6.10 *H10*—Completely decomposed peat containing no discernible plant tissues. When squeezed, all of the peat releases through the fingers as a uniform dark paste.

6.11 [Table 1](#) summarizes the von Post System³ and can be used to identify the degree of humification. Peats whose degree of humification ranges from *H1* to *H3* have been described as fibrous peat for geotechnical applications (fibric for other purposes). Materials that lie in the range *H4* to *H10* have been described as amorphous peat or highly organic soil for geotechnical applications (*H4* to *H6* hemic and *H7* to *H10* sapric for other purposes). For more precise classification of peat samples, follow the procedures described in Classification [D4427](#).

7. Precision and Bias

7.1 *Precision*—Test data on precision is not presented due to the nature of the soil materials tested by this test method. It is either not feasible or too costly at this time to have ten or more laboratories participate in a round-robin testing program. Also, it is either not feasible or too costly to produce multiple specimens that have uniform physical properties. Any variation observed in the data is just as likely to be due to specimen variation as to operator or laboratory testing variation.

7.2 *Bias*—There is no accepted reference value for this test method, therefore, bias cannot be determined.

8. Keywords

8.1 classification; decomposition; humification; organic materials; peat; von Post

SUMMARY OF CHANGES

In accordance with Committee D18 policy, this section identifies the location of changes to this test method since the last edition (95) that may impact the use of the test method.

- (1) Section 2.1 — Inserted references to **D653** and **D3740**.
- (2) Section 3 — Inserted reference to **D653** for terms. Renumbered subsequent sections as needed.
- (3) Section 4.2 — Inserted as **Note 1** standard reference to **D3740**.
- (4) Section 7 — Updated precision and bias statements.
- (5) Added Summary of Changes section.
- (6) Corrected headquarters address for ASTM.

ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org). Permission rights to photocopy the standard may also be secured from the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, Tel: (978) 646-2600; http://www.copyright.com/

1. Scope* <http://standards.iteh.ai/catalog/standards/sist/bf30350e-602b-440f-a98d-f8922678dd53/astm-d5715-14>

1.1 This practice covers the visual determination of the degree of humification of peat and other highly organic soils. This practice is not used for the determination of the degree of organic decomposition of organic matter in mineral soils.

1.2 This practice offers a set of instructions for performing one or more specific operations. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.

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 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](#)

[D2944 Practice of Sampling Processed Peat Materials](#)

[D2974 Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils](#)

[D4427 Classification of Peat Samples by Laboratory Testing](#)

3. Terminology

3.1 Definitions:

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