Designation: ~~D5268 – 13~~ D5268 – 19

Standard Specification for Topsoil Used for Landscaping and Construction Purposes[1]

This standard is issued under the fixed designation D5268; 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 specification covers a physical evaluation of ~~an inorganic~~ a soil containing ~~a limited amount of~~ organic material, relative to its use as a topsoil for ~~horticultural~~ vegetative growth purposes in landscaping and construction. For classification, a full agricultural textural classification may be used. Soils being evaluated for use as a topsoil must meet the requirements in Table 1.

1.2 When physically evaluating a soil, relative to its suitability to support plant growth (primarily grasses), tests must be made to determine the presence and the amount of organic matter, moisture content, inorganic matter (sand, silt and clay), pH, salt content, cation exchange capacity percentages and deleterious materials.

1.3 The presence in the soil of the correct ~~nutrients~~ nutrients, salts, and pH ~~status~~ is necessary for healthy plant growth. This specification does ~~not, however,~~ not cover a determination of the nutrients, nor their availability.

~~NOTE 1—The nutrient content of topsoil is important and the nutrients usually evaluated are nitrogen, phosphate, and potassium. Nutrient deficiencies may be corrected using organic or inorganic fertilizers. Excess soluble salts should be examined as to their desirability. The acidity or alkalinity of the soil is also important. Excess acidity may be corrected by the application of lime. Excess alkalinity may be corrected by the application of sulfur or other suitable acidifying compounds. The latter item, in addition to lowering pH, also could be considered as an aggregate when considering the particle size distribution.~~

1.4 Typical ~~general~~ ranges of ~~soil content~~topsoil composition are presented in Table 1. Soils falling within these ranges will generally form a suitable topsoil. Soils being used as a topsoil with organic matter contents between 10 and 90 %, may need to be amended prior to use. It must, however, be recognized that in some geographic regions, ~~concurrence with~~ achieving the values ~~of~~in Table 1 ~~would~~could be ~~most~~ difficult. In such cases, ~~locally acceptable~~ alternative specifications ~~would~~may need to be ~~developed.~~considered, or an engineered soilamendment meeting the requirements in Table 1 excluding the sand, silt, and clay content as those materials will come from the subsurface soil being amended. When using an engineered soil amendment, the organic matter values need to be >75 % to help rebuild the subsoil layers.

1.5 *Units*—The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.6 All observed and calculated values shall conform to the guidelines for significant digits and rounding established in Practice D6026, unless superseded by this test method.

1.6.1 The procedures used to specify how data are collected/recorded and calculated in the standard are regarded as the industry standard. In addition, they are representative of the significant digits that generally should be retained. The procedures used do not consider material variation, purpose for obtaining the data, special purpose studies, or any considerations for the user's objectives; and it is common practice to increase or reduce significant digits of reported data to be commensurate with these considerations. It is beyond the scope of these test methods to consider significant digits used in analysis methods for engineering data.

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

1.8 *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.*

[1] This specification 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~~ Media for Plant Growth.

Current edition approved ~~June 1, 2013~~Nov. 1, 2019. Published ~~July 2013~~December 2019. Originally approved in 1992. Last previous edition approved in ~~2007~~2013 as ~~D5268 – 07~~.D5268 – 13. DOI: ~~10.1520/D5268-13~~.10.1520/D5268-19.

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

TABLE 1 Specification for Topsoil

~~Compositional Category~~	~~Percentage by Mass~~
~~Total Sample:~~	
~~Deleterious materials~~	~~5 max~~
~~(rock, gravel, slag, cinder, roots, sod)~~	
~~Material passing the No. 10 (2 mm) sieve:~~	
~~Organic material~~	~~2 to 20~~
~~Sand content~~	~~20 to 60~~
~~Silt and clay content~~	~~35 to 70~~
~~pH~~	~~5 to 7~~

TABLE 1 Specification for Topsoil & Engineered Soil Amendment

Property	Test Method or Technique	Requirement	
		Topsoil	Engineered Soil Amendment
pH	D4972	5.5-7.5	5.5-7.5
Organic Matter	D2974 (Method C)	3-10 %	≥75 %
Moisture Content	D2216 (Method A)	≤20 %	≤20 %
Material retained on 2.00 mm (No.10) sieve	D6913/D6913M (Method A)	<5 %	<5 %
Sand Content (Material passing 2.00 mm (No. 10) and retained on 0.075 mm (No. 200) sieve	D6913/D6913M (Method A)	20-60 %	...
Fines (silt and clay) Content (Material passing 0.075 mm (No. 200) sieve)	D6913/D6913M (Method A)	35-70 %	...
Total Dissolved Soils (TDS)	Saturated Paste Extract	<960 ppm	<960 ppm
Soluble Salt Concentration	Saturated Paste Extract	<2.5 mmhos/cm	<2.5 mmhos/cm
Potassium (K)	Ammonium Acetate Extraction	3-10 % CEC	...
Magnesium (Mg)	Ammonium Acetate Extraction	12-25 % CEC	...
Calcium (Ca)	Ammonium Acetate Extraction	55-75 % CEC	...
Sodium (Na)	Ammonium Acetate Extraction	<5 % CEC	...

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D653 Terminology Relating to Soil, Rock, and Contained Fluids

~~D1140~~D2216 Test Methods for ~~Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing~~Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

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~~

D4972 Test Methods for pH of Soils

D6026 Practice for Using Significant Digits in Geotechnical Data

~~E11~~D6913/D6913M ~~Specification for Woven Wire Test Sieve Cloth and Test Sieves~~Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

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

3. Terminology

3.1 *Definitions:*

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

3.1.2 *topsoil, n—in soil horizons*, the naturally formed top horizon often designated as "A" horizon consisting of soils and materials which support the growth of plants and normally has a greater degree of weathering and greater accumulations of organic matter than underlying soil horizons or soil parent material.

3.2 ~~*Description*~~*Definitions of* ~~*Term*~~*Terms Specific to This Standard:*

3.2.1 *engineered soil amendment, n—in erosion control*, an alternative to topsoil to accelerate development of depleted soils/substrates with low organic matter, low nutrient levels and limited biological activity.

[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.