



Standard Practice for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes¹

This standard is issued under the fixed designation D3282; 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 practice covers a procedure for classifying mineral and organomineral soils into seven groups based on laboratory determination of particle-size distribution, liquid limit, and plasticity index. It may be used when a precise engineering classification is required, especially for highway construction purposes. Evaluation of soils within each group is made by means of a *group index*, which is a value calculated from an empirical formula.

NOTE 1—The group classification, including the group index, should be useful in determining the relative quality of the soil material for use in earthwork structures, particularly embankments, subgrades, subbases, and bases. However, for the detailed design of important structures, additional data concerning strength or performance characteristics of the soil under field conditions will usually be required.

1.2 *Units*—The sieve designations are identified using the “standard” system in accordance with Specification E11, such as 75-mm and 75- μ m, followed by the “alternative” system of 3-in. and No. 200, respectively.

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.*

1.4 *This practice offers a set of instructions for performing one or more specific operations. This practice 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 practice 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 practice 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 This practice 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. Referenced Documents

2.1 ASTM Standards:²

- D421 Practice for Dry Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants
- D422 Test Method for Particle-Size Analysis of Soils
- D653 Terminology Relating to Soil, Rock, and Contained Fluids
- D1140 Test Methods for Determining the Amount of Material Finer than 75- μ m (No. 200) Sieve in Soils by Washing
- D1452 Practice for Soil Exploration and Sampling by Auger Borings
- D1586 Test Method for Penetration Test (SPT) and Split-Barrel Sampling of Soils
- D1587 Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes
- D3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
- D4318 Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- D4700 Guide for Soil Sampling from the Vadose Zone
- D6913 Test Methods for Particle-Size Distribution (Grading) of Soils Using Sieve Analysis
- E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

2.2 AASHTO Document:³

- M 145 The Classification of Soils and Soil Aggregate Mixtures for Highway Construction Purposes

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

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 Available from American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Suite 249, Washington, DC 20001, <http://www.transportation.org>.

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