



Designation: D6768/D6768M – 19

Standard Test Method for Tensile Strength of Geosynthetic Clay Liners¹

This standard is issued under the fixed designation D6768/D6768M; 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 establishes the procedures for the measurement of tensile strength of a geosynthetic clay liner (GCL). This test method is strictly an index test method to be used to verify the tensile strength of GCLs. Results from this test method should not be considered as an indication of actual or long-term performance of the geosynthetic(s) in field applications.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

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

[D76/D76M Specification for Tensile Testing Machines for Textiles](#)

[D123 Terminology Relating to Textiles](#)

[D4439 Terminology for Geosynthetics](#)

[D5889/D5889M Practice for Quality Control of Geosynthetic Clay Liners](#)

¹ This test method is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.04 on Geosynthetic Clay Liners.

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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.

[D6072/D6072M Practice for Obtaining Samples of Geosynthetic Clay Liners](#)

3. Terminology

3.1 *geosynthetic clay liner, n*—a manufactured hydraulic barrier consisting of clay bonded to a layer or layers of geosynthetic material(s). **D4439**

3.2 For terminology of other terms used in this test method, refer to Terminologies [D123](#) and [D4439](#).

4. Summary of Test Method

4.1 A 100-mm [4-in.] wide specimen is gripped across its entire width in the clamps of a constant rate of extension (CRE) type tensile testing machine operated at a prescribed rate of extension, applying a longitudinal force to the specimen until the specimen ruptures.

5. Significance and Use

5.1 This test method may be used for the acceptance testing of commercial shipments of GCLs, but caution is advised since information about between-laboratory precision is incomplete. Comparative tests as directed in [5.1.1](#) may be advisable.

5.1.1 In cases of a dispute arising from differences in reported test results when using this test method for acceptance of shipments, the purchaser and the supplier should conduct comparative tests to determine if there is a statistical bias. The two parties should take a group of test samples that are as homogeneous as possible and which are from the lot of material in question.

5.2 Some modification of clamping techniques may be necessary for a given GCL, depending upon its structure. Specimen clamping may be modified as required at the discretion of the individual laboratory, provided a representative tensile strength is obtained. In any event, the procedure described in Section [10](#) of this test method for obtaining tensile strength must be maintained.

5.3 This test method is applicable for testing GCLs as received. It is used with a constant rate of extension type tension apparatus.

6. Apparatus

6.1 *Tensile Testing Machine*—A constant rate of extension (CRE) type of testing machine described in Specification