Designation: D 6768 – 03

Standard Test Method for Tensile Strength of Geosynthetic Clay Liners[1]

This standard is issued under the fixed designation D 6768; 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 The test method establishes the procedures for the measurement of tensile strength of 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 in SI units are to be regarded as the standard. Values in pound units are in parentheses for information.

1.3 *This standard may involve hazardous materials, operations, and equipment. 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:*

D 76 Specification for Tensile Testing Machines for Textiles[2]

D 123 Terminology Relating to Textiles[2]

D 2905 Practice for Statements on Number of Specimens for Textiles[2]

D 4439 Terminology for Geosynthetics[3]

D 5889 Practice for Quality Control of Geosynthetic Clay Liners[3]

D 6072 Guide for Obtaining Samples of Geosynthetic Clay Liners[3]

3. Terminology

3.1 *geosynthetic*, *n*—a product manufactured wholly or in part from polymeric material used with soil, rock, earth, or other geotechnical engineering related material as an integral part of a project, structure, or system. **D 4439**

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

3.3 For terminology of other terms used in this test method, refer to Terminologies D 123 and D 4439.

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 providing 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 D 76 shall be used with a minimum precision measuring capability of 0.1 N/m (5.71×10^{-4} lbf/in.).

[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] *Annual Book of ASTM Standards*, Vol 07.01.

[3] *Annual Book of ASTM Standards*, Vol 04.13.