Designation: D6496/D6496M – 20

Standard Test Method for Determining Average Bonding Peel Strength Between Top and Bottom Layers of Needle-Punched Geosynthetic Clay Liners[1]

This standard is issued under the fixed designation D6496/D6496M; 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 the laboratory determination of the average bonding strength between the top and bottom layers of a sample of a geosynthetic clay liner (GCL).

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

D6072/D6072M Practice for Obtaining Samples of Geosynthetic Clay Liners

3. Terminology

3.1 *Definitions:*

3.1.1 *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 The top and bottom layers of a geosynthetic clay liner are gripped individually in tensile grips and pulled at a constant rate of extension by a tensile testing machine until the top and bottom layers of the specimen separate. The average bonding peel strength of the test specimen can be calculated from machine scales, dials, recording charts, or an interface computer.

5. Significance and Use

5.1 The bonding strength test for the top and bottom layers of the geosynthetic clay liner is intended to be an index test. It is anticipated that the results of the test will be used to evaluate the quality of the bonding process.

6. Atmospheric Conditions

6.1 *Atmospheric Conditions:*

6.1.1 The atmospheric conditions of the laboratory determining average bonding peel strength between top and bottom layers of needle-punched geosynthetic clay liners shall be: relative humidity between 50 to 70 % and a temperature of 21 ± 2 °C [70 ± 4 °F].

7. Apparatus

7.1 *Tensile Testing Machine*—A constant rate of extension (CRE) type of testing machine described in Specification D76/D76M 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] 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.