Designation: D6636 – 01 (Reapproved 2023)

Standard Test Method for Determination of Ply Adhesion Strength of Reinforced Geomembranes[1]

This standard is issued under the fixed designation D6636; 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 measurement of the adhesion strength (180° peel) between plies of reinforced geomembranes such as internally reinforced geomembranes and coated fabrics.

1.2 This test method is not intended for determining the strength of geomembrane seams or for determining the ply adhesion strength of geocomposite components (such as nonwoven geotextile bonded to geomembrane, or geotextile bonded to drainage core).

1.3 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.4 *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.*

1.5 *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

D4354 Practice for Sampling of Geosynthetics and Rolled Erosion Control Products (RECPs) for Testing

D4439 Terminology for Geosynthetics

D4491/D4491M Test Methods for Water Permeability of Geotextiles by Permittivity

3. Terminology

3.1 *Definitions:*

3.1.1 *atmosphere for testing geosynthetics, n*—air maintained at a relative humidity between 50 % to 70 % and a temperature of 21 °C ± 2 °C (70 °F ± 4 °F).

3.1.2 *geocomposite, n*—a multi-component product, at least one of which is a geosynthetic.

3.1.3 *geomembrane, n*—an essentially impermeable geosynthetic composed of one or more synthetic sheets.

3.1.3.1 *Discussion*—In geotechnical engineering, "essentially impermeable" means that no measurable liquid flows through a geosynthetic when tested in accordance with Test Methods D4491/D4491M.

3.1.4 *ply adhesion, n*—bond between layers of a laminated material.

3.1.5 *ply adhesion strength, n*—force per unit width required to cause separation in peel between layers of a laminated material.

3.1.6 *reinforced geomembrane, n*—a geomembrane internally reinforced with a textile.

3.1.7 *selvage, n*—an edge or edging which differs from the main part of a geosynthetic.

4. Summary of Test Method

4.1 The plies of the reinforced geomembrane are first partially peeled apart by hand for a distance of 25 mm to 50 mm (1 in. to 2 in.) to allow clamping of the specimen in the grips of the tensile machine. The plies are then separated at an angle of 180° at a constant rate of extension and the crosshead movement and force are recorded.

5. Significance and Use

5.1 This method is an index test and measures the force required to separate individual plies of a reinforced geomembrane. The acceptable value of adhesion will vary for different types of products. However, for a particular type of product, minimum values of ply adhesion can be determined and agreed

[1] This test method is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.10 on Geomembranes.

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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.