



Designation: D8479 – 24

Standard Test Method for Determining the Peel Strength of GCCM Materials¹

This standard is issued under the fixed designation D8479; 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 purpose of this test method is to determine the peel strength of GCCM materials to include the various layers these multilayer materials possess. Both uncured and cured/hydrated materials are tested as a part of this method.

1.2 As an index test, this method will be used relatively infrequently and to test large lots of material. This test is not intended for routine quality control testing of GCCMs.

1.3 The values in SI units are to be regarded as the standard. Values in inch-pound units are in parentheses for information.

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

D8030/D8030M Practice for Sample Preparation for GCCM

3. Terminology

3.1 For definitions of common technical terms used in this standard, refer to Terminology D4439.

3.2 Definitions:

3.2.1 *additional functional layer, n*—an additional individual layer attached to the GCCM top or bottom layer that provides a specific in-service function, for example, impervious or reinforcement layers. Multiple additional functional layers may be attached to the top or bottom layer.

3.2.2 *bottom layer, n*—the lower layer of the GCCM in contact with the cementitious material that would face toward the subgrade (downwards) in a normal installation. Without this layer, the loose cementitious fill will no longer be constrained.

3.2.3 *cured, adj*—a description of the state of a GCCM after initial hydration of the cementitious material and after setting has begun.

3.2.4 *geosynthetic cementitious composite mat (GCCM), n*—a factory-assembled composite consisting of a cementitious material contained within a layer or layers of geosynthetic materials that becomes hardened when hydrated.

3.2.5 *peak peel strength, n*—the maximum peel strength, expressed in N/m (lbf·in.), is calculated from the maximum load of a GCCM specimen oriented in either the machine or cross-machine direction and divided by the specimen width being tested.

3.2.6 *peel layer, n*—the element or elements that are to be peeled (at a 180° angle) away from the remaining components of the GCCM, which remain flat.

3.2.7 *top layer, n*—the upper layer of the GCCM in contact with the cementitious material that would face away from the subgrade (upwards) in a normal installation. Without this layer, the loose cementitious fill will no longer be constrained.

3.2.8 *uncured, adj*—a description of the state of a GCCM before it has been exposed to a hydration source and typically describes the “as received” dry product after conditioning in a prescribed manner.

4. Significance and Use

4.1 This test method is applicable for testing GCCM materials in both a cured and uncured state. This determines the peel strength of various layers of these multilayer materials to determine critical interface strength. It is used with a constant rate of extension type of tensile testing machine.

¹ This test method is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.05 on Geosynthetic Erosion Control.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.