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.

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Standard Test Method for Determining the Flexural Strength of a Geosynthetic Cementitious Composite Mat (GCCM) Using the Three-Point Bending Test[1]

This standard is issued under the fixed designation D8058; 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 provides guidelines for testing the flexural strength of cured geosynthetic cementitious composite mat (GCCM) products in a three (3)-point bend apparatus.

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

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

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

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 *cured, adj*—a description of the state of a GCCM after hydration for a specified period of time and quantity of water when known under specified conditions, followed by a period of time where the GCCM is kept under a specified environmental condition during which the cementitious material continues to cure and develop compressive strength.

3.2.2 *curing time, n*—the time subsequent to initial hydration of the GCCM and immediately prior to the testing of the material, during which the cementitious material is allowed to harden and form its final strength using the specific process for curing as specified in 8.3.

3.2.3 *dry, 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.

3.2.4 *final breaking load, n*—the maximum load achieved prior to rupture of materials.

3.2.5 *final deflection*—the deflection of the specimen from its initial position (before testing begins) measured at mid span at the final breaking load.

3.2.6 *final flexural strength, n*—the final flexural strength, expressed in megapascals (pound-force per square inch), is calculated from the final breaking load of a hydrated and cured GCCM specimen, oriented in either the machine or cross-machine direction, loaded as simple beams, when breaks occur perpendicular to the specimen length, with the load applied at the center, in a three-point loading fixture.

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

3.2.8 *hydration, n*—exposure of the GCCM, in this case, to water in prescribed conditions for a prescribed time and water quantity when known.

3.2.9 *initial breaking load, n*—the maximum load at which the first crack in the cementitious matrix of the GCCM forms.

[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 service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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