



Designation: D 6575 – 00

Standard Test Method for Determining Stiffness of Geosynthetics Used as Turf Reinforcement Mats (TRM's)¹

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1. Scope

1.1 This test method is described for determining the stiffness of geosynthetics used as Turf Reinforcement Mats (TRM).

1.2 The method is applicable to TRMs of any fiber content and any number of components.

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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 123 Terminology Relating to Textiles²
- D 1776 Practice for Conditioning Textiles for Testing²
- D 4354 Practice for Sampling of Geosynthetics for Testing³
- D 4439 Terminology for Geotextiles³
- D 5261 Test Method for Measuring Mass per Unit Area of Geotextiles³

2.2 Federal Standards:

- CCC-T-191b Textile Test Methods No. 5206.2⁴

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 bending length, n :

3.1.1.1 *general, adj*—a measure of the interaction between geosynthetic weight and geosynthetic stiffness as shown by the way in which a geosynthetic bends under its own weight. It reflects the stiffness of a geosynthetic when bent in one plane under the force of gravity, and is one component of drape.

3.1.1.2 *Discussion*—Bending length is called drape stiffness in Federal Specification CCC-T-191b.

3.1.1.3 *specific, adj*—the cube root of the ratio of the flexural rigidity to the mass per unit area.

3.1.2 flexural rigidity, n :

3.1.2.1 *general, adj*—resistance to bending.

3.1.2.2 *Discussion*—Resistance to bending or “flexural rigidity” is called flex stiffness in Federal Specification CCC-T-191b.

3.1.2.3 *specific, adj*—the couple on either end of a sample of unit width bent into unit curvature in the absence of any tension.

3.1.2.4 *Discussion*—The methods measure the bending length. Flexural rigidity is calculated directly by multiplying the cube of the bending length by the weight per unit area (see 3.1.1.3).

3.1.3 *stiffness, n*—resistance to bending.

3.2 *Definitions*—For definitions of other textile or geosynthetic terms used in this test method, refer to Terminologies D 123 and D 4439.

4. Significance and Use

4.1 In general this test method is adapted from tests developed for woven fabrics (previously designated as D 1388).

4.2 The cantilever test method may not be suitable for testing products that are very limp or have a marked tendency to curl or twist at a cut edge.

Cantilever Method

5. Summary of Method

5.1 A specimen of the TRM is slid in a direction parallel to its long dimension, so that its end projects from the edge of a horizontal surface. The length of overhang is measured when the tip of the test specimen is depressed under its own weight to the point where the line joining the tip to the edge of the platform makes an angle of 41.5° with the horizontal. One half of this length is the bending length of the specimen. The cube of this quantity multiplied by the weight per unit area of the geosynthetic is the flexural rigidity.

5.2 This test method is known also as the Single Cantilever Test.

6. Apparatus

6.1 *Stiffness Tester*, having the following parts:

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

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

⁴ Available from the Superintendent of Documents, US Government Printing Office, Washington, DC 20402..