Designation: ~~D6525 – 12~~ D6525/D6525M – 14

Standard Test Method for Measuring Nominal Thickness of Rolled Erosion Control Products[1]

This standard is issued under the fixed designation ~~D6525;~~D6525/D6525M; 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 nominal thickness of permanent rolled erosion control products.

1.2 This test method does not provide thickness values for permanent rolled erosion control products under variable compressive stresses. This test method determines nominal thickness, not necessarily minimum thickness.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values ~~given in parentheses are for information only.~~ 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 non-conformance with the standard.

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

2. Referenced Documents

2.1 *ASTM Standards:*[2]

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

D5199 Test Method for Measuring the Nominal Thickness of Geosynthetics

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

3. Terminology

3.1 *Definitions:*

3.1.1 *pressure, n*—the force or load per unit area.

3.1.2 *thickness—(1)* the distance between one planar surface and its opposite parallel and planar surface; *(2) in permanent rolled erosion control products*, the distance between the upper and lower surfaces of the material, measured under a specified pressure and time.

4. Summary of Test Method

4.1 The nominal thickness of permanent rolled erosion control products is determined by observing the perpendicular distance that a movable plane is displaced from a parallel surface by the permanent rolled erosion control product while under a specified pressure of 0.2 kPa ~~(0.029 psi)~~[0.029 psi] for 5 s.

5. Significance and Use

5.1 Thickness is one of the basic physical properties used to control the quality of permanent rolled erosion control products. Thickness values may aid in the calculation of other permanent rolled erosion control product parameters. Thickness however is

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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.

not generally an indication of field performance and generally should not be used in specifications. This test method is developed to aid manufacturers, designers, and end users in comparing the thickness of permanent rolled erosion control products through the use of an accepted ASTM standard.

5.2 The thickness of permanent rolled erosion control products may vary considerably depending on the pressure applied to the specimen during measurement. Where observed changes occur, thickness decreases when applied pressure is increased. To minimize variation, specific sample size and applied pressure are indicated in this test method to ensure all results are comparable.

5.3 This test method may be used for acceptance testing of commercial shipments of permanent rolled erosion control products, but caution is advised since information on between-laboratory precision is incomplete. Comparative tests in accordance with 5.3.1 may be advised.

5.3.1 In case of a dispute arising from differences in reported test results when using this test method for acceptance testing of commercial shipments, the purchaser and the supplier should conduct comparative tests to determine if there is a statistical bias between their laboratories. Competent statistical assistance is recommended for the investigation of bias. As a minimum, the two parties should take a group of test specimens that are as homogeneous as possible and that are formed from a lot of material of the type in question. The test specimens should be randomly assigned in equal numbers to each laboratory for testing. The average results from the two laboratories should be compared using Students *t*-test for unpaired data and an acceptable probability level chosen by the two parties before the testing is begun. If bias is found, either its cause must be found and corrected or the purchaser and supplier must agree to interpret future tests in light of the known bias.

NOTE 1—The user should be aware that the compressibility of the materials, their rebound characteristics, and the like will also affect the thickness of the permanent rolled erosion control products following the time they are rolled up on rolls, shipped, and stored.

6. Apparatus

6.1 *Thickness Testing ~~Instrument —~~Instrument—*The thickness gauge shall have a base (or anvil) and a free-moving presser foot plate whose planar faces are parallel to each other to <0.1 mm. A gauge with a 150-mm ~~(6-in.)~~[6-in.] diameter presser foot, the base shall extend at least 10 mm in all directions further than the edge of the approximately 17 500-mm^2 circular presser foot, shall be used for measurements of permanent rolled erosion control products. The instruments must be capable of measuring a maximum thickness of at least 25 mm ~~(1 in.)~~[1 in.] to an accuracy of ±0.2 mm. The gauges shall be constructed to permit gradual application of pressure to a specific force of 0.2 ± 0.02 kPa ~~(0.029~~[0.029 ± 0.003 ~~psi)~~psi] for permanent rolled erosion control products. Dead weight loading may be used.

6.2 *Cutting Dies*—Dies to cut specimens should have dimensions at least as large as a circle 200 mm ~~(8 in.)~~[8 in.] in diameter.

NOTE 2—Due to compressibility of many permanent rolled erosion control products, the cutting and handling preparation may change the thickness. Care should be exercised to minimize these effects.

7. Sampling

7.1 *Lot Sample*—In the absence of other guidelines, divide the product into lots and take lot samples in accordance with Practice D4354.

7.2 *Laboratory Sample*—Consider the units in the lot sample as the units in the laboratory sample. For the laboratory sample, take a full-width sample of sufficient length along the center section of the rolls. Exclude the inner and outer layers or wraps of the roll or any material containing folds, crushed areas, or other distortions not representative of the sampled lot.

7.3 Remove test specimens from the laboratory sample in a randomly distributed pattern across the width with no specimen taken nearer than 100 mm ~~(4 in.)~~[4 in.] from the roll sides or ends, unless otherwise specified.

7.4 *Test Specimens*—From each unit in the laboratory sample, remove the specimens so that the edge of the specimen will extend beyond the edge of the presser foot by 10 mm ~~(0.39 in.)~~[0.39 in.] in all directions (that is at least a circle of 200 mm ~~(8 in.)~~[8 in.] in diameter).

7.5 *Number of Specimens*—Unless otherwise agreed upon, as when provided in an applicable material specification, take a number of test specimens per laboratory sample such that the user may expect at the 95 % probability level that the test result is not more than 6.0 % of the average above or below the average of the sample. Determine the number of specimens per sample as follows:

7.5.1 *Reliable Estimate of v*—When there is a reliable estimate of *v* based upon extensive part records for similar materials tested in the user's laboratory as directed in this test method, calculate the required number of specimens as follows:

$$n = (t\ v/A)^2 \tag{1}$$

where:

n = number of test specimens (rounded upward to a whole number),
v = reliable estimate of the coefficient of variation of individual observations on similar materials in the user's laboratory under conditions of single operation precision, %,