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Standard Specification for Coated Fabrics—Waterproofness[1]

This standard is issued under the fixed designation D3393; 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 specification sets forth the minimum requirements for hydrostatic resistance of fabrics coated with rubber or plastics. Coated fabrics satisfying these requirements are considered to be *waterproof*.

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

1.3 The following precautionary caveat pertains only to the test method portion of this specification:*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]
D751 Test Methods for Coated Fabrics
D1566 Terminology Relating to Rubber

3. Terminology

3.1 *Definitions:*

3.1.1 *merrow seam*—a sewn seam made to unite fabric pieces for coating: not to be included in the finished product.

3.1.2 *waterproofness*—the property of impenetrability by liquid water. (See Terminology D1566.)

3.1.3 *water repellency*—the property of being resistant to wetting by liquid water. (See Terminology D1566.)

3.1.4 *water resistance*—the property of retarding both penetration and wetting by liquid water. (See Terminology D1566.)

4. Summary of Test Method

4.1 Circular specimens of the coated fabric to be tested for waterproofness are exposed to a specific hydrostatic pressure, as detailed in Sections 6 – 9, and the upper exposed surface is examined visually for penetration of water.

4.2 Records to document compliance with this specification shall be maintained by producers and fabricators. Statistically based sampling plans may be utilized. In cases where results are in dispute, additional sampling and testing as agreed upon between the purchaser and the seller may be necessary.

5. Significance and Use

5.1 The purpose of this specification is to establish a recognized criterion for "waterproofness" in terms of a minimum hydrostatic resistance. The necessary definitions to provide a common understanding of the meaning of this characteristic when it is used to describe a fabric coated with rubber or plastics are also given. The specification does not cover requirements for water repellency or water resistance of fabrics coated with rubber or plastics.

TEST METHOD

6. Apparatus

6.1 *Hydrostatic Tester,* capable of applying within 6 s a pressure of 207 kPa (30 psi) on the specimen with an accuracy of ±7.0 kPa (1.0 psi). The apparatus shall be equipped with two concentric ring clamps, having an inner diameter of 31.5 ± 0.5 mm (1.24 ± 0.02 in.) between which the specimens can be clamped in order to avoid slippage. The inside edges of the ring clamps that come into contact with the test specimen shall be rounded to 0.3 to 0.5 mm (0.01 to 0.02 in.) to avoid cutting the specimen. A seal shall be fitted on the lower clamp to prevent leakage during the test.

6.2 A type of equipment suitable for performing this test is described in more detail in Section 37 of Test Methods D751.

7. Test Specimens

7.1 At least ten specimens shall be cut from samples taken at random from the roll of coated fabric being tested. The smallest dimension of the test specimen shall be at least 12.5 mm (0.5 in.) greater than the outside diameter of the ring clamp mechanism of the testing apparatus. Unless otherwise

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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.

specified, specimens shall be taken no nearer the selvage than one tenth of the width of the coated fabric. If the fabric being tested has any sewed or stitchless-jointed seams, excluding Merrow seams, the sample shall include specimens from the seam area which are cut so that the seam portion is in the center of the specimen.

8. Procedure

8.1 Before clamping each specimen in the testing machine, bring the water level up flush with the top of the seal so that no air pocket exists between the water surface and the specimen. In the case of materials coated on one side only, place the coated side next to the water level, unless otherwise specified. In the case of double-coated fabrics or double-textured fabrics, either side may be placed next to the water unless, the side to be put facing downward against the water level is specified.

8.2 Flex each specimen five times within 1 min by applying and releasing a pressure of 207 ± 7.0 kPa (30 ± 1.0 psi). After the fifth flex, maintain the pressure at 207 ± 7.0 kPa (30 ± 1.0 psi) for 60 ± 5 s.

8.3 While each specimen is under pressure, visually examine its upper surface to determine if there is any penetration of water. Penetration of water through any of the specimens tested shall be cause to reject the roll of coated fabric for failure to meet the requirement for waterproofness.

9. Report

9.1 The report shall include the following:

9.1.1 Reference to ASTM Specification D3393.

9.1.2 Test temperature,

9.1.3 Number of specimens tested and number of specimens penetrated by water, and

9.1.4 Pressure in kilopascals (or pounds-force per square inch).

10. Precision and Bias

10.1 No statement is made about the precision and bias for measuring waterproofness since the result merely states whether there is conformance to the criteria specified in the procedure.

11. Keywords

11.1 coated fabrics; hydrostatic resistance; waterproofness