



Standard Specification for Coated Fabrics—Waterproofness¹

This standard is issued under the fixed designation D 3393; 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.

^{ε1} NOTE—An editorial change was made to a reference in 6.2 in November 2001.

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:

D 751 Test Methods for Coated Fabrics²

D 1566 Terminology Relating to Rubber³

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 D 1566.)

3.1.3 *water repellency*—the property of being resistant to wetting by liquid water. (See Terminology D 1566.)

3.1.4 *water resistance*—the property of retarding both penetration and wetting by liquid water. (See Terminology D 1566.)

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 D 751.

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 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

¹ This specification is under the jurisdiction of ASTM Committee D11 on Rubber and is the direct responsibility of Subcommittee D11.37 on Coated Fabrics and Rubber Thread.

Current edition approved March 15, 1991. Published May 1991. Originally published as D 3393 – 75. Last previous edition D 3393 – 75 (1986).

² Annual Book of ASTM Standards, Vol 09.02.

³ Annual Book of ASTM Standards, Vol 09.01.

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 D 3393.

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

ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org).