



# Standard Specification for Bitumen-Saturated Woven Burlap Fabrics Used in Roofing and Waterproofing<sup>1</sup>

This standard is issued under the fixed designation D1327/D1327M; 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.

*This standard has been approved for use by agencies of the Department of Defense.*

<sup>ε1</sup> NOTE—Units information was editorially corrected in June 2012.

## 1. Scope

1.1 This specification covers woven burlap fabrics, saturated with either asphalt or refined coal-tar, as specified by the purchaser, for use in the membrane system of roofing or waterproofing or as specified by the manufacturer.

1.1.1 *Asphalt-saturated burlap fabric* shall be used with asphalt base plying cement; typical ones are mopping asphalts conforming to Specifications [D312](#), [D449](#), or appropriate solvent-bearing bituminous materials.

1.1.2 *Coal-tar-saturated burlap fabric* shall be used with coal-tar base plying cements; typical ones are coal-tar pitches conforming to Specification [D450](#), or appropriate solvent-bearing bituminous materials.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values 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.

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

[D146](#) Test Methods for Sampling and Testing Bitumen-Saturated Felts and Woven Fabrics for Roofing and Waterproofing

[D312](#) Specification for Asphalt Used in Roofing

[D449](#) Specification for Asphalt Used in Dampproofing and Waterproofing

[D450](#) Specification for Coal-Tar Pitch Used in Roofing,

[Dampproofing, and Waterproofing](#)

[D1079](#) Terminology Relating to Roofing and Waterproofing

2.2 AATCC Standard:

[Method 30-1974](#) Test for Resistance of Textiles to Mildew and Rot<sup>3</sup>

## 3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, refer to Terminology [D1079](#).

## 4. Materials and Manufacture

4.1 The fabric to be saturated shall be composed of 100 % jute fiber except for two cotton threads in each selvage. If the selvage is used, it shall be no more than 6 mm [ $\frac{1}{4}$  in.] wide. The minimum fabric construction used shall be 180 g/m<sup>2</sup> [5.4 oz/yd<sup>2</sup>] minimum burlap.

4.2 In the process of manufacture, the dry burlap fabric shall be saturated with bitumen.

## 5. Physical Properties

5.1 The material shall conform to the physical properties prescribed in [Table 1](#).

5.2 The rolls shall not crack nor be so sticky as to cause tearing or material damage upon being unrolled at temperatures between 10 and 60°C [50 and 140°F].

5.3 *Resistance to Rotting*—The average percentage of the original strength retained by the saturated product shall be at least 1.75 times that retained by the control sample after one week.

## 6. Workmanship, Finish, and Appearance

6.1 The burlap fabric shall be thoroughly and uniformly saturated in such a manner that every fiber shall be visibly stained through by the saturant.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee [D08](#) on Roofing and Waterproofing and is the direct responsibility of Subcommittee [D08.04](#) on Felts, Fabrics and Bituminous Sheet Materials.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from American Association of Textile Chemists and Colorists (AATCC), One Davis Dr., P.O. Box 12215, Research Triangle Park, NC 27709-2215.

**TABLE 1 Physical Properties of Bitumen-Saturated Woven Burlap Fabric**

|   | Min   | Max              |
|---|---|------------------|
| Gross mass per roll, kg [lb]  | 15.8 [34.8]   | 27.2 [60.0]      |
| Mass of wrapping material and mandrel, kg [lb]  | ...   | 1.13 [2.5]       |
| Width of roll, mm [in.]   | 890 [35]  | 1040 [41]        |
| Width of selvage, mm [in.]  | ...   | 6.5 [0.25]       |
| Average net mass per unit area, g/m <sup>2</sup> [oz/yd <sup>2</sup> ]                        | 330 [9.8]   | ...              |
| Detached comminuted surfacing, g/m <sup>2</sup> [lb/100 ft <sup>2</sup> ]                     | ...   | 50 [1.0]         |
| Moisture max, mass %  | ...   | 6.0 <sup>A</sup> |
| Average breaking strength at 21.1°C [70°F]:   |   |                  |
| Lengthwise (warp direction), kN/m [lbf/in.]   | 8.8 [50]  | ...              |
| Crosswise (fill direction), kN/m [lbf/in.]  | 8.8 [50]  | ...              |
| Pliability at 0°C [32°F]  | no cracking   | ...              |
| Mass of desaturated (unsaturated) fabric, g/m <sup>2</sup> [oz/yd <sup>2</sup> ] <sup>B</sup> | 180 [5.3] <sup>C</sup>  | ...              |
| Mass of saturant, g/m <sup>2</sup> [lb/100 ft <sup>2</sup> ] <sup>B</sup>                     | 0.7 × (mass of desaturated moisture-free fabric in same area) | ...              |
| Thread count per 25.4 mm [in.], both directions <sup>D</sup>                                  | 9 [9]   | ...              |
| Ash, % <sup>D</sup>   | ...   | 2.0              |

<sup>A</sup> At time of manufacture. Products with higher moisture content at time of installation may cause hot materials to foam, creating interply voids that may result in blisters.

<sup>B</sup> In the case of coal-tar-saturated fabric, this value shall be the moisture-free fabric prior to saturation. Coal-tar-saturated fabric cannot be thoroughly desaturated by any known means; only an approximate value may be obtained through desaturation.

<sup>C</sup> Nominal 212.6 g [7½-oz] burlap weighs approximately 230 g/m<sup>2</sup> [6¾ oz/yd<sup>2</sup>]. The minimum requirement allows for a 5 % tolerance in mass on the low side, and also assumes a max 7 % oil content and 12 % moisture regain, both of which are extracted in the desaturating process.

<sup>D</sup> On desaturated fabrics in the case of coal-tar-saturated fabric, this property shall be determined on the fabric prior to saturation.

6.2 The meshes of the fabric shall not be completely closed or sealed by the process of saturation. There shall be sufficient porosity maintained to allow successive moppings of the plying cement to seep through.

6.3 The surface of the fabric shall not be coated or covered with talc or any other substances that would tend to interfere with the adhesion between the fabric and the plying cement.

6.4 The surface shall be uniformly smooth and free of irregularities, folds, and knots.

6.5 The finished material shall be free of visible external defects, such as ragged or untrue edges, breaks, rents, or cracks.

## 7. Sampling and Test Methods

7.1 Sample the material and determine the properties enumerated in this specification in accordance with Test Methods **D146**.

7.2 Determine resistance to rotting by the soil burial method described in Test 1 of AATCC Test Method 30-1974, modified as follows:

7.2.1 The control sample shall consist of at least five specimens of 238 g/m<sup>2</sup> [7-oz/1 yd<sup>2</sup>] untreated Osnaburg containing not more than 8 % sizing.

7.2.2 Place each control specimen in the soil between two specimens of the warp and two specimens of the filling of the saturated fabric, all parallel to each other and approximately 25 mm [1 in.] apart. Remove all specimens for testing after one week.

7.2.3 The soil shall be sufficiently active to decrease the strength of the Osnaburg at the end of the week to 25 % or less of its original strength; if not, repeat the exposure with fresh soil and fresh specimens.

## 8. Inspection

8.1 *Inspection*—Inspection shall be in accordance with the requirements of this specification.

8.2 *Inspection Alternatives*—Alternative inspection requirements shall be determined by and as agreed upon between the purchaser and the supplier.

## 9. Rejection and Resubmittal

9.1 *Failure to Conform*—Failure to conform to any of the requirements as stated in this specification constitutes grounds for rejection.

9.2 *Rejection Redress*—The supplier shall have the right to inspect the rejected materials. The supplier and the purchaser shall agree to the quantity of rolls deemed unacceptable. The supplier shall then have the right to submit the same number of new rolls as replacement.

## 10. Packaging and Package Marking

10.1 Unless otherwise agreed upon between the supplier and purchaser, each product package shall be plainly marked with the supplier's name, the product brand, the ASTM designation, and type of bitumen if not evident in the label name of the product.

10.2 The rolls shall be securely wrapped or banded in a manner that completely encircles the roll and will prevent slipping or unrolling.

10.3 The rolls of saturated burlap fabric shall be wound on mandrels or rigid hollow fiber cylinders not less than 50 mm [2 in.] in diameter, extending not more than 100 mm [4 in.] beyond the ends of the rolls.

10.4 No roll shall contain more than two pieces, and no more than 3 % of the rolls in any lot shall contain two pieces. If a roll contains a manufacturing splice, the splice shall be clearly marked.

## 11. Keywords

11.1 asphalt or coal tar saturated; roofing; waterproofing; woven burlap fabric

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