



Designation: **D 4897 – 9801**

## Standard Specification for Asphalt-Coated Glass-Fiber Venting Base Sheet Used in Roofing<sup>1</sup>

This standard is issued under the fixed designation D 4897; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

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

### 1. Scope

1.1 This specification covers asphalt-impregnated and coated glass-fiber base sheet with mineral surfacing on the top side and coarse mineral granules on the bottom side for use as the first ply of a roofing membrane. These base sheets provide for the lateral release of pressure in roofing systems because they are not solidly attached and the coarse granular surface provides an open, porous channel in the horizontal plane beneath the membrane. The base sheets shall be permitted to be with or without perforations or embossings.

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

### 2. Referenced Documents

#### 2.1 ASTM Standards:

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee ~~D-8~~ D08 on Roofing, Waterproofing, and Bituminous Materials and is the direct responsibility of Subcommittee D08.04 on Felts and Fabrics for Bituminous Roofing and Waterproofing.

Current edition approved ~~Jan. November~~ 10, ~~1998~~ 2001. Published ~~September 1998~~ March 2002. Originally published as D 4897 – 89. Last previous edition D 4897 – 97a8.

- D 146 Test Methods for Sampling and Testing Bitumen-Saturated Felts and Woven Fabrics—~~Used in~~ for Roofing and Waterproofing<sup>2</sup>
- D 228 Test Methods for Sampling, Testing, and Analysis of Asphalt Roll Roofing, Cap Sheets, and Shingles Used in Roofing and Waterproofing<sup>2</sup>
- D 1079 Terminology Relating to Roofing, Waterproofing, and Bituminous Materials<sup>2</sup>

**3. Terminology**

3.1 *Definitions*—For definitions of terms used in this specification, refer to Terminology D 1079.

**4. Classification**

- 4.1 *Type I*—~~Standard Asphalt-Coated Glass-Fiber Venting Base Sheet~~
- 4.2 *Type II*—~~Heavy-Duty A asphalt-Coated G glass-Fiber V venting B base S sheet.~~

**5. Materials and Manufacture**

5.1 The mat shall be a thin porous sheet of uniformly distributed glass fibers, with or without the addition of reinforcing strands, or glass yarns, which are bonded with a water-resistant resinous binder.

5.2 In the process of manufacture, the glass mat is impregnated and coated on both sides with a hot asphaltic coating with or without a mineral stabilizer and surfaced on the bottom side with coarse mineral granules embedded in an asphaltic coating. The top side shall be surfaced with fine mineral surfacing.

5.3 The product shall be permitted to be embossed or unembossed on the bottom side. The product shall be permitted to contain holes designated for attachment with mopping asphalt.

**6. Physical Requirements, Dimensions, and Masses**

6.1 The material at the point of manufacture shall conform to the physical requirements in Table 1 and the dimensions and

**TABLE 1 Physical Requirements**

	Type I	Type II
Breaking strength, min., at 77 ± 2°F (25 ± 1°C) —lbf/in. (kN/m)—longitudinal and transverse	22 (3.9)	44 (7.7)
Breaking strength, min., at 25 ± 1°C (77 ± 2°F) kN/m (lbf/in.)—longitudinal and transverse	22 (3.9)	44 (7.7) (44)
Diameter of spot mopping holes, (when present) —max, in. (mm)	4.0 (25)	1.0 (25)
Diameter of spot mopping holes, (when present) max, mm (in.)	25)	(1.0)
Spacing of holes, center-to-center (when present) —min, in. (mm)	2.0 (51)	2.0 (51)
Spacing of holes, center-to-center (when present) min, mm (in.)	51)	(2.0)
—max, in. (mm)	6.0 (152)	6.0 (152)
max, in. (mm)	152)	(6.0)

masses in Table 2.

6.2 The finished product shall not crack nor be so sticky as to cause tearing or other damage upon being unrolled at temperatures between ~~50 10~~ and ~~140°F (10 60°C (50 and 60°C) 140°F)~~.

6.3 *Pliability at 77 25 ± 2°F (25 ± 1°C (77 ± 2°F)*—At least eight out of ten strips shall not crack when tested in accordance with Test Methods D 228 except, for convenience, that the strips shall be conditioned in ambient conditions at ~~77 25 ± 2°F (25 1°C (77 ± 1°C) 2°F)~~ for at least 30 min ~~prior to before~~ testing over a ~~3/4-in. (19-mm) 19-mm (3/4-in.)~~ radius.

6.4 *Loss and Behavior on Heating*—There shall be no flowing, sagging, or blistering of the asphalt coating when tested in accordance with Test Methods D 228.

**7. Workmanship, Finish, and Appearance**

7.1 The glass mat shall be impregnated and shall show no white spots at any point.

7.2 The coating shall be applied to each side to the edges of the sheet. The coating must be smooth.

7.3 The top side shall be surfaced with mineral surfacing to prevent the roofing from sticking in the package.

7.4 The bottom side shall be surfaced with coarse mineral matter, at least 90 % retained on a 212-µm (No. 70) sieve, embedded in the asphalt coating.

<sup>2</sup> Annual Book of ASTM Standards, Vol 04.04.

**TABLE 2 Dimensions and Masses<sup>A</sup>**

	Type 1	Type 2
Width of roll, in. (mm)	914 (36) ± 0.7 %	914 (36)
Width of roll, mm (in.)	36 ± 0.7 % (or as agreed upon between buyer and seller)	(914)
Area of roll, min, ft <sup>2</sup> (m <sup>2</sup> )	104 (9.64)	104 (9.64)
Area of roll, min, m <sup>2</sup> (ft <sup>2</sup> )	9.64 (or as agreed upon between buyer and seller)	(104)
Mass of any roofing in shipment min, lb/100 ft <sup>2</sup> (g/m <sup>2</sup> )	50 (2440)	55 (2500)
Mass of any roofing in shipment min, g/m <sup>2</sup> (lb/100 ft <sup>2</sup> )	2440	55 (2500)
Mass of desaturated glass mat min, lb/100 ft <sup>2</sup> (g/m <sup>2</sup> )	1.5 (73)	1.7 (81)
Mass of desaturated glass mat min, g/m <sup>2</sup> (lb/100 ft <sup>2</sup> )	83	(1.7)
Mass of asphalt, min, lb/100 ft <sup>2</sup> (gm/m <sup>2</sup> )	10 (488)	12 (544)
Mass of asphalt, min, gm/m <sup>2</sup> (lb/100 ft <sup>2</sup> )	40 (488)	12 (544)
Mass of total unstabilized coating, filler and top surfacing min, lb/100 ft <sup>2</sup> (g/m <sup>2</sup> )	20.0 (977)	22.0 (1000)
Mass of total unstabilized coating, filler and top surfacing min, g/m <sup>2</sup> (lb/100 ft <sup>2</sup> )	1077	5 (22)
Mass of mineral granules retained on a 212-µm (No. 70) sieve min, lb/100 ft <sup>2</sup> (g/m <sup>2</sup> )	8.0 (391)	8.0 (363)
Mass of mineral granules retained on a 212-µm (No. 70) sieve min, g/m <sup>2</sup> (lb/100 ft <sup>2</sup> )	391	(8.0)
Mass of mineral matter passing a 212-µm (No. 70) sieve on basis of total mass of mineral stabilized coating and top surface mineral matter, max, %	60	
Mass of mineral matter passing a 212-µm (No. 70) sieve on basis of total mass of mineral stabilized coating and top surface mineral matter, max, %	60	
Ash (grass mat only), %	70–88	
Ash (glass mat only), %	70–88	
Moisture at point of manufacture, max, %	1.0±0	
Moisture at point of manufacture, max, %	1.0	

<sup>A</sup>Types cannot be differentiated after installation and must be tested for compliance to the specification prior to application.

7.5 The finished material shall be free of visible external defects, such as holes, ragged or untrue edges, breaks, cracks, tears, protuberances, and indentations, except for intentionally provided holes or embossing.

7.6 Embossing, when present, should be of such a character that it does not cause the product to be susceptible to handling damage.

## 8. Sampling and Test Methods

8.1 Sample the material and determine the properties enumerated in this specification in accordance with Test Methods D 146 and D 228.

## 9. Inspection

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

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

## 10. Rejection and Resubmittal

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

10.2 *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.

## 11. Packaging and Marking

11.1 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.

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

11.3 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.

## 12. Keywords

12.1 base sheet; first ply; glass fiber; impregnated and coated; partially attached

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