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Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Base Sheet Materials Using Glass Fiber Reinforcements[1]

This standard is issued under the fixed designation D6509/D6509M; 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 covers prefabricated modified bituminous sheet materials with glass fiber reinforcement, which use atactic polypropylene (APP) as the primary modifier and which are intended for use as a base sheet in the fabrication of multiple ply roofing and waterproofing membranes.

1.2 This is a material specification only. Issues regarding the suitability of specific roof constructions or application techniques are beyond the scope of this specification.

1.3 The specified tests and property limits used to characterize the sheet materials covered by this specification are intended to establish minimum properties. In-place roof system design criteria, such as fire resistance, field strength, impact/puncture resistance, material compatibility, uplift resistance, the need for field applied coatings, and others, are factors beyond the scope of this material specification.

1.4 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.

1.5 The following precautionary statement pertains only to the test method portion, Section 8, 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]

D1079 Terminology Relating to Roofing and Waterproofing

~~D5147~~D5147/D5147M Test Methods for Sampling and Testing Modified Bituminous Sheet Material

~~D5636~~D5636/D5636M Test Method for Low Temperature Unrolling of Felt or Sheet Roofing and Waterproofing Materials

3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, refer to Terminology D1079.

4. Materials and Manufacture

4.1 In the manufacturing process, the reinforcement is impregnated and coated on both sides in an APP-modified bituminous coating. The APP-modified bituminous coating shall be permitted to be compounded with a mineral stabilizer.

4.2 The base sheet shall be permitted to be surfaced with mineral matter to prevent sticking in the roll. The reverse side shall be permitted to be covered with a thin polyolefin film or with other surfacing that will not interfere with adhesion or bonding of the sheet during application.

5. Physical Properties

5.1 The sheet shall conform to the minimum physical properties described in Table 1.

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[1] This specification is under the jurisdiction of ASTM Committee D08 and is the direct responsibility of Subcommittee D08.04 on Felts, Fabrics and Bituminous Sheet Materials.

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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.

TABLE 1 Physical Properties of Atactic Polypropylene (APP)-Modified Bituminous Base Sheet Materials Using Glass Fiber Reinforcements

NOTE 1—The properties in this table are "as manufactured" unless otherwise noted.

Property		
~~Peak load at −18 ± 2°C [0 ± 3.6°F] MD and XMD, kN/m, [lbf/in.] min~~	~~12.2 [70]~~	
Peak load at −18 ± 2°C [0 ± 3.6°F], MD and XMD, min, kN/m [lbf/in.]	12.2	[70]
~~Elongation at −18 ± 2°C [0 ± 3.6°F] MD and XMD, at peak load, % min~~	~~1~~	
Elongation at −18 ± 2°C [0 ± 3.6°F], MD and XMD, at peak load, min, %	1	
~~Peak load at 23 ± 2°C [73.4± 3.6°F] MD and XMD, before and after heat conditioning, kN/m [lbf/in.], min~~	~~8.8 [50]~~	
Peak load at 23 ± 2°C [73.4 ± 3.6°F], MD and XMD, before and after heat conditioning, min, kN/m [lbf/in.]	8.8	[50]
~~Elongation at 23 ± 2°C [73.4± 3.6°F] MD and XMD, before and after heat conditioning, at peak load, % min~~	~~2~~	
Elongation at 23 ± 2°C [73.4 ± 3.6°F], MD and XMD, before and after heat conditioning, at peak load, min, %	2	
~~Tear strength at 23 ± 3°C [73.4 ± 3.6°F], N [lbf], min~~	~~311 [70]~~	
Tear strength at 23 ± 3°C [73.4 ± 3.6°F], min, N [lbf]	311	[70]
~~Low temperature, flexibility, before and after heat conditioning, °C [°F], max~~	~~0 [+32]~~	
Low temperature, flexibility, before and after heat conditioning, max, °C [°F]	0	[32]
~~Dimensional stability, % change max~~	~~0.2~~	
Dimensional stability, max, %	0.2	
~~Compound stability, °C [°F] min~~	~~110 [230]~~	
Compound stability, min, °C [°F]	110	[230]
~~Water absorption, % max~~	~~3.2~~	
Water absorption, max, %	3.2	
~~Moisture content, % max~~	~~1~~	
Moisture content, max, %	1	
~~Low temperature unrolling, °C [°F], max~~	~~5 [41]~~	
Low temperature unrolling, max, °C [°F]	5	[41]

5.2 The finished product shall not crack or be so sticky as to cause tearing or other material damage upon being unrolled at any product temperature between 4° and 60°C [40° and 140°F].

6. Dimensions, Mass, and Permissible Variations

6.1 The finished product shall conform to the following dimensions and variations:

6.1.1 The width of the roll shall be as agreed upon between the purchaser and the supplier and shall not vary more than 1 %.

6.1.2 The area of the roll shall be no less than as agreed upon between the purchaser and the supplier.

6.1.3 The selvage width shall be within 6 mm [¼ in.] of the nominal selvage width and shall be not less than 76 mm [3 in.] in width from the edge of the sheet.

6.2 The mass and thickness of the finished product shall be as prescribed in Table 2.