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Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements¹

This standard is issued under the fixed designation D 6222; 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.

~~¹Note—Editorial changes were made throughout in July 2005.~~

~~²Note—Section 3 and subsection 9.2 were editorially corrected in March 2008.~~

1. Scope

1.1 This specification covers prefabricated modified bituminous sheet materials reinforced with polyester fabric, with or without granules, that use atactic polypropylene (APP) as the primary modifier and are intended for use in the fabrication of multiple ply roofing and waterproofing membranes.

NOTE 1—Many modified bituminous sheets are currently marketed with polyester mat reinforced with glass yarns to improve processing in the manufacture of the finished modified bitumen product and to reduce distortions that may be introduced during production. These glass yarns are typically a small percentage of the reinforcement and do not contribute to the physical properties of the finished product so much as to make these products be classified by Specification D 6223.

1.2 This specification is intended as 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 SI units are to be regarded as the standard. The inch-pound units given in parentheses are for information only.~~

1.4 The values stated in SI units are to be regarded as standard. The values given in parentheses are mathematical conversions to inch-pound units that are provided for information only and are not considered standard.

1.5 The following precautionary statement pertains only to the test method portion, Section 9, 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

D 1079 [Terminology Relating to Roofing and Waterproofing](#)

D 5147 [Test Methods for Sampling and Testing Modified Bituminous Sheet Material](#)

~~D 5636 [Test Method for Low Temperature Unrolling of Felt or Sheet Roofing and Waterproofing Materials](#)~~ [Test Method for Low Temperature Unrolling of Felt or Sheet Roofing and Waterproofing Materials](#)

[D 6223 Specification for Atactic Polypropylene \(APP\) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements](#)

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this specification, refer to Terminology D 1079.

¹ 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 and Fabrics.

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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.

4. Classification

4.1 Type I and II modified bituminous sheet materials reinforced with polyester fabric, are covered by this specification (see Table 1).

4.2 The following grades are used to describe the material surfacing:

4.2.1 *Grade G*—Granule surfacing.

4.2.2 *Grade S*—Smooth surfacing.

5. Materials and Manufacture

5.1 In the process of manufacture, the reinforcement is saturated with APP modified asphalt and is impregnated and coated on both sides with an APP modified bituminous coating. The APP modified bituminous coating shall be permitted to be compounded with a mineral stabilizer.

5.2 *Grade G* materials are surfaced on the weather side with mineral granules, except for any selvage. To prevent sticking in the roll, the reverse side and any selvage shall be permitted to be covered with a fine mineral surfacing or any other surfacing that will not interfere with adhesion or bonding of the lap during application.

5.3 To prevent sticking in the roll, any selvage will be surfaced with mineral or other surfacing material that will not interfere with adhesion or bonding during application.

6. Physical Properties

6.1 The sheet shall conform to the minimum physical properties prescribed in Table 1.

6.2 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).

TABLE 1 Physical Properties of APP Modified Bituminous Sheet Materials Using Polyester Reinforcements^A

Property	Type I	Type II
Peak load at 23 ± 2°C (73.4 ± 3.6°F) MD and XMD, before and after heat conditioning, kN/m (lbf/in.), minimum	8.8 (50)	14 (80)
Elongation at 23 ± 2°C (73.4 ± 3.6°F) MD and XMD, before and after heat conditioning, at peak load, % minimum	23	40
Peak load at -18 ± 2°C (0 ± 3.6°F) MD and XMD, kN/m (lbf/in.), minimum	10.5 (60)	15.8 (90)
Elongation at -18 ± 2°C (0 ± 3.6°F) MD and XMD, at peak load, % minimum	10	15
Ultimate elongation at 23 ± 2°C (73.4 ± 3.6°F), MD and XMD, % minimum	30	50
Tear strength at 23 ± 2°C (73.4 ± 3.6°F) lbf (N), minimum	311 (70)	356 (80)
Low temperature flexibility, before and after heat conditioning, °C (°F), maximum	+ 0 (32)	+ 0 (32)
Dimensional stability, % change, maximum	1	1
Compound stability, °C (°F) minimum	110 (230)	110 (230)
Granule embedment, <i>Grade G</i> only, maximum loss, grams	2	2
Water absorption, % maximum	3.2	3.2
Moisture content, % maximum	1	1
Low temperature unrolling, °C (°F), maximum	5 (41)	5 (41)

^A The properties of this table are "as manufactured" unless otherwise noted.