



Standard Specification for EPDM Sheet Used In Single-Ply Roof Membrane¹

This standard is issued under the fixed designation D 4637; 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.

1. Scope

1.1 This specification covers flexible sheet made from ethylene-propylene-diene terpolymer (EPDM) intended for use in single-ply roofing membranes exposed to the weather. The tests and property limits used to characterize the sheet are values to ensure minimum quality for the intended use. The sheet may be non-reinforced, fabric- or scrim-reinforced, or fabric-backed vulcanized rubber sheet.

1.2 The values stated in SI units are to be regarded as the standard. The values stated in parentheses are for information only.

1.3 In-place roof system design criteria, such as fire resistance, field seaming strength, material compatibility, and uplift resistance, among others, are factors that must be considered but are beyond the scope of this specification.

1.4 *This standard may involve hazardous materials, operations, and equipment. 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 412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension²
- D 413 Test Methods for Rubber Property-Adhesion to Flexible Substrate²
- D 471 Test Method for Rubber Property—Effect of Liquids²
- D 518 Test Method for Rubber Deterioration-Surface Cracking²
- D 573 Test Method for Rubber-Deterioration in an Air Oven²
- D 624 Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers²

- D 751 Test Methods for Coated Fabrics³
- D 816 Test Methods for Rubber Cements²
- D 1149 Test Method for Rubber Deterioration—Surface Ozone Cracking in a Chamber²
- D 1204 Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature⁴
- D 2137 Test Methods for Rubber Property—Brittleness Point of Flexible Polymers and Coated Fabrics²
- D 5602 Test Method for Static Puncture Resistance of Roofing Membrane Specimens⁵
- D 5635 Test Method for Dynamic Puncture Resistance of Roofing Membrane Specimens⁵
- G 151 Practice for Exposing Nonmetallic Materials in Accelerated Test Devices that Use Laboratory Light Sources⁶
- G 155 Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials⁶

3. Classification

- 3.1 Types describe the sheet construction:
 - 3.1.1 *Type I*—Non-reinforced.
 - 3.1.2 *Type II*—Scrim (or fabric) internally reinforced.
 - 3.1.3 *Type III*—Fabric backed.

4. Materials and Manufacture

4.1 The sheet shall be formulated from EPDM polymers and other compounding ingredients. EPDM shall be the principal polymer used in the sheet and shall be greater than 95 % of the total polymer content.

4.2 To make seams and repairs, the sheet shall be capable of being bonded watertight to itself and the supplier or fabricator shall recommend suitable methods.

5. Physical Properties and Tolerances

5.1 The sheet shall conform to the physical requirements prescribed in Table 1.

5.2 The tolerance for time conditions (aging, weathering, and so forth) is ± 15 min or ± 1 % of the period; whichever is greater, unless otherwise specified.

¹ This specification is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.18 on Nonbituminous Organic Roof Coverings.

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² *Annual Book of ASTM Standards*, Vol 09.01.

³ *Annual Book of ASTM Standards*, Vol 09.02.

⁴ *Annual Book of ASTM Standards*, Vol 08.01.

⁵ *Annual Book of ASTM Standards*, Vol 04.04.

⁶ *Annual Book of ASTM Standards*, Vol 14.04.