



Designation: D7311 – 07

Standard Specification for Liquid-Applied, Single-Pack, Moisture-Triggered, Aliphatic Polyurethane Roofing Membrane¹

This standard is issued under the fixed designation D7311; 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 in-situ applied, single-pack, moisture-triggered, aliphatic polyurethanes intended to form an elastomeric single-ply membrane, once cured. The cured membrane may or may not contain a reinforcing material.

1.2 Single-pack, moisture-triggered, aliphatic polyurethanes are characterized by their ability to use moisture to trigger the curing process only.

1.3 The tests and property limits used to characterize the liquid material and cured membrane are values intended to ensure minimum quality. In-place roof system design criteria such as fire resistance, material compatibility, and uplift resistance, among others, are factors that shall be considered but are beyond the scope of this specification.

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

1.5 *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

- [C717 Terminology of Building Seals and Sealants](#)
- [C156 Test Method for Water Loss \[from a Mortar Specimen\] Through Liquid Membrane-Forming Curing Compounds for Concrete](#)
- [C578 Specification for Rigid, Cellular Polystyrene Thermal Insulation](#)

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 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.

- [D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension](#)
- [D522 Test Methods for Mandrel Bend Test of Attached Organic Coatings](#)
- [D624 Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers](#)
- [D1079 Terminology Relating to Roofing and Waterproofing](#)
- [D1644 Test Methods for Nonvolatile Content of Varnishes](#)
- [D2196 Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational \(Brookfield type\) Viscometer](#)
- [D2240 Test Method for Rubber Property—Durometer Hardness](#)
- [D2697 Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings](#)
- [D4060 Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser](#)
- [D4400 Test Method for Sag Resistance of Paints Using a Multinotch Applicator](#)
- [D4541 Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers](#)
- [D5602 Test Method for Static Puncture Resistance of Roofing Membrane Specimens](#)
- [D5635 Test Method for Dynamic Puncture Resistance of Roofing Membrane Specimens](#)
- [E96/E96M Test Methods for Water Vapor Transmission of Materials](#)
- [G154 Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials](#)

3. Terminology

3.1 The following definitions have been developed specifically for the purposes of this specification. For general terminology, see Terminologies [D1079](#) and [C717](#).

3.2 Definitions of Terms Specific to This Standard:

3.3 *aliphatic polyurethane*—polyurethane is made by polyaddition of aliphatic di- or polyfunctional hydroxyl group containing compounds and of aliphatic polyfunctional prepolymers.

3.4 *liquid-applied*—a material or a combination of materials that can be poured, spread, or sprayed.