



Designation: D6383/D6383M – 99 (Reapproved 2021)

Standard Practice for Time-to-Failure (Creep-Rupture) of Adhesive Joints Fabricated from EPDM Roof Membrane Material¹

This standard is issued under the fixed designation D6383/D6383M; 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 practice covers sample preparation temperatures, test parameters, and specimen exposure conditions that are applicable when Test Method **D5405/D5405M** is used for conducting time-to-failure (creep-rupture) tests of adhesive joints fabricated from ethylene-propylene-diene terpolymer (EPDM) roof membrane material.

1.2 This practice is applicable to joints fabricated in the laboratory from EPDM roof membrane materials and adhesives received from suppliers, and to joints prepared from EPDM seams sampled from field installations.

1.3 The joints are bonded using preformed tape or liquid-based adhesives, and EPDM roof membrane materials that are non-reinforced, fabric- or scrim-reinforced, and fabric backed. Primers are also used as recommended for the specific adhesive.

1.4 This practice contains notes that are explanatory and are not part of the mandatory requirements of this practice.

1.5 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 nonconformance with the standard.

1.6 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This practice 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. Referenced Documents

2.1 *ASTM Standards:*²

D907 Terminology of Adhesives

D1079 Terminology Relating to Roofing and Waterproofing
D5405/D5405M Test Method for Conducting Time-to-Failure (Creep-Rupture) Tests of Joints Fabricated from Nonbituminous Organic Roof Membrane Material

2.2 *SPRI Document:*³

SPRI Recommended Laboratory Test Methods for Liquid and Tape Adhesives Used to Splice Single-Ply Membranes

3. Terminology

3.1 *Definitions*—For definitions of terms used in this practice, refer to Terminologies **D907** and **D1079**.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *creep-rupture test*—a test that measures the time-to-failure of a specimen subjected to a constant load; progressive specimen deformation may also be measured.

3.2.2 *failure*—rupture of the bond resulting in complete separation of its adherents under the test conditions; or, alternatively, rupture of the membrane material away from the bonded section of the test specimen (that is, material rupture).

3.2.3 *time-to-failure*—the period of time beginning when a joint specimen is placed under load and ending when failure occurs.

4. Summary of Practice

4.1 Adhesive joints are prepared in the laboratory at ambient and low temperatures using tape or liquid adhesives and EPDM roof membrane material. Creep-rupture tests are then conducted in accordance with Test Method **D5405/D5405M** before and after subjecting these joints to artificial exposure in the laboratory. The loads are applied in either peel or shear configurations at ambient and elevated temperatures. **Table 1** summarizes the preparation temperatures, test parameters, and

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.

³ Available from Single Ply Roofing Institute (SPRI), 77 Rumford Ave., Suite 3B, Waltham, MA 02453.