



Designation: D3489 – 17

Standard Test Methods for Microcellular Urethane Materials¹

This standard is issued under the fixed designation D3489; 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 These test methods cover the preparation of a standard-size test sample and basic tests for physical property determinations of microcellular urethane materials.

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

1.3 *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.*

NOTE 1—There is no known ISO equivalent to this standard.

2. Referenced Documents

2.1 ASTM Standards:²

- D256 Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
- D395 Test Methods for Rubber Property—Compression Set
- D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
- D573 Test Method for Rubber—Deterioration in an Air Oven
- D575 Test Methods for Rubber Properties in Compression
- D624 Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
- D790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- D792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
- D883 Terminology Relating to Plastics
- D1052 Test Method for Measuring Rubber Deterioration—

- Cut Growth Using Ross Flexing Apparatus
- D1622 Test Method for Apparent Density of Rigid Cellular Plastics
- D1630 Test Method for Rubber Property—Abrasion Resistance (Footwear Abrader)
- D2240 Test Method for Rubber Property—Durometer Hardness
- D2584 Test Method for Ignition Loss of Cured Reinforced Resins
- D2632 Test Method for Rubber Property—Resilience by Vertical Rebound
- D3040 Practice for Preparing Precision Statements for Standards Related to Rubber and Rubber Testing (Withdrawn 1987)³
- D3137 Test Method for Rubber Property—Hydrolytic Stability
- D3389 Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader)
- D3574 Test Methods for Flexible Cellular Materials—Slab, Bonded, and Molded Urethane Foams
- D3768 Test Method for Microcellular Urethanes—Flexural Recovery
- D3769 Test Method for Microcellular Urethanes—High-Temperature Sag
- G195 Guide for Conducting Wear Tests Using a Rotary Platform Abraser

3. Terminology

3.1 For definitions of terms used in this test method and associated with plastics issues refer to the terminology contained in standard D883.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *microcellular urethane*—an elastomeric material made by the interaction of a polyol and an organic isocyanate, having cell diameters in the range from 0.0001 to 0.001 mm, with a minimum density of 160 kg/m³ (10 lb/ft³).

NOTE 2—In the following sections, the term “retaining the molded surfaces” refers to the two major surfaces (faces) of the sample and/or specimens prepared from it and was not meant to include the minor surfaces (ends or sides).

¹ These test methods are under the jurisdiction of ASTM Committee D20 on Plastics and are the direct responsibility of Subcommittee D20.22 on Cellular Materials - Plastics and Elastomers.

Current edition approved March 1, 2017. Published March 2017. Originally approved in 1976. Last previous edition approved in 2011 as D3489 - 11. DOI: 10.1520/D3489-17.

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 The last approved version of this historical standard is referenced on www.astm.org.

*A Summary of Changes section appears at the end of this standard