



Designation: D5672/D5672M – 22

Standard Test Method for Testing Flexible Cellular Materials Measurement of Indentation Force Deflection Using a 25-mm [1-in.] Deflection Technique¹

This standard is issued under the fixed designation D5672/D5672M; 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 test method covers a screening type quality control test used to determine if flexible polyurethane foam cushions are within the specified grade range for firmness.

1.2 This test method is limited to foams with thicknesses that are 75 mm [3 in.] or greater.

1.3 This test method is based on the fact that the traditional industry standard thickness for Indentation Force Deflection (IFD) is 100 mm [4 in.], and the traditional percent deflection for IFD acceptance and product planning is 25 %. With respect, then, to these traditional industry conventions, a 25 % deflection on a 100-mm [4-in.] cushion would be 25 mm [1 in.]. Thus, deflecting standard cushions (of proper 100 mm thickness) 25 mm [1 in.] provides a quick way to determine if the flexible polyurethane foam is within the specified grade range for 25 % IFD.

1.4 Cushion thicknesses less than 75 mm [3 in.] shall not be tested for IFD using this test method.

1.5 This test method is intended to provide a quick and simple method to screen flexible polyurethane foams for determination of its firmness grade.

1.6 *Units*—The values stated in U.S. Customary or SI 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 non-conformance with the standard.

1.7 *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 This test method is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.22 on Cellular Materials - Plastics and Elastomers.

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NOTE 1—This test method and ISO 2439 address the same subject matter, but differ in technical content.

1.8 *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.*

2. Referenced Documents

2.1 ASTM Standards:²

D883 Terminology Relating to Plastics

E456 Terminology Relating to Quality and Statistics

D3574 Test Methods for Flexible Cellular Materials—Slab, Bonded, and Molded Urethane Foams

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

E2935 Practice for Evaluating Equivalence of Two Testing Processes

2.2 ISO Standard:

ISO 2439 Flexible Cellular Polymeric Materials—Determination of Hardness (Indentation Technique)

2.3 Method for IFD, Chapter 4.0,

“Flexible Polyurethane Foam Standards and Guidelines,” Joint Industry Foam Standards and Guidelines Committee³

3. Terminology

3.1 Terms used in this standard are defined in accordance with Terminology D883, unless otherwise specified. For terms relating to precision and bias and associated issues, the terms used in this standard are defined in accordance with Terminology E456.

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 the Polyurethane Foam Association (PFA), 334 Lakeside Plaza Loudon, TN 37774, http://www.pfa.org.

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