



Designation: **D4819 – 96 (Reapproved 2005) D4819 – 13**

Standard Specification for Flexible Cellular Materials Made From Polyolefin Plastics¹

This standard is issued under the fixed designation D4819; 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-~~Scope~~*

1.1 This specification applies to flexible closed-cell materials made from polyolefin plastics and blends of polyolefin plastics as defined in Section 3.

1.2 Extruded or molded shapes too small to permit the cutting of standard test specimens are difficult to classify or test by standard test methods and will usually require special testing procedures or the use of standard test sheets.

1.3 In case of conflict between the provisions of this specification and those of detailed specifications for a particular product, the latter shall take precedence. These detailed specifications for the flexible closed-cell polyolefin plastic foams ~~should~~shall state the particular test or tests desired.

1.4 In cases involving referee decisions, SI units shall be used.

1.5 This specification does not contain test procedures or values for all the suffix letters listed in Table 1 and Table 2. Where the procedure is not described in this specification or special limits are desired, or both, the test procedures and values must be arranged between the purchaser and the supplier.

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

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

2. Referenced Documents

2.1 *ASTM Standards:*²

C518 Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension

D624 Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers

D1596 Test Method for Dynamic Shock Cushioning Characteristics of Packaging Material

D2863 Test Method for Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index)

D3575 Test Methods for Flexible Cellular Materials Made From Olefin Polymers

E96/E96M Test Methods for Water Vapor Transmission of Materials

F355 Test Method for Impact Attenuation of Playing Surface Systems and Materials

2.2 *Motor Vehicle Safety Standard:*

MVSS-302 Flammability of Vehicle Interior Materials—Passenger Cars, Multipurpose Passenger Vehicles, Trucks and Buses³

2.3 *UL Standard:*

UL1191 Standard for Components for Personal Flotation Devices⁴

3. Terminology

3.1 *Definitions:*

3.1.1 *blend*—mixture of polyolefin plastic(s) with other polymer(s) in which at least 51 mass % is the polyolefin plastic(s).

¹ This specification is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.22 on Cellular Plastics Materials - Plastics and Elastomers.

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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.

³ Available from Department of Transportation, Washington, DC.

⁴ Available from Underwriters Laboratories (UL), Corporate Progress, 333 Pfingsten Rd., Northbrook, IL 60062.

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

TABLE 1 Suffix Letter Designations

| | |
|----------------------|---|
| <u>A</u> | Heat resistance |
| <u>B</u> | Compression set under constant deflection |
| <u>C</u> | Ozone or weather resistance |
| <u>D</u> | Compression deflection |
| <u>E</u> | Oil resistance |
| <u>F</u> | Low temperature |
| <u>G</u> | Tear resistance |
| <u>H</u> | Flex resistance |
| <u>I</u> | Not assigned |
| <u>J</u> | Abrasion resistance |
| <u>K</u> | Adhesion capability |
| <u>L</u> | Water absorption |
| <u>M</u> | Flammability resistance |
| <u>N</u> | Impact resistance |
| <u>O</u> | Electrical properties |
| <u>P</u> | Staining resistance |
| <u>Q</u> | Not assigned |
| <u>R₁</u> | Resilience |
| <u>R₂</u> | Shock absorption |
| <u>S</u> | Thermal stability |
| <u>T₁</u> | Tensile strength |
| <u>T₂</u> | Ultimate elongation |
| <u>U</u> | Not assigned |
| <u>V</u> | Thermal conductivity |
| <u>W</u> | Density |
| <u>X</u> | Not assigned |
| <u>Y</u> | Not assigned |
| <u>Z</u> | Special requirements |
| <u>AA</u> | Buoyancy |
| <u>BB</u> | Compressive creep |
| <u>CC</u> | Dynamic cushioning |
| <u>DD</u> | Open cell |
| <u>EE</u> | Not assigned |
| <u>FF</u> | Water vapor transmission |

TABLE 1 Suffix Letter Designations

| | |
|----------------------|---|
| <u>A</u> | Heat resistance |
| <u>B</u> | Compression set under constant deflection |
| <u>C</u> | Ozone or weather resistance |
| <u>D</u> | Compression deflection |
| <u>E</u> | Oil resistance |
| <u>F</u> | Low temperature |
| <u>G</u> | Tear resistance |
| <u>H</u> | Flex resistance |
| <u>I</u> | Not assigned |
| <u>J</u> | Abrasion resistance |
| <u>K</u> | Adhesion capability |
| <u>L</u> | Water absorption |
| <u>M</u> | Flammability resistance |
| <u>N</u> | Impact resistance |
| <u>O</u> | Electrical properties |
| <u>P</u> | Staining resistance |
| <u>Q</u> | Not assigned |
| <u>R₁</u> | Resilience |
| <u>R₂</u> | Shock absorption |
| <u>S</u> | Thermal stability |
| <u>T₁</u> | Tensile strength |
| <u>T₂</u> | Ultimate elongation |
| <u>U</u> | Not assigned |
| <u>V</u> | Thermal conductivity |
| <u>W</u> | Density |
| <u>X</u> | Not assigned |
| <u>Y</u> | Not assigned |
| <u>Z</u> | Special requirements |
| <u>AA</u> | Buoyancy |
| <u>BB</u> | Compressive creep |
| <u>CC</u> | Dynamic cushioning |
| <u>DD</u> | Open cell |
| <u>EE</u> | Not assigned |
| <u>FF</u> | Water vapor transmission |

3.1.2 *polyolefin plastics*—material based on polymers made by the polymerization of olefins or copolymerization of olefins with other polymers, the polyolefin being at least 51 mass %.