



# Standard Specification for Flexible Cellular Materials—High-Resilience Polyurethane Foam (HR) and Combustion Modified High Resilience (CMHR) Polyurethane Foam<sup>1</sup>

This standard is issued under the fixed designation D 3770; 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 the minimum physical properties and other requirements for high-resilience polyurethane foam (HR) and combustion modified high resilience polyurethane foams (CMHR).

1.2 Combustion modified high resilience polyurethane foams are high resilience foams that have been modified to meet specific flammability requirements.

1.3 This specification includes references to government regulations for burning characteristics of flexible cellular materials used in specific applications (see Table 1).

## 2. Referenced Documents

### 2.1 ASTM Standards:

- D 3453 Specification for Flexible Cellular Materials—Urethane for Furniture and Automotive Cushioning, Bedding, and Similar Applications<sup>2</sup>
- D 3574 Test Methods for Flexible Cellular Materials—Slab, Bonded, and Molded Urethane Foams<sup>2</sup>
- D 3675 Test Method for Surface Flammability of Flexible Cellular Materials Using a Radiant Heat Energy Source<sup>2</sup>

### 2.2 Other Documents:

- DOT MVSS 302<sup>3</sup>
- DOC FF 4-72<sup>3</sup>
- CAL. TB 117<sup>4</sup>
- CAL. TB 133<sup>4</sup>
- NFPA 260<sup>5</sup>
- BSI 5852<sup>6</sup>
- FAA Part 25.853, Paragraph 6, Appendix F<sup>3</sup>
- FAA Oil Burner Test<sup>3</sup>

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee D20.22 on Cellular Plastics.

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<sup>2</sup> Annual Book of ASTM Standards, Vol 09.02.

<sup>3</sup> Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

<sup>4</sup> Available from California Bureau of Home Furnishings, 3485 Orange Grove Ave., North Highlands, CA 95660.

<sup>5</sup> Available from National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269.

<sup>6</sup> Available from British Standards Institute, 2 Park Street, London, England W1A 2B5.

**TABLE 1 Applicable Government Regulations for Specified Applications**

Types	Application	Regulation
1	Automotive	DOT MVSS 302
2	Mattress and Cushion	DOC FF 4-72
3	Mattress and Cushion	CAL. TB 117
4	Mattress and Cushion	CAL. TB 133
5	Mattress and Cushion	NFPA 260
6	Mattress and Cushion	NFPA 260
7	Mattress and Cushion	BSI 5852
8	Aviation	FAA Part 25.853 paragraph 6 Append. F
9	Aviation	FAA Oil Burner test
10	Miscellaneous	ASTM D3675

## 3. Classification

3.1 This specification covers two grades of flexible high-resilience polyurethane foam material that may be selected for use according to load-bearing and other minimum physical properties (see Table 2). Generally, Grade HR-I is used for furniture applications and Grade HR-II is used for furniture applications and mattresses.

## 4. Ordering Information

4.1 Any product represented as complying with this specification shall meet all the requirements listed herein for its particular classification.

4.2 Orders for material under this specification shall include the following information:

- 4.2.1 Type I or II of HR required as listed in this specification,
- 4.2.2 Grade number and quality as listed in Table 1 of Specification D 3453,
- 4.2.3 Dynamic fatigue performance, if required, as listed in Table 2 of Specification D 3453,
- 4.2.4 Dimension of foam, and
- 4.2.5 Combustibility requirements, if any, as listed in Table 1.

## 5. Physical Requirements

5.1 The material shall conform to the requirements for physical properties prescribed in Table 2.

## 6. Test Methods

6.1 The physical tests shall be in accordance with Methods D 3574.