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Standard Specification for Elastomeric Water Bottles[1]

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1. Scope

1.1 This specification covers requirements for molded, non-fabric reinforced, elastomeric water bottles with closure and screw stopper, generally used with hot or cold water in personal hygiene and health care.

1.2 The safe and proper use of elastomeric water bottles is beyond the scope of this specification except for the user instructions in 9.2.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension

D471 Test Method for Rubber Property—Effect of Liquids

D573 Test Method for Rubber—Deterioration in an Air Oven

D865 Test Method for Rubber—Deterioration by Heating in Air (Test Tube Enclosure)

3. Materials and Manufacture

3.1 The bottle shall be manufactured from an elastomeric compound that conforms to the requirements in Section 5.

3.2 The stopper shall be manufactured from a noncorrosive metal or a polymeric material.

3.3 The bottle and stopper shall not be toxic, sensitizing, locally irritating, or otherwise harmful under normal conditions of use.

4. Construction

4.1 The water bottle shall consist of an integral body and closure designed for use with hot or cold water.

4.2 The closure and stopper shall form a leakproof seal when closed and tested in accordance with 9.2.5.

4.3 The capacity of the bottle shall be determined as follows:

4.3.1 Measure the volume of water at room temperature required to fill the bottle to the underside of the closure while held by the bottle neck.

5. Physical Requirements

5.1 The bottle shall conform to the requirements in Table 1.

5.2 All tests shall be made at least 24 h after manufacture, and not later than 60 days after delivery to the user or testing agency, on bottles before use. If it is necessary to buff the bottle compound to obtain specimens, values which are 80 % of those for tensile strength and ultimate elongation in Table 1 shall be deemed to meet the requirements of this specification.

6. Workmanship, Finish, and Appearance

6.1 The water bottle shall be free of defects that affect serviceability, such as holes, thin spots, air bubbles, embedded particles, and tackiness. Inner surfaces of the bottle shall not adhere to each other.

7. Sampling

7.1 Sampling, inspection levels, and acceptable quality level (AQL) shall conform to those agreed between the seller and purchaser.

7.2 In the absence of a sampling plan, three water bottles shall be selected at random from the lot for test.

8. Product Marking

8.1 Each water bottle shall be permanently marked with the following information:

8.1.1 Date of manufacture. A date code is permissible.

8.1.2 Name or trademark of the manufacturer or distributor.

9. Packaging and Package Marking

9.1 The individually wrapped water bottle shall be packaged in a suitable container to minimize contact with light, oils, grease, electrical discharge, ozone, or other agents that might cause premature deterioration.

9.1.1 The package shall indicate the name or trademark of the manufacturer or distributor, the capacity of the bottle, and conformance with this specification.

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[1] This specification is under the jurisdiction of ASTM Committee D11 on Rubber and is the direct responsibility of Subcommittee D11.40 on Consumer Rubber Products.

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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.

TABLE 1 Physical Requirements

Property	Require-ment	ASTM Designation
Tensile strength, min, MPa	10	D412
Ultimate elongation, min, %	350	D412
Resistance to heating at 70 ± 2°C for 166 ± 2 h:		D573 or D865
Tensile strength, min, MPa	7.5	D412
Ultimate elongation, min, %	260	D412
Resistance to water at 100 ± 2°C for 166 ± 2 h:		D471
Tensile strength, min, MPa	5.0	D412
Ultimate elongation, min, %	175	D412

9.2 Each package shall include the following minimum user instructions:

9.2.1 Use only plain water in or on this bottle,

9.2.2 When used as a hot water bottle, use water well below the boiling point,

9.2.3 Fill bottle only two-thirds full,

9.2.4 Let out air and water vapor before threading the stopper gently and securely into the bottle,

9.2.5 Test for leakage by turning the bottle upside down and pressing it firmly,

9.2.6 Do not place heavy and sharp objects on bottle during use or storage,

9.2.7 Before storage, air dry thoroughly by hanging the bottle upside down away from direct sunlight or heat, and

9.2.8 Store bottle flat in dark, cool, dry place as soon as it is dry.

10. Keywords

10.1 bottle; elastomeric; water