



## Standard Test Methods for Rubber Hose<sup>1</sup>

This standard is issued under the fixed designation D 380; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense. These methods have been approved for use by agencies of the Department of Defense to replace Methods 7431, 7421, 10011, 10021, 10211, 10221, 10311, 10341, 10351, and 10361 of Federal Test Method Standard No. 601 and for listing in the DoD Index of Specifications and Standards.*

### 1. Scope

1.1 These test methods describe procedures for inspection and test of all types and constructions of rubber hose.<sup>2</sup>

1.2 In case of conflict between provisions of these test methods and those of detailed specifications or test methods for a particular hose, the latter shall take precedence.

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

1.4 *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.*

### 2. Referenced Documents

#### 2.1 ASTM Standards:

- D 412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension<sup>3</sup>
- D 413 Test Methods for Rubber Property—Adhesion to Flexible Substrate<sup>3</sup>
- D 471 Test Method for Rubber Property—Effect of Liquids<sup>3</sup>
- D 572 Test Method for Rubber—Deterioration by Heat and Oxygen<sup>3</sup>
- D 573 Test Method for Rubber—Deterioration in an Air Oven<sup>3</sup>

<sup>1</sup> These test methods are under the jurisdiction of ASTM Committee D11 on Rubber and are the direct responsibility of Subcommittee D11.31 on Rubber Hose and Belting.

Current edition approved Nov. 15, 1994. Published March 1995. Originally published as D 380 – 33. Last previous edition D 380 – 87.

<sup>2</sup> For specifications covering hose used in automotive, construction, and industrial equipment applications, reference should be made to SAE Standards for Coolant System Hoses (SAE J20e), Fuel and Oil Hoses (SAE J30b), Power Steering Pressure Hose—High Volumetric Expansion (SAE J188), Power Steering Return Hose (SAE 189), Power Steering Pressure Hose—Low Volumetric Expansion (SAE J191), Power Steering Pressure Hose—Wire Braid (SAE J190), Windshield Wiper Hose (SAE J50a), Emission Control Hose (SAE J1010), Windshield Washer Tubing (SAE J1037), Tests and Procedures for SAE 100R Series Hydraulic Hose and Hose Assemblies (SAE J343c), and for Tests and Procedures for High-Temperature Transmission Oil Hose, Lubricating Oil Hose, and Hose Assemblies (SAE J1019).

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 09.01.

- D 865 Test Method for Rubber—Deterioration by Heating in Air (Test Tube Enclosure)<sup>3</sup>
- D 1149 Test Method for Rubber Deterioration—Surface Ozone Cracking in a Chamber<sup>3</sup>
- D 1349 Practice for Rubber—Standard Temperatures for Testing<sup>3</sup>
- D 1415 Test Method for Rubber Property—International Hardness<sup>3</sup>
- D 2240 Test Method for Rubber Property—Durometer Hardness<sup>3</sup>
- D 3183 Practice for Rubber—Preparation of Pieces for Test Purposes from Products<sup>3</sup>
- D 3767 Practice for Rubber—Measurement of Dimensions<sup>3</sup>
- D 4483 Practice for Determining Precision for Test Method Standards in the Rubber and Carbon Black Industries<sup>3</sup>
- E 4 Practices for Force Verification of Testing Machines<sup>4</sup>

### 3. General Test Methods

3.1 Except as otherwise specified in these test methods for rubber hose, the following test methods, applicable in general to vulcanized rubber, shall be complied with as required and are hereby made a part of these test methods:

3.1.1 *General Physical Test Requirements*—Practice D 3183.

3.1.2 *Tension Test*— Test Method D 412.

3.1.3 *Aging Test*—Test Method D 572, Test Method D 573, and Test Method D 865.

3.1.4 *Adhesion Test*— Test Methods D 413.

3.1.5 *Immersion Test*— Test Method D 471.

3.1.6 *Hardness Test*— Test Method D 2240.

3.1.7 *Hardness Test*— Test Method D 1415.

### 4. Significance and Use

4.1 These test methods provide uniform methods for inspection and test of rubber hoses that can be referenced in hose specifications for various applications.

4.2 Uniform test methods make quality comparisons of hose easier and more meaningful, and are more economical particularly when the same rubber vulcanizates are used in different types, constructions, or sizes of hose.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 03.01.