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AMERICAN SOCIETY FOR TESTING AND MATERIALS

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## Standard Test Method for Bursting Strength of Pressure-Sensitive Tapes<sup>1</sup>

This standard is issued under the fixed designation D 3662/D 3662M; 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 (e) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

<sup>e1</sup> NOTE—Section 13 was added editorially in July 1993.

<sup>e2</sup> NOTE—D 3662 and D 3662M were combined editorially in December 1997.

### 1. Scope

1.1 This test method covers the measurement of the bursting strength of pressure-sensitive tape used in the closure of fiberboard containers.

1.2 The values stated in either SI or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system must be used independently, without combining values in any way.

1.3 *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 996 Terminology of Packaging and Distribution Environments<sup>2</sup>
- D 2529 Test Method for Bursting Strength of Paperboard and Linerboard<sup>3</sup>
- D 2904 Practice for Interlaboratory Testing of a Textile Test Method that Produces Normally Distributed Data<sup>4</sup>
- D 2906 Practice for Statements on Precision and Bias for Textiles<sup>4</sup>
- D 3715/D 3715M Practice for Quality Assurance of Pressure-Sensitive Tapes<sup>2</sup>
- D 4332 Practice for Conditioning Containers, Packages, or Packaging Components for Testing<sup>2</sup>
- E 122 Practice for Choice of Sample Size to Estimate a Measure of Quality for a Lot or Process<sup>5</sup>

### 3. Terminology

3.1 Terminology found in Terminology D 996 shall apply.

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D-10 on Packaging and is the direct responsibility of Subcommittee D10.14 on Tape and Labels.

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<sup>2</sup> Annual Book of ASTM Standards, Vol 15.09.

<sup>3</sup> Discontinued; see 1985 Annual Book of ASTM Standards, Vol 15.09.

<sup>4</sup> Annual Book of ASTM Standards, Vol 07.01.

<sup>5</sup> Annual Book of ASTM Standards, Vol 14.02.

### 4. Significance and Use

4.1 The bursting strength of pressure-sensitive tapes is an indication of the character of the backing of the product. It gives a measure of the relative resistance to rupture of the tape applied to seams and panels when under stress from inside and outside the container.

### 5. Apparatus

5.1 *Bursting Tester*, consisting of the following:

5.1.1 Means for clamping the test specimen between two annular, plane surfaces having fine concentric tool marks to minimize slippage. The upper clamping platen shall have a diameter of 95 mm [3.75 in.], a thickness of 95 mm [0.375 in.], and a circular opening  $31.50 \pm 0.025$  mm [ $1.240 \pm 0.001$  in.] in diameter. The lower edge of the opening (side in contact with the tape) shall have a 0.064-mm [0.0025-in.] radius. The lower clamping surface (diaphragm plate) shall have a thickness of  $5.56 \pm 0.08$  mm [ $0.219 \pm 0.003$  in.] with an opening  $31.50 \pm 0.02$  mm [ $1.240 \pm 0.001$  in.] in diameter. The upper edge of the opening (in contact with the tape) shall have a 0.4 mm [0.016-in.] radius, and the lower edge of the opening (in contact with the rubber diaphragm) a radius of 3.2 mm [0.125 in.] to prevent cutting the rubber when pressure is applied. The upper clamping ring shall be connected to the clamping mechanism through a swivel joint to facilitate an even clamping pressure. The openings in the two clamping plates shall be concentric to within 0.13 mm [0.005 in.] and their clamping faces shall be flat and parallel (see A1.1 of Test Method D 2529).

5.1.2 A molded (disk-shaped) diaphragm requiring a pressure of not less than 160 kPa [23 psi] nor more than 210 kPa [30 psi] to distend it to a height of 9.5 mm [0.375 in.] above the diaphragm plate (see A1.2 of Test Method D 2529).

5.1.3 Means of forcing liquid into the pressure chamber below the diaphragm at a steady rate of  $170 \pm 15$  mL/min (see A1.3 of Test Method D 2529). This pressure shall be generated by a motor-driven piston forcing a liquid (glycerin) into the pressure chamber of the apparatus.

5.1.4 A pressure gage of the maximum reading or the lazy-hand type. The scale should have a radius of 48 mm [1.875 in.] with graduations extending over a minimum arc of 270° indicating bursting pressure in pounds-force per square inch, with an accuracy of ½ % of full scale, and have sufficient capacity so that all readings can be maintained in the middle half of the scale. In its operating position, have the gage inclined between horizontal and not over 30 % from