



## Standard Specification for Pressure-Sensitive Tape for Light-Duty Packaging and General Purpose Masking<sup>1</sup>

This standard is issued under the fixed designation D 6123/D 6123M; 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 paper-backed pressure-sensitive tapes used for light-duty packaging and masking.

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

1.3 The following safety hazards caveat pertains only to the test methods portion, Section 13, of this specification. *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:<sup>2</sup>

- D 996 Terminology of Packaging and Distribution Environments
- D 3121 Test Method for Tack of Pressure-Sensitive Adhesives by Rolling Ball
- D 3330/D 3330M Test Methods for Peel Adhesion of Pressure-Sensitive Tapes at 180° Angle
- D 3611 Practice for Accelerated Aging of Pressure-Sensitive Tapes
- D 3652/D 3652M Test Method for Thickness of Pressure-Sensitive and Gummed Tapes
- D 3715/D 3715M Practice for Quality Assurance of Pressure-Sensitive Tapes
- D 3759/D 3759M Test Method for Tensile Strength and Elongation of Pressure-Sensitive Tapes
- D 3951 Practice for Commercial Packaging
- D 5486/D 5486M Specification for Pressure-Sensitive Tape for Packaging, Box Closure, and Sealing
- D 5570 Test Method for Water Resistance of Tape and

Adhesives Used as a Box Closure

#### 2.2 Federal Specification:

PPP-T-680 Tape, Pressure-Sensitive: Packaging and Packing of<sup>3</sup>

#### 2.3 ISO Standard:

ISO 9002 Quality Systems Model for Quality Assurance in Production and Installation<sup>4</sup>

### 3. Terminology

3.1 *Definitions*—General definitions for packaging and distribution environments are found in Terminology D 996.

### 4. Significance and Use

4.1 The pressure-sensitive paper-backed tapes covered by this specification are intended for packaging applications such as bundling small parts to be overpacked, holding small parts to larger assemblies, and for temporary closure of chipboard boxes and fiberboard boxes that are not to be shipped by common carrier. They are also for general use applications such as in temporarily masking surfaces from being covered by paint, varnish, or other finishing materials. These tapes are not intended to be a substitute for tapes covered by Specification D 5486/5486M. Type I is for use where conformability is desired. Type II is for uses requiring more strength and for straight line masking.

### 5. Classification

- 5.1 Type I is crepe paper backed.
- 5.2 Type II is flat paper backed.

### 6. Ordering Information

- 6.1 The inquiry or order shall include the following:
  - 6.1.1 ASTM Designation and date of issue,
  - 6.1.2 Type required (see Section 5),
  - 6.1.3 Roll width and length (see Section 9),
  - 6.1.4 When testing and inspection certification is required and (see Section 16), and
  - 6.1.5 Level of packaging and packing when other than commercial (see Section 17).

<sup>1</sup> This specification 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> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from Standardization Documents Order Desk, Bldg. 4, Section D, 700 Robbins Ave., Phila., PA 19111-5094. Attn: NPODS.

<sup>4</sup> Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

## 7. Materials and Manufacture

7.1 The materials used in the construction of the tape shall be such as to ensure conformance to the requirements of this specification.

7.2 *Backing*—The paper backing shall be treated to make it resistant to water, paints, varnish and other finishing materials. The backing shall have sufficient strength to allow the tape to be unwound from the roll and to be removed from the masked surface after application of finishing materials without breakage or delamination.

7.3 *Adhesive*—The adhesive shall be pressure-sensitive, water-insoluble, and shall require no moisture, heat, or other preparation prior to or after application to clean, dry surfaces. The adhesive shall be coated in a smooth and evenly distributed layer on one side of the backing.

7.4 *Rolls*—The tape shall be evenly wound in rolls, adhesive side in, on cores made of paper-fiber or plastic. The core shall have sufficient rigidity to prevent distortion under normal conditions of transportation and use. The inside diameter of the core shall be 76.2  $-0 + 1.6$  mm (3  $-0 + 1/16$  in.). When the roll is unwound, the backing shall not tear; the adhesive shall not transfer nor split from the face of the tape backing to the adjacent layer before or after aging (see Table 1).

## 8. Physical Properties

8.1 The tape shall comply with the physical requirements listed in Table 1 and the water-solubility requirement as described in Test Method D 5570.

## 9. Dimensions, Mass, and Permissible Variations

9.1 *Width*—The width of the tape shall be 1/2 in. or 12 mm; 3/4 in. or 18 mm; 1 in. or 24 mm; 1 1/2 in. or 36 mm; 2 in. or 48 mm or other commercially available widths, as specified (see 6.1.3). A width tolerance of  $\pm 1/32$  in. or 0.75 mm shall be allowed on all widths.

9.2 *Length*—The length shall be 60 yd or 50 or 55 m or other commercially available lengths, as specified (see 6.1.3).

9.3 *Splices*—The roll shall consist of a single length of tape, except that any single roll may contain a maximum of one splice. A splice shall not separate when the roll is unwound by hand or machine.

## 10. Workmanship

10.1 The tape shall be constructed uniformly and be free of defects that impair its usefulness for the purpose intended (see Section 4). The adhesive coating shall be a uniform coating covering one entire side of the tape. The edges shall be clean, straight, and unbroken. The rolls shall be wound evenly. The finished product shall conform to the levels of quality established herein.

## 11. Sampling

11.1 *End Item Examination*—The lot size for visual inspection shall be as specified in the end item inspection of 6.3 of Practice D 3715/D 3715M. The sample unit shall be one roll.

11.2 *End Item Testing*—Lot size and sampling for end item testing shall be as specified in end item testing of 6.4 of Practice D 3715/D 3715M. The AQL shall be 4.0 %.

## 12. Specimen Preparation and Number of Tests

12.1 Specimen preparation shall be as specified in the appropriate test method.

12.2 Number of tests per unit of product shall be as specified in the appropriate test method.

12.3 *First Article of Manufacture*—When a product is first manufactured in a plant, it shall be tested and inspected to determine compliance with all examinations and tests of this specification. First article of manufacture examinations need only be repeated when there is a change in materials, processes, or plant of manufacture. Specimens shall consist of at least five rolls of tape representing a standard production lot.

## 13. Test Methods

13.1 *Responsibility for Inspection*—Unless otherwise specified in the contract or order, the manufacturer is responsible for the performance of all inspection requirements as specified herein.

13.2 *Responsibility for Compliance*—All items must meet all requirements of Sections 7-16. The inspections set forth in this specification shall become part of the manufacturer's overall inspection system or quality program for the contract or order. The absence of any inspection requirements in the specification shall not relieve the manufacturer of the responsibility of ensuring that all products or supplies submitted for acceptance comply with all the requirements of the contract or order. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the buyer to acceptance of defective material.

### 13.3 Classification of Inspections:

13.3.1 *First Article of Manufacture*—When a product is first manufactured in a plant it shall be tested and inspected to determine compliance with all examinations and tests of this specification by an independent laboratory. First article of manufacture examinations need only be repeated when there is a change in materials, processes or plant of manufacture.

**TABLE 1 Properties**

		Type I	Type II	Test
Adhesion				13.3.3
	Before	25	25	
	aging	27	27	
	After	20	20	
	aging	22	22	
Tack (rolling ball), max	in.	6	...	13.3.3
	mm	150	...	
Tensile	lb/in., min	16	25	13.3.3
	N/100 mm, min	280	440	
Elongation, percent				13.3.3
	min	5	...	
	max	15	...	
Thickness,	in., max	0.009	0.009	13.3.3
	mm, max	0.230	0.230	



13.3.2 *Quality Conformance Inspections*—Quality conformance inspections shall consist of the following:

Adhesion before aging  
Tack (rolling ball)  
Tensile Strength

13.3.3 The tests shall be conducted according to the following methods, as specified:

Test	Method
Accelerated aging (heat and humidity)	Practice D 3611
Adhesion (initial and aged)	Test Method A of D 3330/D 3330M
Tensile and Elongation	Test Method D 3759/ D 3759M
Tack (rolling ball)	Test Method D 3121
Thickness	Test Method D 3652/D 3652M

#### 14. Rejection and Rehearing

14.1 Materials that fail to conform to the requirements of this specification may be rejected. Rejected material should be reported to the producer or supplier promptly and in writing. The producer or supplier may make claim for rehearing in cases of dissatisfaction with the results of any of the tests.

#### 15. Environmental Considerations

15.1 *Environmental Considerations*—The use of potentially toxic materials in the manufacture of tapes covered by this specification are of concern because of their presence in emissions should they be incinerated or in leachate when

landfilled. Materials used in the manufacture of tapes covered by this specification shall not have any lead, cadmium, mercury, or hexavalent chromium intentionally introduced as a component during manufacture as opposed to the incidental presence of any of these elements.

#### 16. Certification

16.1 When specified (see 6.1.4) in the purchase order or contract the manufacturer shall certify that the backing of the tapes is as specified (see 7.2).

16.2 When specified (see 6.1.4) in the purchase order or contract the purchaser shall be furnished a certification stating that the sample rolls representing each log of tape have been tested and inspected as directed in this specification, the requirements have been met and the tape has been produced in a manufacturing facility certified under ISO 9002.

#### 17. Preparation for Delivery

17.1 Unless otherwise specified in the purchase order or contract, rolls of tape shall be packaged and packed in accordance with Practice D 3951. Such packing shall ensure arrival at the destination in a satisfactory condition and shall be acceptable to the carrier at the lowest rate.

17.2 When specified (see 6.1.5), shipments to the U.S. Government shall be packaged and packed in accordance with PPP-T-680 at the levels specified in the purchase order or contract.

#### 18. Keywords

18.1 light duty; packaging; pressure-sensitive; tape

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