

PPP-T-0097E(GSA-FSS)

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INTERIM REVISION OF

Fed. Spec. PPP-T-97D

May 1, 1970

## INTERIM FEDERAL SPECIFICATION

## TAPE, PACKAGING/INDUSTRIAL, FILAMENT REINFORCED

This Interim Federal Specification was developed by the General Services Administration, Federal Supply Service, Washington, DC 20406, based upon currently available technical information. It is recommended that Federal agencies use it in procurement and forward recommendations for changes to the preparing activity at the address shown above.

The General Services Administration has authorized the use of this Interim Federal Specification as a valid exception to Federal Specification PPP-T-97D, dated May 1, 1970.

## 1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the requirements for filament reinforced pressure-sensitive adhesive tape intended for use in closing and reinforcing containers and for bundling applications.

1.2 Classification.

1.2.1 Types. The pressure-sensitive adhesive tape shall be of the following types and classes as specified (see 6.2):

Type I	-	Low tensile strength.
Type II	-	Medium tensile strength.
Class A	-	Opaque.
Class B	-	Transparent.
Type III	-	High tensile strength.
Type IV	-	High tensile strength, weather resistant.

## 2. APPLICABLE DOCUMENTS.

2.1 The following documents, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Federal Specifications:

- PPP-F-320 - Fiberboard, Corrugated and Solid, Sheet Stock (Container Grade and Cut Shapes).  
 PPP-T-680 - Tape, Pressure-Sensitive Adhesive: Packaging and Packing Of.

Federal Standards:

- Fed. Test Method Std. No. 147 - Tapes, Pressure Sensitive and Gummed: Methods of Inspection, Sampling and Testing.  
 Fed. Std. No. 224 - Closing, Sealing and Reinforcing of Fiberboard Shipping Containers, General Methods of.

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

PPP-T-0097E(GSA-FSS)

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

### 3. REQUIREMENTS

**3.1 Materials.** The materials used in the construction of the pressure-sensitive adhesive tape shall be such as to assure performance of the tape over the temperature range of  $-54^{\circ}\text{C}$ . to  $+65^{\circ}\text{C}$ . ( $-65^{\circ}\text{F}$ . to  $+150^{\circ}\text{F}$ .) and shall conform to the requirements of this specification.

**3.1.1 Backing material.** The backing material shall not be the reinforcing material, but shall serve as a carrier material for the adhesive.

**3.1.2 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.

**3.1.3 Reinforcements.** The adhesive shall be reinforced by embedding longitudinal or bi-directional filaments in a smooth uniform layer throughout the length of the roll. The filaments shall be covered by a uniform layer of adhesive forming a smooth adhering surface.

### 3.2 Finished tape.

**3.2.1 Rolls.** The tape shall be wound evenly in rolls, adhesive side in, on cores made of paper-fiber or plastic. The core shall have sufficient rigidity to prevent distortion of the roll under conditions of transportation, storage and use. The inside diameter of the core shall be 3 inches,  $-0$  inches and  $+1/16$  inch. When the roll is unwound, the backing shall not tear, the reinforcing filaments shall not ravel, nor shall the adhesive transfer or split from the face of the tape to the backing of the adjacent layer before or after aging (see 4.3).

**3.2.1.1 Length and width.** Unless otherwise specified, the length of the roll shall be 60 yards. The width of the roll shall be  $1/2$ -,  $3/4$ -, 1-inch or any other available width, as specified (see 6.2). A tolerance of  $+1/16$  inch shall be allowed on all widths.

**3.2.1.2 Splices.** The tape shall consist of a single length, except any single 60 yard length may contain a maximum of three splices. The splices shall have a minimum overlap of 4 inches and shall not separate when the roll is unwound by hand or machine application.

### 3.2.2 Color and transparency.

**3.2.2.1 Color.** Unless otherwise specified, the colors of types I, II (class A), III shall be as manufactured except that in no case shall the color be black. Type IV tape shall be black (see 6.2).

**3.2.2.2 Transparency.** Type II, class B tape shall be sufficiently transparent to allow easy reading of 10 point lower case long primer type through one layer of the tape when applied directly over the type and pressed down.

PPP-T-0097E(GSA-FSS)

3.3 Properties. The tape shall comply with the physical and mechanical requirements listed in table I when tested as described in section 4.

	TABLE I - PROPERTIES					Test
	Type I	Type II		Type III	Type IV	
		Class A	Class B			
Adhesion, oz./in. (min.)						4.3.2
Before Aging	25	25	25	25	25	
After Aging	25	25	25	25	25	
Adhesion at low temp. No separation of the tape from the kraft paper.						4.3.2
Elongation, Percent						4.3.2
Min.	12	3	3	3	3	
Max.	24	8	8	8	8	
<sup>1</sup> Holding power, inch (Max. slippage)	3/16	3/16	3/16	3/16	3/16	4.3.2
Impact Resistance inch-lbs./in. width (min.)						4.3.2
For single drop	60	40	40	60	50	
For 25 drops	30	20	20	30	30	
Tensile, lbs./in. (min.)	160	240	300	425	400	4.3.2
Thickness, inches, (max.)	0.012	0.018	0.012	0.012	0.012	4.3.2

<sup>1</sup>The tape shall be subjected to the test specified in 4.3.2 for a period of 48 hours.

3.3.1 Type IV tape requirements. Type IV tape shall meet the following requirements when tested as described in paragraph 4.3.3.

- a. No lifting of the tape in the overlap area.
- b. No pulling loose from the fiberboard (except in areas where the fiberboard has buckled).
- c. No flaking, cracking or separation of the backing when the overlap section of the tape is stripped back at 180 degrees at a speed of 4 to 6 inches per second.
- d. No transfer of the adhesive to the lower layer of the tape when tested as in (c) above.
- e. No brittleness of the adhesive (excluding adhesive exposed by buckling of the fiberboard). An embrittled adhesive will crack, flake or powder when flexed manually.

3.3.2 Workmanship. The pressure-sensitive adhesive tape shall be uniformly constructed and free from defects which impair usefulness of the material for the intended purpose. The adhesive coating shall be uniform, covering the entire area of one side of the tape. Edges shall be clean cut, straight and unbroken. Rolls shall be evenly wound and the finished product shall conform to the levels of quality established herein.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

PPP-T-0097E(GSA-FSS)

4.2 Sampling and examination.

4.2.1 Sampling for end item examination. Sampling for end item examination shall be as described in section 7 of Fed. Test Method Std. No. 147.

4.2.2 Sampling for end item testing. Sampling for end item testing shall be as described in section 7 of Fed. Test Method Std. No. 147 at an AQL of 4.0 percent.

4.2.3 Examination of preparation for delivery. The examination of preparation for delivery shall be performed in accordance with PPP-T-680.

4.3 Tests.

4.3.1 Preparation for testing. The specimen rolls shall be selected and conditioned as specified in Method 4 of Fed. Test Method Std. No. 147.

4.3.2 Test procedures. The following tests and methods used shall be conducted according to the Fed. Test Method Std. No. 147 (see 3.3).

<u>Test</u>	<u>Method</u>
Accelerated aging (Heat and Humidity Method)	60
Adhesion, as received and aged	10
Adhesion at low temperature	14
Holding power, room temperature 23°C (73.4°F)	22
Impact Resistance, single and 25 drops	50
Tensile Strength and Elongation	32
Thickness	36

4.3.3 Weathering (type IV only). Prepare the specimen by applying 1/2 inch wide by 9 inch long strips of tape to a 3 inch by 9 inch piece of fiberboard conforming to PPP-F-320, type SF, class weather-resistant, grade V2s. Four strips of tape shall be removed from each sample roll and placed lengthwise on the fiberboard so that two strips start about 2-1/2 inches on one side and extend parallel to each other 6-1/2 inches onto the other side. Place the other two strips in a similar fashion over the other end of the fiberboard so one end overlaps the tape applied initially about 4 inches and the other end extends about 2-1/2 inches onto the backside of the fiberboard. Place the specimen in a weatherometer conforming to and operated as described in Method 63 of Fed. Test Method Std. No. 147 with the overlap area exposed to the light source. The uppermost tape of the overlap area shall be at the upper end of the test panel. After 100 hours exposure, remove the panel with tape applied and allow to condition at standard conditions for at least 24 hours (see 3.3.1).

4.3.4 Tensile strength and elongation. Tensile and elongation shall be determined in accordance with Federal Test Method Standard No. 147, method 32 or equivalent. A constant rate of extension (CRE) type tensile tester operated at a jaw speed of 5 inches per minute may be used in lieu of the pendulum machine now called for in method 32.

5. PREPARATION FOR DELIVERY

5.1 Packaging, packing and marking. The packaging (level A, B or C, as specified), packing (level A, B or C, as specified) and marking shall be in accordance with PPP-T-680 (see 6.2).

6. NOTES

6.1 Intended use. See Fed. Std. 224 for a guide to using these tapes.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

- a. Title, number and date of this specification.
- b. Type and class required (see 1.2.1).
- c. Length and width of the tape required (see 3.2.1.1).
- d. Selection of applicable levels of packaging and packing (see 5.1).
- e. Color required (see 3.2.2.1).

6.3 Shelf life. Since pressure-sensitive adhesive tapes may lose some of their properties with increasing age, purchases should be adjusted, if possible, to avoid storage for more than one year.