

L-T-80B
October 1, 1971

SUPERSEDING
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September 15, 1965

FEDERAL SPECIFICATION

TAPE, PRESSURE-SENSITIVE ADHESIVE
(ALUMINUM-BACKED)

This specification was approved by the Commissioner,
Federal Supply Service, General Services Administration,
for the use of all Federal agencies.

1. SCOPE

1.1 This specification establishes the requirements for an aluminum foil backed pressure-sensitive adhesive tape designed for use in sealing applications where the properties of good weather resistance, reflectivity, and moisture vapor transmission resistance are required.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue 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:

QQ-A-250/5 - Aluminum Alloy Alclad 2024, Plate and Sheet.
PPP-T-600 - Tape, Pressure-Sensitive Adhesive, Packaging and Packing of.

Federal Standard:

Fed. Test Method Std. No. 147 - Tapes, Pressure Sensitive and Gummed;
Methods of Inspection, Sampling and
Testing.

(Activities outside the Federal Government may obtain copies of Federal Specifications and Standards 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, D. C. 20402.

FSC 8030

L-T-80B

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge 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, Standards, and Handbooks from established distribution points in their agencies.)

3. REQUIREMENTS

3.1 Materials.

3.1.1 Backing. The tape's backing shall be a smooth, scratch-free aluminum foil.

3.1.2 Adhesive. The adhesive shall be pressure-sensitive and require no solvent, heat, or other preparation prior to or after application to clean, dry surfaces. The adhesive shall be homogeneous, water resistant, and applied in a smooth uniform layer to one side of the backing throughout the length of the tape. There shall be no liner covering the adhesive.

3.2 Physical properties. The tape shall comply with the requirements of table I when tested as specified in 4.4.

TABLE I. Physical Properties

Property	Requirement		Test Method Paragraph
	Min.	Max.	
Thickness, inches (backing only)	0.0025	0.0035	4.4.3
Tensile strength (lbs/inch width)	26	-----	4.4.4
Adhesion, oz/inch width			
Initial	40	-----	4.4.5
After accelerated aging	35	-----	4.4.5
Adhesive transfer, per cent			
Initial	-----	5	4.4.5
After accelerated aging	-----	10	4.4.5
Unwind, lbs/inch width			
Initial	-----	3 ¹ / ₄	4.4.6
After accelerated aging	-----	4	4.4.6
Water vapor transmission rate, grams/100 sq inches/24 hrs	-----	0.07	4.4.7
Resistance to weathering	(see 3.2.1)	-----	4.4.8
Corrosivity	-----	(see 3.2.2)	4.4.8

¹/ There shall be no visual evidence of stringiness of the adhesive on separation from the roll, either before or after accelerated aging.

3.2.1 Resistance to weathering. When tested as specified in 4.4.8, the tape shall show no visual evidence of lifting, curling, buckling, component separation, or other degradation that would make it unfit for an external sealing media.

3.2.2 Corrosivity. Following the exposure to weathering (see 4.4.8), the test panels shall show no evidence of pitting or corrosion in the areas covered by the tape specimens.

3.3 Rolls. The tape shall be furnished in evenly and uniformly wound rolls, adhesive side in, on cores made of paper fiber or nonfibrous plastic. The core shall have sufficient rigidity to prevent distortion of the roll under normal conditions of transportation, storage, and use. The inside diameter of the core shall be 3, +1/16, -0 inches.

L-T-80B

3.3.1 Length and splices. Unless otherwise specified in the contract or order (see 6.2), the tape shall be furnished in rolls of 60 yards minimum length. Each roll shall consist of a single length of tape or of two or more lengths spliced together in such a manner that the splices will not separate when the roll is being unwound for inspection or during machine or manual application. No roll shall contain more than three splices (four pieces) (see 3.5).

3.3.2 Width. The width of the rolls shall be 1/2, 3/4, 1, 1 1/2, 2 inches, or other commercially available width as specified in the contract or order (see 6.2). A tolerance of plus or minus 1/32 inch shall be allowed in each width.

3.3.3 Marking. On direct shipment to the Government, each roll of tape shall be marked in or on the edge of the core with the manufacturer's name and tape designation (full or coded) and the date of manufacture (full or coded).

3.4 Suitability (compatibility) for use with explosives. (Applicable only when specifically designated in the applicable contract, order, or specification.) When so specified, application shall be made to a Government laboratory or other Government approved laboratory designated by the procuring agency for determination of the ability of the tape for use with a particular explosive or explosives (see 6.2).

3.5 Workmanship. Workmanship shall be in accordance with the best commercial practice. The tape shall be clean and free from foreign matter and defects that may impair its serviceability or appearance. The edges of the tape shall be straight, true, and unbroken.

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.

4.1.1 In process inspection. Unless otherwise specified, equivalent in process inspection may be substituted for the inspections described below provided that it conforms to the applicable requirements specified in Section 7 of Federal Test Method Std. No. 147.

4.2 Examination.

4.2.1 End item, general. Sampling and examination of the end item for defects other than roll length shall be as specified in Section 7 of Fed. Test Method Std. No. 147 except that "Core not marked in conformance with 3.3.3" shall be added to the table of defects under "Examination of end item for defects in construction."

4.2.2 Roll length. A sample of rolls shall be selected from the lot in accordance with "End item examination" of Section 7 of Fed. Test Method Std. No. 147 at inspection level S-1 and shall be examined for conformance with the length and splice requirements in 3.3.1. The sample unit shall be one roll.

4.2.3 Preparation for delivery. An examination shall be made in accordance with PPP-T-680 to determine that the packaging, packing, and marking comply with the requirements of section 5.

4.3 Testing. Sampling for end item testing shall be as specified in Section 7 of Fed. Test Method Std. No. 147, as modified below, using inspection level S-1, and AQL of 2.5 percent defective. Each sample unit shall consist of two 1-inch wide rolls and one 2-inch wide roll of tape. For each test, the number of replicate specimens specified in the test method shall be taken from each sample unit and tested. When the requirement is a numerical value, the values obtained shall be averaged; and the average for that sample unit for that test shall be reported. When the requirement is an attribute, such as freedom from corrosion, the failure of any one of the specimens shall be considered a failure of the sample unit.

4.4 Test procedures.

4.4.1 Conditioning. The rolls shall be conditioned and specimens selected in accordance with method 4 of Fed. Test Method Std. No. 147 except test specimens shall be removed from a freely rotating roll at a rate of 5 to 7 inches per second.

4.4.2 Accelerated aging. The rolls selected for accelerated aging shall be conditioned as described in method 60 of Fed. Test Method Std. No. 147 for a period of 12 days (288 hours). Following the completion of accelerated aging, the specimen rolls shall be retained for use in those test procedures requiring aged test specimens.

4.4.3 Thickness (backing). The thickness of the aluminum foil backing shall be determined in accordance with method 36 of Fed. Test Method Std. No. 147. A suitable solvent shall be used to remove completely adhesive from backing prior to testing. This treatment shall be performed in a manner that will leave the backing smooth for testing.

L-T-80B

4.4.4 Tensile strength. The machine direction tensile strength of the tape shall be determined in accordance with method 30 of Fed. Test Method Std. No. 147 except that the apparatus need not be capable of measuring elongation.

4.4.5 Adhesion and adhesive transfer. The adhesion and adhesive transfer of the tape, both as received and after the rolls have been subjected to accelerated aging in accordance with 4.4.2, shall be determined in accordance with method 10 of Fed. Test Method Std. No. 147 with the following exceptions and additions:

(a) The rubber covered roller shall be 1.875 ± 0.1 inches in width by 5.0 ± 0.0312 inches in diameter and shall weigh 10.0 ± 0.1 pounds. It shall be either mechanically or manually operated at a rate of 12 inches per minute. However, when manually operated, care shall be taken that the operator exert no vertical force which might change the effective weight of the roller.

(b) The roller shall be passed over the specimen five times in each lengthwise direction.

(c) After removal of the tape from the panel, the panel shall be visually examined for percent of adhesive transfer.

4.4.6 Unwind. Rolls of tape, both as received and after accelerated aging in accordance with 4.4.2 shall be tested for resistance to unwinding in accordance with method 80 of Fed. Test Method Std. No. 147. During this test, the tape shall be examined for stringiness of adhesive.

4.4.7 Water vapor transmission rate. The water vapor transmission rate of the tape shall be determined in accordance with method 70 of Fed. Test Method Std. No. 147 with the following exceptions:

(a) The cup shall be filled with desiccant to within $1/4$ inch of the top.

(b) If finger pressure alone is found to be inadequate, a suitable applicator shall be used to insure a smooth, uniform, and wrinkle-free laydown of the tape.

4.4.8 Corrosivity and resistance to weathering. The resistance of the tape to weatherometer aging shall be determined in accordance with method 63 of Fed. Test Method Std. No. 147 with the following exceptions and additions:

(a) The specimen width shall be $1 \pm 1/32$ inch.

(b) The panels shall be of aluminum conforming to QQ-A-250/5.

(c) The roller and its method of application shall be as specified in 4.4.5.

(d) The exposure period shall be 12 days (288 hours).

(e) Immediately before removal, the tape shall be examined for conformance to 3.2.1.

(f) After removal of the tape, the panels shall be examined for conformance to 3.2.2.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A or C as specified in accordance with the applicable requirements of PPP-T-680 (see 6.2).

5.2 Packing. Packing shall be level A, B, or C as specified in accordance with the applicable requirements of PPP-T-680 (see 6.2).

5.3 Marking. Containers of the tape shall be marked in accordance with the requirements of PPP-T-680 and of 3.3.3 of this specification. In the event of conflict, this specification shall govern.

6. NOTES

6.1 Intended use. This tape is intended for use in sealing applications where the properties of good weather resistance, reflectivity, and water vapor transmission resistance are required.

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) Number of rolls of tape required (see 6.3).

(c) Length of tape required, with tolerance, if other than 60-yard minimum length roll (see 3.3.1).

(d) Width of tape required (see 3.3.2).

(e) Selection of applicable levels of packaging and packing (see 5.1 and 5.2).

(f) Requirement for suitability for use with explosives when required (see 3.4).

L-T-80B

6.3 Storage. The tape should be stored in the original container, preferably in a cool location. It should not be stored in close proximity to steam pipes, radiators, or other sources of heat. Storage conditions of approximately 70°F and 40 to 50 percent relative humidity are considered optimum (see PPP-T-600). Since the adhesive of the tape may lose some of its initial quality with increasing age, purchases should be adjusted where possible to avoid storage for more than six months.

6.4 Test equipment. Test dishes for water-vapor transmission tests and metal test panels may be obtained from the Pressure-Sensitive Tape Council, 1201 Waukegan Road, Glenview, Illinois 60025.

MILITARY CUSTODIANS:

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Air Force - 11

Preparing activity:

Army - MR

Review activities:

Army - EL, GL, MI, MU

CIVIL AGENCIES INTEREST:

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