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400 COMMONWEALTH DRIVE WARRENDALE PA 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 3808

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Revised

TAPE, ADHESIVE, PRESSURE-SENSITIVE MASKING

1. SCOPE:

1.1 Form: This specification covers three types of masking material in the form of pressure-sensitive adhesive tape.

1.2 Application: Primarily for temporary indoor protection of aircraft surfaces from finishing materials where adhesive transfer to the finished surface is not desirable. Primarily intended for use on chemical conversion coatings or on anodized aluminum alloy surfaces which have been finished with epoxy primer and urethane top coatings and for use on all clean metal surfaces.

1.3 Classification: The tapes covered by this specification are classified as follows:

Type I - Creped paper, intended primarily for application to curved surfaces.
Type II - Flat back paper, intended primarily for application on flat surfaces.
Type III - Fine-line masking tape, intended primarily for applications when a clean color separation line is desired.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods

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2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D3330 - Peel Adhesion of Pressure-Sensitive Tape at 180 deg Angle
ASTM D3611 - Accelerated Aging of Pressure-Sensitive Tapes
ASTM D3652 - Thickness of Pressure-Sensitive and Gummed Tapes
ASTM D3715 - Quality Assurance of Pressure-Sensitive Tapes
ASTM D3759 - Tensile Strength and Elongation of Pressure-Sensitive Tapes
ASTM D3951 - Commercial Packaging

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Federal Specification:

PPP-T-680 - Tape, Pressure Sensitive Adhesive, Packaging and Packing of

2.3.2 Military Specifications:

MIL-C-83286 - Coating, Urethane, Aliphatic Isocyanate, For Aerospace Applications

3. TECHNICAL REQUIREMENTS:

3.1 Material: Tape shall consist of a backing coated on one side with a pressure-sensitive adhesive meeting the requirements of 3.2.

3.1.1 Paper (Type I and Type II): Shall be uniform in texture and shall perform satisfactorily as a masking medium when used with aircraft-type paint, varnish, or other finishing materials. The paper shall have sufficient strength to permit the tape to be unwound from the roll and to be removed, without breakage or delamination, from the masked surface after application of finishing materials. The paper shall be such as to prevent finishing materials from penetrating the paper sufficiently to have a deleterious effect on the adhesive.

3.1.2 Plastic (Type III): The side not coated with adhesive shall have a matte finish. It shall be impervious to finishing materials. The backing shall have sufficient strength to allow the tape to be unwound from the roll and to be removed, without breakage or delamination, from the masked surface after application of finishing materials. The finishing materials shall not penetrate the backing.

3.1.3 Adhesive: Shall be pressure-sensitive, homogeneous, and coated in a smooth and evenly distributed layer on one side of the backing. The adhesive shall cause the tape to adhere immediately and firmly to clean, dry surfaces without wrinkling, curling, breaking, or lifting. There shall be no liner over the adhesive.

3.1.4 Color: Types I and II shall be natural in color; Type III color shall be as ordered or as approved in 4.4.1.

3.2 Properties: Tape shall conform to the following requirements, determined on samples from rolls of tape conditioned for not less than 24 hr at 23°C ± 2 (73°F ± 4) and 50% ± 5 relative humidity and tested in accordance with specified test methods:

3.2.1	Thickness, max	Type I and II	0.0075 in. (0.188 mm)	ASTM D3652
3.2.2	Tensile Breaking Strength, Dry, min			ASTM D3759
		Type I	15.0 lb per in. of width (2625 N/m of width)	
		Type II	25.0 lb per in. of width (4380 N/m of width)	
		Type III	8.0 lb per in. of width (1400 N/m of width)	
3.2.3	Elongation, Dry, min			ASTM D3759
		Type I	6%	
		Type II	--	
		Type III	10%	
3.2.4	Adhesion to Steel			ASTM D3330
3.2.4.1	Initial, min	Type I	20 oz per in. of width (0.22 N/mm of width)	
		Type II	35 oz per in. of width (0.38 N/mm of width)	
		Type III	25 oz per in. of width (0.27 N/mm of width)	
3.2.4.2	After Aging, min	Type I	15 oz per in. of width (0.16 N/mm of width)	4.5.1
		Type II	30 oz per in. of width (0.33 N/mm of width)	
		Type III	20 oz per in. of width (0.22 N/mm of width)	
3.2.5	Edge Seepage	(Type III only)	No more than 5 greater than 1/64 in. (0.4 mm), no more than 1 greater than 1/16 in. (1.6 mm) per specimen.	4.5.2

3.2.6 Compatibility: Type III tape shall show no more edge seepage than allowed in 3.2.5 and the color line shall be sharp. Type I, II, and III tapes shall show no evidence of penetration of the finish through the backing and there shall be no adhesive mass transfer on removal of the tape from the test panel, determined in accordance with 4.5.3.

3.2.7 Shelf Life: The tape shall meet the requirements of 3.2.1 through 3.2.6 at any time up to twelve months from date of receipt by purchaser when stored indoors at 30°C (85°F) or lower.

3.3 Quality: Tape, as received by purchaser, shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to usage of the tape. Edges shall be straight, true, and unbroken.

3.4 Width: Shall be 1/2, 3/4, 1, or 2 in. (12.5, 19, 25, or 50 mm) or as ordered. A width tolerance of ±1/32 in. (±0.8 mm) shall be allowed.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the product shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.6. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to requirements for thickness (3.2.1), tensile breaking strength (3.2.2), elongation (3.2.3), adhesion to steel (3.2.4.1 and 3.2.4.2), and edge seepage (3.2.5) are classified as acceptance tests and shall be performed on each lot.

4.2.2 Preproduction Tests: Tests to determine conformance to all technical requirements of this specification are classified as preproduction tests and shall be performed prior to or on the initial shipment of tape to a purchaser, when a change in material or processing, or both, requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.

4.3 Sampling: Shall be in accordance with ASTM D3715, except as specified by 4.3.1.

4.3.1 When a statistical sampling plan and acceptance quality level (AQL) have been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3 and the report of 4.6 shall state that such plan was used.

4.4 Approval:

4.4.1 Sample tape shall be approved by purchaser before tape for production use is supplied, unless such approval be waived by purchaser. Results of tests on production tape shall be essentially equivalent to those on the approved sample.

4.4.2 Vendor shall use ingredients, manufacturing procedures, processes, and methods of inspection on production tape which are essentially the same as those used on the approved sample tape. If necessary to make any change in type of equipment for processing, ingredients, or manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in material or processing, or both, and, when requested, sample tape. Production tape made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Test Methods:

4.5.1 Aging: Adhesion after aging (3.2.4.2) shall be determined by first aging rolls of tape in accordance with ASTM D3611 and then testing for adhesion in accordance with ASTM D3330.

4.5.2 Edge Seepage (Type III only): Clean a 6 x 12 in. (150 x 300 mm) double-strength, ground-edge glass panel in accordance with ASTM D3330. Remove three outer laps of tape from the sample roll. From a freely rotating roll remove a strip of tape at least 12 in. (300 mm) long. Apply the strip to the glass panel along, and 1/2 in. (12.5 mm) from, the long edge of the panel. Cut off excess tape at each end. Add additional specimens from other sample rolls as above, leaving at least 1/2 in. (12.5 mm) between specimens and from the other edge of the glass panel. Rub all edges of each specimen with firm thumb pressure. Place the panel on edge vertically with the specimens running horizontally, in an area appropriate for paint spraying. Spray with black acrylic lacquer (See 8.2), or equivalent, holding the nozzle of the spray can about 9 in. (175 mm) from the panel. Direct two wet coats of lacquer (1 back-and-forth pass) toward the top edge of the top specimen on the panel. Start and finish each panel about 3 in. (75 mm) beyond the ends of the panel, moving the spray can along the specimen at a rate which applies a smooth coat. Repeat the above for each specimen on the panel. Turn the panel, vertically, end for end and spray toward the top edges of the specimens as described above. These top edges were the bottom edges originally. Air dry for 5 min. ± 0.5 and examine the adhesive side of the specimens through the glass to determine compliance with 3.2.5 for edge seepage.