The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale. PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 3808A

Issued OCT 1983
Revised SEP 1994

Superseding AMS 3808

Submitted for recognition as an American National Standard

TAPE, ADHESIVE, PRESSURE-SENSITIVE MASKING

1. SCOPE:

1.1 Form:

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

1.2 Application:

This tape has been used typically for temporary indoor protection of aircraft surface from finishinng materials where adhesive transfer to the finished surface is undersirable, but usage is not limited to such applications. Also for use on chemical conversion coatings or on anodized aluminum alloy surface 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 specifiation are classified as follows:

Class 1: Creped paper, intended primarly for application to curved surfaces.
Class 2: Flat back paper, intended primarly for application on flat surfaces.
Class 3: Fine-line masking tape, intended primarly for applications when a clean color separation line is desired.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specition to the extent specified herein. The applicable issue of referenced publications shall be the issue in effect on the date of the purchase order.

2.1 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM D 3330	Peel Adhesion of Pressure-Sensitive Tape at 180-deg Angle
ASTM D 3330M	Peel Adhesion of Pressure-Sensitive Tape at 180-deg Angle (Metric)
ASTM D 3611	Accelerated Aging of Pressure-Sensitive Tapes
ASTM D 3652	Thickness of Pressure-Sensitive and Gummed Tapes
ASTM D 3652M	Thickness of Pressure-Sensitive and Gummed Tapes (Metric)
ASTM D 3715	Quality Assurance of Pressure-Sensitive Tapes
ASTM D 3759	Tensile Strength and Elongation of Pressure-Sensitive Tapes
ASTM D 3759M	Tensile Strength and Elongation of Pressure-Sensitive Tapes (Metric)
ASTM D 3951	Commercial Packaging

2.2 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

PPP-T-680	Tape, Pressure Sensitive Adhesive, Packaging and Packing of
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, Class 1 and Class 2: 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 prevent finishing materials from penetrating the paper sufficiently to have a deleterious effect on the adhesive.

3.1.2 Plastic Class 3: The side not coated with adhesive shall have a matte finish. Itshall 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: Classes 1 and 2 shall be natural in color; Class 3 color shall be as ordered or as approved in 4.4.1.

3.2 Properties:

Tape shall conform to requirements shown in Table 1, 3.2.6, and 3.2.7, determined in accordance with specified test methods on samples from rolls of tape conditioned for not less than 24 hours at 23 °C ± 2 (73 °F ± 4) and 50% ± 5 relative humidity:

TABLE 1 - Properties

Paragraph	Property	Requirement	Test Method
3.2.1	Thickness, max		ASTM D 3652 or ASTM D 3652M
	Class 1 and 2	0.0075 inch (0.190 mm)	
3.2.2	Tensile Breaking Strength, Dry, min		ASTM D 3759 or ASTM D 3759M
	Class 1	15.0 pounds force per inch (2627 N/m) of width	
	Class 2	25.0 pounds force per inch (4378 N/m) of width	
	Class 3	8.0 pounds force per inch (1401 N/m) of width	
3.2.3	Elongation, Dry, min		ASTM D 3759 or ASTM D 3759M
	Class 1	6%	
	Class 2	--	
	Class 3	10%	
3.2.4	Adhesion to Steel		ASTM D 3330 or ASTM D 3330M
3.2.4.1	Initial, min		
	Class 1	20 ounces force per inch (0.22 N/mn) of width	
	Class 2	35 ounces force per inch (0.38 N/mm) of width	
	Class 3	25 ounces force per inch (0.27 N/mm) of width	

TABLE 1 - (Continued)

Paragraph	Property	Requirement	Test Method
3.2.4.2	After Aging, in accordance with ASTM D 3611, min		ASTM D 3330 or ASTM D 3330M
	Class 1	15 ounces force per inch (0.16 N/mm) of width	
	Class 2	30 ounces force per inch (0.33 N/mm) of width	
	Class 3	20 ounces force per inch (0.22 N/mm) of width	
3.2.5	Edge Seepage (Class 3 only)	No more than 5 greater than 1/64 inch (0.4 mm), no more than 1 greater than 1/16 inch (1.6 mm) per specimen	4.5.1

3.2.6 Compatibility: Class 3 tape shall show no more edge seepage than allowed in 3.2.5 and the color line shall be sharp. Classes 1,2, and 3 tapes shall show no evidence of penetration of the finish through the backing and there shall be no adhesive transfer on removal of the tape from the test panel, determined in accordance with 4.5.2.

3.2.7 Shelf Life: The tape shall meet the requirements of 3.2.1 through 3.2.6 at any time up to 12 months from date of receipt by purchaser when stored indoors at 30 °C (86 °F) or lower.

3.3 Quality:

Tape, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from 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 inches (12.7, 19, 25, or 51 mm) or as ordered. A width tolerance of ±1/32 inch (±0.8 mm) shall be allowed.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

(R) The manufacturer of the product shall supply all samples for required tests and shall be responsible for all required tests. 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: 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 acceptance tests and shall be performed on each lot.

4.2.2 Preproduction Tests: All technical requirements, except shelf life, are preproduction tests and shall be performed prior to or on the initial shipment of tape to a purchaser, when a change in ingredients and/or processing 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, contracting officer, or request for procurement.

4.3 Sampling and Testing:

(R) Shall be in accordance with ASTM D 3715, except when 4.3.2 applies.

4.3.1 A lot shall be all tape produced in a single production run from the same
(R) batches of raw materials under the same fixed conditions and presented for manufacturer's inspection at one time.

4.3.2 A statistical sampling plan, acceptable to purchaser, may be used in lieu
(R) 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 Manufacturer 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. If necessary to make any change in type of equipment for processing, ingredients, or manufacturing procedures, manufacturer shall submit for reapproval a statement of the proposed changes in ingredients and/or processing 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 Edge Seepage, Class 3 only: Clean a 6 x 12 inch (150 x 305 mm) double-strength, ground-edge glass panel in accordance with ASTM D 3330 or ASTM D 3330M. Remove three outer laps of tape from the sample roll. From a freely rotating roll remove a strip of tape at least 12 inches (305 mm) long. Apply the strip to the glass panel along, and 1/2 inch (12.7 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 inch (12.7 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

4.5.1 (Continued):

area appropriate for paint spraying. Spray with black acrylic lacquer, or equivalent, holding the nozzle of the spray can about 9 inches (229 mm) from the panel. Direct two wet coats of lacquer (one back-and-forth pass) toward the top edge of the top specimen on the panel. Start and finish each panel about 3 inches (76 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 minutes ± 0.5 and examine the adhesive side of the specimens through the glass to determine compliance with 3.2.5 for edge seepage.

4.5.2 Compatibility: Spray a suitable primed panel at least 8 inches (203 mm) square with a thin coat of white MIL-C-83286 polyurethane paint. Air dry for 15 to 30 minutes and apply a wet coat of the polyurethane to a total dry thickness of not less than 0.002 inches (0.05 mm). Air dry for not less than 24 hours at 27 °C (81 °F) or above. For Class 3 tape apply a specimen, 18 inches (457 mm) in length, to the painted side of the panel, using firm finger pressure, to form an arc of a circle with a 7-inch (178-mm) radius. Take care not to wrinkle or excessively stretch the tape. For Classes 1 and 2 tapes, apply a 12-inch (305-mm) length with firm finger pressure, taking care not to wrinkle the tape. Fold excess tape onto back of test panel. The tape and panel shall be overcoated as described above with dark colored (insignia blue recommended) MIL-C-83286 polyurethane. The overcoat of polyurethane shall be applied within 3 hours of application of the tape to the white polyurethane coated panel. Air dry for 3 to 8 hours. Remove the tape specimen by beginning removal at one corner and pulling up and away at an angle of 45 degrees from the edge selected for evaluation. Remove the entire specimen. Examine the panel for compliance with the compatability requirement of 3.2.6.

4.6 Reports:

The supplier of tape shall furnish with each shipment a report showing the results of tests to determine conformance to the acceptance test requirements and stating that the tape conforms to the other technical requirements. This report shall include the purchase order number, lot number, AMS 3808A, type number, manufacturer's identification, and quantity.

4.7 Resampling and Retesting:

(R) If any specimen used in the above tests fails to meet the specified requirements, disposition of the tape may be based on the results of testing three additional specimens for each original nonconforming specimen. Failure of any retest specimen to meet the specified requirements shall be cause for rejection of the tape represented. Results of all tests shall be reported.