



AEROSPACE MATERIAL SPECIFICATION

AMS3255™**REV. C**

Issued 1995-12
Reaffirmed 2000-08
Revised 2026-01

Superseding AMS3255B

(R) Sealing Tape, Sheet, or Gasket, Polytetrafluoroethylene, Expanded (ePTFE),
Oil and Water Resistant

RATIONALE

AMS3255C incorporates the following changes: Deletes Class 3 as no manufacturer makes the product (Class is reserved for future use); moves Shelf Life verbiage to align with other specification locations and adds note that shelf life extension testing may be done by end user, supplier, or test laboratory; references AS5127 for alternative fluid allowance for AMS3021 and adds reference fluid (AMS3020) for MIL-PRF-83282; upgrades Type 1 to higher temperature of Type 2 (differences in Type only density or WPA); adds note that dimensions are for base material alone and adhesive backing will add to overall thickness; removes references to "die cutting" as it is only one option for generating gasket shapes; adds recommended nonmetal fastener P/N; and clarifies number of specimens for corrosion testing. Other editorial changes made as necessary.

1. SCOPE

1.1 Form

This specification establishes the requirements for an expanded polytetrafluoroethylene (ePTFE) in the form of sealing tape, gaskets, or sheets requiring no mixing or curing.

1.2 Application

Classes 1, 2, and 4 sealing tapes have been used typically for sealing aircraft access panels, pressure barriers, and mold line surface close-out panels where gaskets are required. Class 5 sealants have been used for sealing aircraft fuel access panels, fuel pressure barriers, and mold line surface close-out panels where sealants with resistance to continuous exposure to fuel is required. For all classes, usage is not limited to applications identified. These sealant tapes are resistant to aircraft fuels, fluids, and lubricants, and they are capable of withstanding exposures to the temperatures in Table 1.

Table 1 - Temperature capability by class

Class	Temperature Capability
Classes 1, 2, and 4	Long-term exposure from -100 to 500 °F (-73 to 260 °C) with short-term exposures up to 600 °F (315 °C)
Class 5, Types 1 and 2	Long-term exposure from -85 to 356 °F (-65 to 180 °C) with short-term exposure up to 390 °F (199 °C)

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1.3 Classification

Sealing tapes are classified in Table 2.

Table 2 - Classifications

Class		Type		Form and Grade
Class 1	Continuous, Ribbed	Type 1	Standard Sealant Tape	Table 4
Class 2	Continuous, Non-Ribbed	Type 1	Standard Strength Sealant Tape	Table 5
		Type 2	High-Strength Sealant Tape	Table 6
Class 3	Reserved for Future Use	N/A	N/A	N/A
Class 4	Gasket Material	Type 1	Standard Strength Gasket Material	Table 7
		Type 2	High-Strength Gasket Material	Table 8
Class 5	Fuel-Sealing Material	Type 1	Gasket or Sheet (by Thickness)	Table 9
		Type 2	Continuous Tape, Gasket, or Sheet (by Weight per Area)	Table 10

1.4 Safety - Hazardous Materials

Shall be in accordance with AS5502 (1.1).

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

Shall be in accordance with AS5502 (Section 2).

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (U.S. and Canada only) or +1 724-776-4970 (outside U.S. and Canada), www.sae.org.

AMS1424	Fluid, Aircraft Deicing/Anti-Icing, SAE Type I
AMS2629	Fluid, Jet Reference
AMS3020	Oil, Reference, for "L" Stock Rubber Testing
AMS3021	Fluid, Reference, for Testing Di-Ester (Polyol) Resistant Material
AMS3400	Fluid, Reference, for Testing Polyalphaolefin (PAO) Resistant Material
AMS4045	Aluminum Alloy Sheet and Plate, 5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr, 7075: (-T6 Sheet, -T651 Plate), Solution and Precipitation Heat Treated

AMS4377	Magnesium Alloy, Sheet and Plate, 3.0Al - 1.0Zn - 0.20Mn (AZ31B-H24), Cold Rolled, Partially Annealed
AMS4911	Titanium Alloy, Sheet, Strip, and Plate, 6Al - 4V, Annealed
AMS-M-3171	Magnesium Alloy, Processes for Pretreatment and Prevention of Corrosion on
AS5127	Aerospace Standard Test Methods for Aerospace Sealants, Methods for Preparing Aerospace Sealant Test Specimens
AS5127/1	Aerospace Standard Test Methods for Aerospace Sealants, Two-Component Synthetic Rubber Compounds
AS5502	Standard Requirements for Aerospace Sealants and Adhesion Promoters

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D792	Standard Test Methods for Specific Gravity (Relative Density) and Density of Plastics by Displacement
ASTM D3776	Standard Test Method for Mass Per Unit Area (Weight) of Fabric
ASTM F152	Standard Test Methods for Tension Testing of Nonmetallic Gasket Materials

2.3 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

MIL-PRF-23377	Primer Coatings: Epoxy, High-Solids
MIL-PRF-85582	Primer Coatings: Epoxy, Waterborne
MS51967	Nut, Plain, Hexagon-Carbon Steel, Cadmium Plated, UNC-2B

2.4 AIA Publications

Available from Aerospace Industries Association, 1000 Wilson Boulevard, Suite 1700, Arlington, VA 22209-3928, Tel: 703-358-1000, www.aia-aerospace.org.

NASM90725	Screw, Cap, Hexagon Head (Finished Hexagon Bolt), Steel, Grade 5, Cadmium Plated, UNC-2A
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2.5 PRI Publications

Available from Performance Review Institute, 161 Thorn Hill Road, Warrendale, PA 15086-7527, Tel: 724-772-1616, www.p-r-i.org.

PRI-QPL-AMS3255	Products Qualified Under AMS3255
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3. TECHNICAL REQUIREMENTS

3.1 Material

Sealing tapes, gaskets, and sheets shall be fabricated from virgin expanded polytetrafluoroethylene (ePTFE). To improve physical, mechanical, and/or fluid resistance properties identified by the various classes of sealant tape, the manufacturer may use mechanical or chemical modification of the PTFE. The sealant tapes and gaskets may be applied using a double-sided, pressure-sensitive adhesive tape, a separate adhesive, or without adhesive.

3.1.1 Color

Shall be gray or white and may exhibit varied color within the product.

3.2 Date of Packaging

Shall be in accordance with AS5502 (3.1). For sealant tapes supplied with double-sided, pressure-sensitive adhesive, the manufacturer shall provide adhesive shelf life requirements and comply with the packaging and retesting instructions of AS5502.

3.3 Toxicological Formulations

Shall be in accordance with AS5502 (3.2).

3.4 Quality

The sealing tapes, gaskets, or sheets, as received by the purchaser, shall visually appear smooth and uniform (except for color per 3.1.1). The surface shall have no irregularities, such as wrinkles, creases, cracks, or gouges, visible to the naked eye and shall be free from imperfections detrimental to usage of the material.

3.5 Shelf Life

When stored in accordance with manufacturer instructions, sealing tapes, gaskets, or sheets without adhesive shall have a minimum 10-year shelf life, while products with adhesive-backing shall have a minimum 2-year shelf life. The shelf life of adhesive-backed material may be extended per the shelf life extension test in 4.6.7.

3.6 Properties

The sealing tape, gaskets, and sheets, when stored in accordance with manufacturer instructions, shall conform to the requirements shown in Table 3, determined in accordance with specified test methods.

Table 3 - Properties

Paragraph	Property	Requirement	Test Method
3.6.1	Density Classes 1, 2, and 4 Class 5, Type 1 Class 5, Type 2	0.4 to 1.2 g/cc 0.8 to 1.4 g/cc N/A	AMS3255 (see 4.6.1) ASTM D792
3.6.2	Weight per Unit Area (WPA), Class 5, Type 2 only	See Table 10	ASTM D3776
3.6.3	Corrosion Resistance	No evidence of corrosion under tape or in center of specimen	AMS3255 (see 4.6.2) AS5127/1 (7.10.3)
3.6.4	Tensile Strength, Bulk, minimum Class 2, Type 1 Class 2, Type 2 and Class 4, Type 2 All other Classes, Types, and Forms	500 psi (3.44 MPa) 1300 psi (9.0 MPa) 1000 psi (6.9 MPa)	AMS3255 (see 4.6.3) ASTM F152, Method C
3.6.4.1	Standard Conditions as in 4.5.1		
3.6.4.2	Standard Heat Cycle as in Table 15		
3.6.4.3	72 hours in AMS3021 ⁽¹⁾ at 140 °F (60 °C)		
3.6.4.4	72 hours in AMS3400 ⁽¹⁾ at 140 °F (60 °C)		
3.6.4.5	72 hours in AMS1424 at 140 °F (60 °C)		
3.6.4.6	72 hours in AMS2629 at 180 °F (82 °C)		
3.6.5	Low-Temperature Flexibility	No evidence of cracking	AMS3255 (see 4.6.5)
3.6.6	Fuel Sealability, Class 5 only	No fluid leakage or loss of pressurization	AMS3255 (see 4.6.6)
3.6.7	Repairability, Class 5 only	No fluid leakage or loss of pressurization	AMS3255 (see 4.6.7)

⁽¹⁾ AMS3020 and AMS3021 alternatives may be used in accordance with AS5127 (7.3).

3.7 Sizes and Tolerances

All thicknesses listed are for the base material. Adhesive will add thickness to the overall material and is dependent on the adhesive type and thickness per customer specification

3.7.1 Class 1 Continuous Ribbed Sealing Tape

Tape shall conform to Figure 1 and shall be supplied in the sizes and to the tolerances shown in Table 4.

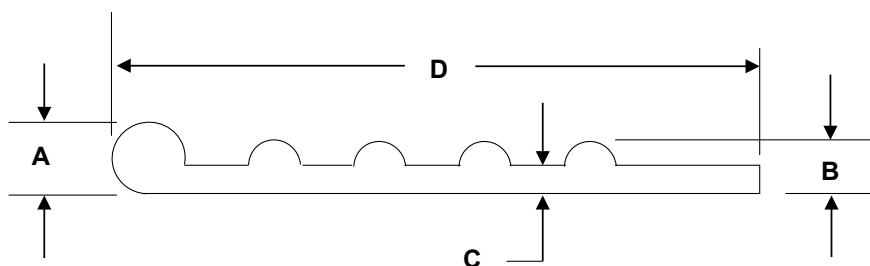


Figure 1 - Class 1, continuous ribbed sealing tape