



AEROSPACE MATERIAL SPECIFICATION

AMS3277™**REV. M**Issued 1995-04
Revised 2026-05

Superseding AMS3277L

Sealing Compound, Polythioether Rubber,
Fast Curing for Integral Fuel Tanks and
General Purpose, Intermittent Use to 360 °F (182 °C)

RATIONALE

Correction of editing error in 4.3.3.2 (Time and Limits of Shelf Life Extension) and change reference for Appearance in Table 4 (Shelf Life) from 3.1 (Material) to 3.4 (Quality) to assess condition of sealant for shelf life extension.

1. SCOPE

1.1 Form

This specification covers polythioether rubber fuel-resistant sealing compounds supplied as a two-component system that cures at room temperature.

1.2 Application

This product is intended for use in aircraft integral fuel tanks for repair of fillet and fastener seals and faying surface seals as well as initial sealing of faying surfaces, overcoating of fasteners, and sealing of seams and joints for service from -80 to +320 °F (-62 to +160 °C), with short-term recurring exposures (approximately 6 hours) up to 360 °F (182 °C), but usage is not limited to such applications. This product is not recommended for use on aircraft windshields or canopies or other applications where crazing or degradation of plastic components may occur. Sealing compound should be applied at temperatures above 50 °F (10 °C) but will cure at lower temperatures.

1.2.1 Notice

This material is mix-ratio sensitive and will cure at temperatures as low as 20 °F (-7 °C). Normal mix/freeze operations used with polysulfide sealants are not adequate as this material requires lower freezer storage temperature (see 3.5.1) for mix/frozen material.

1.3 Classification

Sealing compounds covered by this specification are classified as follows:

Type 1 Sealing compound requiring an adhesion promoter for proper adhesion. An adhesion promoter is supplied with Type 1 material and must be applied prior to the sealing compound.

Type 2 Sealing compound not requiring an adhesion promoter for proper adhesion.

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1.3.1 Grades

The material shall be supplied in the following grades:

- Grade 1 - Cured specific gravity of 1.35 to 1.50
- Grade 2 - Cured specific gravity of 1.16 to 1.34
- Grade 3 - Cured specific gravity of 1.15, maximum

NOTE: Grade 3 material should not be used for sealing of fay joints.

1.3.2 Classification

Both Type 1 and Type 2 sealing compounds may be supplied in the following classes:

Class A - Suitable for brush application. Available with the following application times:

- A-1/4
- A-1/2
- A-1
- A-2

Class B - Suitable for application by extrusion gun or spatula. Available with the following application times:

- B-1/4
- B-1/2
- B-2
- B-4
- B-6
- B-12

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: 1-877-606-7323 (U.S. and Canada only) or 1-724-776-4970 (outside U.S. and Canada), www.sae.org.

AMS2629	Fluid, Jet Reference
AMS3023	Fluid, Reference for Testing Polyol Ester (and Diester) Resistant Material
AMS3276	Sealing Compound, Integral Fuel Tanks and General Purpose, Intermittent Use to 360 °F (182 °C)
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

AMS4049	Aluminum Alloy, Sheet and Plate, Alclad, 5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr (Alclad 7075; -T6 Sheet - T651 Plate), Solution and Precipitation Heat Treated
AMS4911	Titanium Alloy, Sheet, Strip, and Plate, 6Al - 4V, Annealed
AMS5516	Steel, Corrosion-Resistant, Sheet, Strip, and Plate, 18Cr - 9.0Ni (302), Solution Heat Treated
AMS-C-27725	Coating, Corrosion-Preventative, for Aircraft Integral Fuel Tanks for Use to 250 °F (121 °C)
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 U.S. Government Publications

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

MIL-PRF-23377	Primer Coating, Epoxy High Solids
MIL-PRF-83282	Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base Metric, NATO Code Number H-537
MIL-PRF-85285	Coating, Polyurethane, Aircraft and Support Equipment
MIL-PRF-85582	Primer Coatings: Epoxy, Waterborne

2.3 PRI Publications

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

OP 2007 Appendix G9	Additional Requirements for the Aerospace Sealants and Associated Materials (G9) QPG
PRI-QPL-AMS3277	Products Qualified Under AMS3277

2.4 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 D4214	Standard Test Method for Evaluating the Degree of Chalking of Exterior Paint Films
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3. TECHNICAL REQUIREMENTS

3.1 Materials

The basic ingredient shall be polythioether synthetic rubber. The sealing compound shall cure by the addition of a curing agent to the base compound and shall not depend on solvent evaporation for curing. The compound shall contain no lead compounds. The curing agent shall possess enough color contrast to the base compounds to permit easy identification of an unmixed or incompletely mixed sealing compound. Neither the base compound nor the cured sealant shall be red or pink in color.

3.2 Date of Packaging

Shall be in accordance with AS5502, 3.1.

3.3 Toxicological Formulations

Shall be in accordance with AS5502, 3.2.

3.4 Quality

Shall be in accordance with AS5502, 3.3.

3.5 Shelf Life

Shelf life shall be a minimum of 9 months from the date of packaging when stored between 60 and 80 °F (16 and 27 °C). Material may be retested for shelf life extension per 4.3.3.

3.5.1 Premixed and Frozen Material

Premixed and frozen material shall have a minimum storage life of 30 days at -80 °F (-62 °C) or lower from date of mix/freeze. The date of mix/freeze shall be within the shelf life of the unmixed material.

3.6 Properties

The sealing compound, when mixed in accordance with the manufacturer's instructions and cured as in 4.5.4.5, shall conform to the requirements shown in Table 1, determined in accordance with specified test methods.

Table 1 - Properties

Paragraph	Property	Requirement	Test Method
3.6.1	Nonvolatile Content, (% by weight), minimum Class A Class B	84% 96%	AS5127/1, 5.1
3.6.2	Viscosity of Base Compound Class A Class B	100 to 600 poises (10 to 60 Pa·s) 9000 to 18000 poises (900 to 1800 Pa·s)	AS5127/1, 5.3 Use No. 6 spindle at 10 rpm Use No. 7 spindle at 2 rpm
3.6.3	Flow Class B, maximum	0.75 inch (19.0 mm)	AS5127/1, 5.5.1
3.6.4	Application Time, minimum		AS5127/1, 5.6
3.6.4.1	Class A - From the beginning of mixing, the viscosity shall not exceed 2500 poises. (250 Pa·s). A-1/4 A-1/2 A-1 A-2	1/4 hour 1/2 hour 1 hour 2 hours	AS5127/1, 5.6.1 Use No. 7 spindle at 10 rpm
3.6.4.2	Class B - From the beginning of mixing, not less than 15 g per minute shall be extruded. B-1/4 B-1/2 B-2 B-4 B-6 B-12	1/4 hour 1/2 hour 2 hours 4 hours 6 hours 12 hours	AS5127/1, 5.6.2
3.6.5	Tack Free Time (measured from the beginning of mixing), maximum		AS5127/1, 5.8