



AEROSPACE MATERIAL SPECIFICATION

AMS3379™**REV. A**

Issued	2013-04
Reaffirmed	2018-07
Stabilized	2023-08

Superseding AMS3379

Sealing Compound, Polysulfide Rubber Performed Strips
for Sealing Removable Doors, Skins, and Panels

RATIONALE

Committee decided at the Spring 2023 meeting to stabilize AMS3379.

STABILIZED NOTICE

AMS3379A has been declared "STABILIZED" by SAE AMS Committee G9, Aerospace Sealing Committee, and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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1. SCOPE

1.1 Form

This specification establishes the requirements for a polysulfide sealing compound in putty consistency to be used for form-in-place sealing of removable doors, skins, and panels.

1.2 Application

This sealing compound is for use in preparation of form-in-place gaskets for removable doors, skins, and panels, but usage is not limited to such applications. It can also be used for sealing of gaps, joints or other areas where conventional wet sealing compounds may be used. This room temperature curing sealing compound strip is applicable for fuel-wetted and non-fuel-wetted form-in-place gaskets. This material is usable from -65 to 250 °F (-54 to 121 °C) with short term exposure (approximately six hours) to 360 °F (182 °C).

This sealing compound is delivered frozen in preformed strips for use. It provides a one-hour work life when thawed, exhibiting the consistency of a workable putty, and cures to a resilient seal at room temperature that is resistant to common aircraft fuels and fluids.

1.3 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.

2.1 SAE Publications

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

AMS2471 Anodic Treatment of Aluminum Alloys Sulfuric Acid Process, Undyed Coating

AMS2629 Fluid, Jet Reference

AMS3100	Adhesion Promoter, for Polysulfide Sealing Compounds
AMS3276	Sealing Compound, Integral Fuel Tanks and General Purpose, Intermittent Use to 360 °F (182 °C)
AMS3277	Sealing Compound, Polythioether Rubber Fast Curing for Integral Fuel Tanks and General Purpose, Intermittent Use to 360 °F (182 °C)
AMS4045	Aluminum Alloy Sheet and Plate, 5.6Zn - 2.5Mg - 1.6 Cu - 0.23 Cr, 7075: (-T6 Sheet, -T651 Plate), Solution and Precipitation Heat Treated
AMS4911	Titanium Alloy, Sheet, Strip, and Plate, 6Al - 4V, Annealed
AMS-C-27725	Coating, Corrosion Preventative, for Aircraft Integral Fuel Tanks for Use to 250 °F (121 °C)
ARP1917A	Clarification of Terms Used in Aerospace Metals Specifications
AS5127	Methods for Testing Aerospace Sealants
AS5127/1	Aerospace Standard Test Methods for Aerospace Sealants, Two-Component Synthetic Rubber Compounds
AS5502	Standard Requirements for Aerospace Sealants

2.2 U.S. Government Publications

Available from DLA Document Services, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6396, <http://quicksearch.dla.mil/>.

MIL-PRF-23377 Primer Coatings: Epoxy, High-Solids

MIL-PRF-23699 Lubricating Oil, Aircraft Turbine Engine, Synthetic Base, NATO Code Number O-156

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 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 B117 Standard Practice for Operating Salt Spray (Fog) Apparatus

ASTM G85 Standard Practice for Modified Salt Spray (Fog) Testing

2.4 PRI Publications

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

PD 2000 Procedures for an Industry Qualified Product Management Process

PRI-QPL-AMS3379 Products Qualified Under AMS3379

3. TECHNICAL REQUIREMENTS

3.1 Materials

The basic ingredient used in the manufacture of the sealing compound shall be synthetic rubber of the polysulfide type. The material shall be supplied preformed and frozen. When thawed, it shall be an easily workable putty for direct application. The compound shall contain no lead compounds and shall be chrome-free. The compound shall not 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

The shelf life of this material shall be at least 60 days from date of packaging when stored at temperatures at or below -80 °F (-62 °C).

3.6 Properties

The sealing compound, when applied in accordance with manufacturer's instructions and cured as in 4.5.8, shall conform to the requirements shown in Table 1, determined in accordance with specified test methods:

TABLE 1 – Properties

Paragraph	Test Property	Requirement	Test Method
3.6.1	Specific Gravity, max.	1.65	AS5127/1 (6.1)
3.6.2	Nonvolatile Content, %, min.	97	AS5127/1 (5.1)
3.6.3	Application Time hour, min.	1	4.6.1
3.6.4	Tack Free Time, hours, max.	5	AS5127/1 (5.8)
3.6.5	Standard Cure Time (time to reach 30 Shore A) hours, max.	5	AS5127/1 (5.9)
3.6.6	Low Temperature Flexibility @ -65 °F ± 2 (-54 °C ± 1) ¹	No cracking, checking or loss of adhesion	4.6.2
3.6.7	Shear Strength, psi (kPa) min./% cohesive failure min		AS5127/1 (7.8)
3.6.7.1	Standard Cure ¹	100 (689)/95%	Substrates per Table 2
3.6.7.2	Standard cure plus AMS2629 (JRF) immersion, 7 days @ 140 °F (60 °C) ¹	60 (414)/95%	Substrates per Table 2
3.6.7.3	Standard cure plus MIL-PRF-83282 immersion, 48 hrs @ 140 °F (60 °C) ¹	60 (414)/95%	Substrates per Table 2

TABLE 1 – Properties (continued)

Paragraph	Test Property	Requirement	Test Method
3.6.7.4	Standard cure plus MIL-PRF-23699 immersion, 48 hours @ 140 °F (60 °C), followed by 24 hours @ 250 °F (121 °C) ¹	60 (414)/95%	Substrates per Table 2
3.6.7.5	Standard cure plus 3% NaCl immersion, 7 days @ 140 °F (60 °C), followed by 24 hours @ 250 °F (121 °C) ¹	60 (414)/95%	Substrates per Table 2
3.6.8	Corrosion Resistance ¹	No corrosion under sealing compound after stripping	AS5127/1 (7.9)
3.6.9	Resistance to Hydrocarbons		
3.6.9.1	Weight Loss/Gain, %, max.	8	AS5127/1 (7.4)
3.6.10	Repairability (Shear Strength), psi (kPa) min., % cohesive failure min.		(4.6.3)
3.6.10.1	Standard cure per 4.5.8. Apply repair sealing compound and cure per 4.5.8.		
	1. Sealing compound to itself ¹	100 (689)/95%	
	2. Sealing compound to AMS3276 Class B ¹	100 (689)/95%	
	3. Sealing compound to AMS3277 Ty 2 Class B ¹	100 (689)/95%	
3.6.10.2	Standard cure per 4.5.8 followed by AMS2629 immersion, 7 days @ 140 °F (60 °C). Dry for 24 hours @ 120 °F. Apply repair sealing compound and cure per 4.5.8.		
	1. Sealing compound to itself ¹	60 (414)/95%	
	2. Sealing compound to AMS3276 Class B ¹	60 (414)/95%	
	3. Sealing compound to AMS3277 Ty 2 Class B ¹	60 (414)/95%	
3.6.11	Resistance to Thermal Expansion	Sealing compound shall be flush with groove within +0.010 and -0.003 inch (+0.25 and -0.08 mm) at the wide end of the test block and within +0.005 and -0.003 inch (+0.13 and -0.08 mm) at the narrow end.	AS5127/1 (6.4) Standard Heat Cycle in accordance with 4.5.3

TABLE 1 – Properties (continued)

Paragraph	Test Property	Requirement	Test Method
3.6.12	Heat Reversion Resistance	The sealing compound shall not revert to a liquid or paste-like consistency, nor shall it become brittle or lose adhesion.	AS5127/1 (6.5) Standard Heat Cycle in accordance with 4.5.3
3.6.13	Hydrolytic Stability	Shore A 30 min	AS5127/1 (6.6)
3.6.14	Shaving and Sandability	No rolling or tearing of sealing compound, smooth finish	AS5127/1 (6.7)
3.6.15	Paintability	No separation from sealing compound	AS5127/1 (6.8)
3.6.16	Tensile Strength, psi, min and Elongation, %, min		AS5127/1 (7.7)
3.6.16.1	Standard Cure	150 psi (1034 kPa), 50% elongation	
3.6.17	Storage Stability		(4.6.4)
3.6.17.1	Nonvolatile Content	Same as 3.6.2	
	Application Time	Same as 3.6.3	
	Tack Free Time	Same as 3.6.4	
	Standard Cure Time	Same as 3.6.5	
	Shear Strength ¹	Same as 3.6.7 ²	

¹ Material shall be tested using AMS3100 adhesion promoter recommended by the manufacturer.

² Test only Standard Cure Requirements (3.6.7.1).

TABLE 2 – Shear STRENGTH SUBSTRATES

1	AMS4045 aluminum panel, sulfuric acid anodized per AMS2471, coated with AMS-C-27725
2	AMS4045 aluminum panel, sulfuric acid anodized per AMS2471, coated with MIL-PRF-23377
3	AMS4045 aluminum panel, sulfuric acid anodized per AMS2471, coated with MIL-PRF-85582
4	AMS4045 aluminum panel, sulfuric acid anodized per AMS2471, coated with MIL-PRF-85285
5	AMS4911 titanium panel, bare
6	AS4/3501-6 graphite/epoxy laminates

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

Shall be in accordance with AS5502 (4.1).

4.1.1 Source Inspection

Shall be in accordance with AS5502 (4.1.1).

4.1.2 Sampling and Testing

Shall be in accordance with AS5502 (4.1.2).

4.2 Classification of Tests

Shall be in accordance with AS5502 (4.2).

4.2.1 Qualification Tests

All technical requirements listed in Table 1 are qualification tests (See 8.2) and shall be performed on a production batch of the preformed and frozen sealing compound prior to shipment to a purchaser. When a change in ingredients and/or processing requires reapproval (See 4.4), the necessary testing to verify compliance will be determined by the applicable Qualified Products Group (QPG).

4.2.1.1 Qualification

All products sold to this specification shall be listed, or approved for listing, on the Qualified Products List, PRI-QPL-AMS3379 in accordance with PD 2000. The adhesion promoter used for qualification testing shall also be reported on the listing for informational purposes.

4.2.2 Initial Acceptance Tests

Requirements shown in Table 3 are initial acceptance tests and shall be performed on each batch of sealing compound prior to preform and freeze.

TABLE 3 - Initial Acceptance Tests

Test	Requirement Paragraph
Nonvolatile Content	3.6.2
Application Time	3.6.3
Tack Free Time	3.6.4
Standard Cure Time	3.6.5
Shear Strength	3.6.7 ¹

¹Test only Standard Cure Requirements

4.2.3 Final Acceptance Tests

Requirements shown in Table 4 are final acceptance tests and shall be performed on each lot of preformed and frozen sealing compound.

TABLE 4 - Final Acceptance Tests

Test	Requirement Paragraph
Application Time	3.6.3
Tack Free Time	3.6.4
Standard Cure Time	3.6.5

4.3 Sampling and Testing

Shall be in accordance with AS5502 (4.3)

4.3.1 Acceptance Tests

Shall be in accordance with AS5502 (4.3.1)

4.3.1.1 Batch and Lot

A batch shall be defined as the quantity of material run through a mill or mixer at one time. A lot shall be defined as material from one batch of each component assembled (packaged) as finished product in one size and packaged at the same time. The lot, when used, shall be traceable to the batches of base compound and curing agent.

4.3.1.2 Initial and Final Acceptance Tests

Each batch shall be subjected to both initial and final acceptance testing. After successful completion of the initial acceptance tests, the batch shall be released for final packaging. During packaging, test strips shall be selected at random for final acceptance testing. Final acceptance testing is to be conducted on the final packaged product.

4.3.1.3 If the batch is being packaged in different size packages, the final acceptance tests shall be conducted on each size package. If the sealing compound is being procured under different purchase orders, but the purchase orders call for the same type and size packages, it is only necessary to conduct the final acceptance tests one time.

4.3.1.4 Tests are to be conducted in accordance with test methods outlined herein for acceptance tests. If tests are being performed at the end of the stated shelf life to update the shelf life of the sealing compound, and all tests are passed, the shelf life will be extended an additional 30 days.

4.3.2 Qualification Test Samples

Samples should consist of enough sealing compound strips to perform all required tests and two 1-pint (1/2-L) containers of adhesion promoter.

Samples shall be identified as specified herein and below:

SEALING COMPOUND, POLYSULFIDE RUBBER PREFORMED STRIPS FOR SEALING REMOVABLE DOORS, SKINS,
AND PANELS AMS3379A _____
MANUFACTURER'S STRIP IDENTIFICATION _____
REQUIRED ADHESION PROMOTER _____
NAME OF MANUFACTURER _____
BATCH/LOT NUMBER _____
DATE OF PACKAGING _____
SHELF LIFE EXPIRATION DATE _____
STORE BELOW -80 °F (-62 °C) _____

4.4 Approval

Shall be in accordance with AS5502 (4.4).

4.5 Test Methods

4.5.1 Standard Tolerances

Unless otherwise specified herein, standard tolerances of AS5127 (3.1) shall apply.

4.5.2 Standard Test Conditions

Standard laboratory conditions shall be as specified in AS5127 (4). Test specimens shall be prepared and immediately after completion of preparation, shall be placed under 77 °F (25 °C) and 50% relative humidity $\pm$ 5 to cure according to 4.5.8. Except as otherwise directed herein, tests shall be performed at conditions in accordance with AS5127 (4).

4.5.3 Standard Heat Cycle

When directed herein, the following Standard Heat Cycle shall be applied to sealing compounds six times, cooling to less than 100 °F (38 °C) between cycles:

4 hours at 260 °F (127 °C), followed by
40 minutes at 320 °F (160 °C), followed by
1 hour at 360 °F (182 °C).