



AEROSPACE MATERIAL SPECIFICATION

AMS3284™**REV. D**Issued 1999-01
Revised 2024-05

Superseding AMS3284C

Sealing Compound, Low Adhesion, for Removable Panels
and Fuel Tank Inspection Plates

RATIONALE

Five-Year Review. Changed term "Curing" to "Cure Time to Hardness." Added additional informational clarifications.

1. SCOPE

1.1 Form

This specification covers a polysulfide sealing compound with low adhesive strength, supplied as a two-component system that cures at room temperature.

1.2 Application

This sealing compound is intended to be used for sealing aircraft access doors and accessories where gaskets are required, but usage is not limited to such applications. The sealing compound shall be resistant to jet fuels and high aromatic aviation gasolines. The sealing compounds are usable from -65 to 250 °F (-54 to 121 °C).

1.3 Classification

Sealing compounds covered by this specification are classified as follows:

1.3.1 Types

Type 1: Non-corrosion inhibiting

Type 2: Corrosion inhibiting

1.3.2 Classes

Class A - Suitable for brush application, available with the following application times in hours:

Class A-1/2

Class A-2

Class B - Suitable for application by extrusion gun or spatula, available with the following application times in hours:

Class B-1/2

Class B-2

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<https://www.sae.org/standards/content/AMS3284D>

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 (2).

2.1 SAE Publications

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

AMS2629	Fluid, Jet Reference
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
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 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-AMS3284 Products Qualified Under AMS3284

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

3. TECHNICAL REQUIREMENTS

3.1 Materials

The basic ingredient shall be synthetic rubber, made from liquid polysulfide and derivations thereof. The sealing compound shall cure by the addition of a separate curing agent to the base compound and shall not depend on solvent evaporation for curing. The material shall consist of corrosion inhibiting or non-corrosion inhibiting types, but neither shall contain lead or hexavalent chromium compounds as active corrosion inhibitors. The curing agent shall possess sufficient color contrast to the base compound to permit easy identification of an unmixed or incompletely mixed sealing compound. The cured sealant shall be red or pink in color. The base compound and the curing agent shall be of uniform blend and shall be free of skins, lumps, and gelled or coarse particles.

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

Packaged material shall have a minimum shelf life of 9 months from date of packaging when stored unopened at 80 °F (27 °C) or lower.

3.5.1 Premixed and Frozen Material

Premixed and frozen material shall have a minimum storage life of 30 days at -40 °F (-40 °C) or lower, or 10 days at -10 to -40 °F (-23 to -40 °C) from date of mix/freeze. Recommendations for longer storage lives at lower temperatures may be provided by the manufacturer. The date of mix/freeze shall be within the shelf life of the unmixed material.

3.6 Properties

The base compound by itself shall conform to the viscosity requirements in Table 1. The base compound and curing agent, when mixed in accordance with the manufacturer's instructions, shall conform to the technical requirements shown in Table 1, when determined in accordance with the specified test methods. Material cure conditions shall be in accordance with 4.5.3.4.

Table 1 - Properties

Paragraph	Property	Requirement	Standard Test Method (Paragraph)
3.6.1	Color	Reddish	Visual Examination
3.6.2	Specific Gravity, Maximum	1.65	AS5127/1 (6.1)
3.6.3	Nonvolatile Content By Weight, Minimum Class A Class B	84% 97%	AS5127/1 (5.1)
3.6.4	Viscosity of Base Compound Class A Class B	100 to 500 Poise (10 to 50 Pa•s) 6000 to 14000 Poise (600 to 1400 Pa)	AS5127/1 (5.3) Use No. 6 spindle at 10 rpm Use No. 7 spindle at 2 rpm
3.6.5	Flow (Class B only), Maximum	0.75 inch (19.0 mm)	AS5127/1 (5.5.1)
3.6.6	Application Time Class A Class B	2500 Poise (250 Pa•s), Maximum 15 g/min, Minimum	AS5127/1 (5.6) AS5127/1 (5.6.1) Use No. 7 spindle at 10 rpm AS5127/1 (5.6.2)
3.6.7	Tack-Free Time (Measured from the Beginning of Mixing), Maximum Class A-1/2 Class A-2 Class B-1/2 Class B-2	10 hours 24 hours 10 hours 24 hours	AS5127/1 (5.8)
3.6.8	Cure Time to Hardness - Time to Achieve 30 Type A Durometer Hardness, Minimum Class A-1/2 Class A-2 Class B-1/2 Class B-2	24 hours 72 hours 24 hours 72 hours	AS5127/1 (5.9)
3.6.9	Low-Temperature Flexibility	No Cracking or Checking	AS5127/1 (7.6)
3.6.10	Peel Strength, Maximum	4 lbf/inch (720 N/m), 98% Adhesive Failure, Minimum	AMS3284 (4.6.1)
3.6.11	Resistance to Heat	No Visual Evidence of Softening, Sponging, Checking, or Cracking	AMS3284 (4.6.2)
3.6.12	Accelerated Storage Stability		AS5127/1 (9.1)
3.6.12.1	Viscosity of Base Compound	Same as 3.6.4	
3.6.12.2	Application Time	Same as 3.6.6	
3.6.12.3	Tack-Free Time	Same as 3.6.7	
3.6.12.4	Cure Time to Hardness	Same as 3.6.8	
3.6.13	Weight Loss and Flexibility, Maximum	8% Weight Loss, No Cracking or Checking	AS5127/1 (7.4)
3.6.14	Corrosion, Mixed-Metal Assemblies (Type 2, Only)	No Evidence of Corrosion	AS5127/1 (7.10.2)

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 (4.3).

4.2 Classification of Tests

Shall be in accordance with AS5502 (4.2).

4.2.1 Qualification Tests

Shall be in accordance with AS5502 (4.2.1).

4.2.1.1 Qualification Requirements for Class B-2

Each type of sealing compound shall be qualified individually. For each type, Class B-2 shall be the first material that is qualified for each supplier of sealing compound. Class B-2 sealing compound shall be tested for and shall meet all technical requirements of this specification with the exception of requirements unique to other types, classes, or application times of the sealing compound.

4.2.1.2 Qualification of Subsequent Classes and Application Times

Once qualification for Class B-2 has been obtained, other classes of the sealing compound and application times of qualified classes may be qualified. The formulation for other classes, and for other application times of qualified classes, shall be the same as Class B-2 except for minor variations necessary for conformance to viscosity and application time requirements. All compounds shall meet all technical requirements of this specification. Other classes of the sealing compound need only to be tested to the initial acceptance tests listed in 4.2.2.1 plus all peel strength tests listed in Table 5, or as defined by the QPL agency. Application times of qualified classes need only to be tested to the initial acceptance tests listed in 4.2.2.1 or as defined by the QPL agency. Any unique qualification tests for the sealant's class and application time shall also be tested per OP 2007 Appendix G9.

4.2.2 Acceptance Tests

4.2.2.1 Initial Acceptance Tests

Requirements shown in Table 2 are initial acceptance tests and shall be performed on each batch in accordance with AS5502 (4.2.2.1).

Table 2 - Initial acceptance tests

Test	Requirement Paragraph
Color	3.6.1
Nonvolatile Content	3.6.3
Viscosity of the Base Compound ⁽¹⁾	3.6.4
Flow (Class B Only)	3.6.5
Application Time	3.6.6
Tack-Free Time	3.6.7
Cure Time to Hardness	3.6.8
Peel Adhesion on MIL-PRF-23377 ⁽²⁾	3.6.10 and 4.6.1

⁽¹⁾ For initial acceptance testing, testing is not required if material is provided in sectional-type containers or small size containers less than 8 ounces (235 mL).

⁽²⁾ For initial acceptance tests, sealant may be subjected to an accelerated cure per 4.5.3.4.

4.2.2.2 Final Acceptance Tests

Requirements shown in Table 3 are final acceptance tests and shall be performed on each lot in accordance with AS5502 (4.2.2.2).

Table 3 - Final acceptance tests

Test	Requirement Paragraph
Flow (Class B Only)	3.6.5
Application Time	3.6.6
Tack-Free Time	3.6.7
Cure Time to Hardness	3.6.8

4.3 Sampling and Testing

Shall be in accordance with AS5502 (4.3).

4.3.1 Qualification Tests

Samples shall be produced using production scaled equipment. Enough material shall be supplied to perform all required tests. Samples shall be identified as specified herein and below:

SEALING COMPOUND, LOW ADHESION, FOR REMOVABLE PANELS AND FUEL TANK INSPECTION PLATES

AMS3284D TYPE AND CLASS

MANUFACTURER'S IDENTIFICATION _____

BATCH/LOT NUMBER _____

DATE OF PACKAGING _____

SHELF LIFE EXPIRATION DATE _____

STORE BELOW 80 °F (27 °C)

4.3.2 For Acceptance Tests

Shall be in accordance with AS5502 (4.3.1).

4.3.2.1 Batch and Lot

Shall be in accordance with AS5502 (4.3.1.1).

4.3.2.2 Initial and Final Acceptance Tests

Shall be in accordance with AS5502 (4.3.1.2). Initial acceptance tests are those listed in Table 2. After successful completion of the initial acceptance tests, the batch shall be released for final packaging. Final acceptance tests are those listed in Table 3.

4.3.2.3 Final Acceptance Tests for Different Types and/or Size Containers

Shall be in accordance with AS5502 (4.3.1.3).

4.3.3 Shelf-Life Extensions

4.3.3.1 Shelf-Life Testing

The tests to be conducted for shelf-life extensions are listed in Table 4.

Table 4 - Shelf-life testing

Test	Requirement Paragraph
Viscosity of the Base Compound ⁽¹⁾	3.6.4
Application Time	3.6.6
Tack-Free Time	3.6.7
Cure Time to Hardness	3.6.8

⁽¹⁾ Testing is not required if material is provided in sectional-type containers or small size containers less than 8 ounces (235 mL).

4.3.3.2 Time and Limits of Shelf-Life Extensions

If the tests are being performed at the end of the stated shelf life to extend the shelf life of the sealing compound and all the tests passed, then the shelf life may be extended an additional 3 months. A maximum of three extensions are allowed.

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) "Standard Tolerances" shall apply.

4.5.2 Standard Conditions

Standard laboratory conditions shall be in accordance with AS5127 (4).

4.5.3 Preparation of Test Specimens

4.5.3.1 Cleaning and Surface Preparation of Test Panels

Panels shall be prepared, cleaned, surface treated, and coated in accordance with AS5127 (6) prior to application of sealant for testing.

4.5.3.2 Preparation of Sealing Compound

The sealing compound shall be prepared in accordance with AS5127/1 (4) "Preparation of Sealing Compound" and subparagraphs (4.1) "Qualification Testing," (4.2) "Acceptance Testing," and (4.3) "Thawing of Quick-Frozen Sealing Compound" as applicable.