

# AEROSPACE MATERIAL SPECIFICATION

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Superseding AMS 3374B

(R)

## Sealing Compound Aircraft Firewall

### 1. SCOPE:

#### 1.1 Form:

This specification covers six (6) types of sealing compounds curing to elastomeric materials.

#### 1.2 Application:

These products are used primarily for sealing aircraft firewall structures against passage of air, vapors, and flames but usage is not limited to such applications. The sealing compounds are effective at all temperatures from -65 to +400 °F (-54 to +204 °C) and are able to withstand flash temperatures of up to 2000 °F (1093 °C).

#### 1.3 Safety - Hazardous Materials:

Shall be in accordance with AS5502 (1.1)

#### 1.4 Classification:

Compounds covered by this specification are classified as follows:

Type 1 - One-part (or two part, pre-mixed, room temperature stable) high temperature silicone, condensation cured

Type 2 - Two-part high temperature silicone, addition cured

Type 3 - Two-part high temperature silicone, condensation cured

Type 4 - Two-part high temperature silicone, rapid curing, condensation cured

Type 5 - One-part high temperature silicone, condensation cured, extended life

Type 6 - Two-part high temperature silicone, lightweight, rapid curing, addition cured

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## 2. APPLICABLE DOCUMENTS:

The issue of the following documents in effect on the date of the purchase order form 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 canceled and no superseding document has been specified, the last published issue of that document shall apply.

### 2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 3021	Fluid, Reference for Testing Di-Ester (Polyol) Resistant Materials.
AMS 4911	Titanium Alloy Sheet, Strip, and Plate, 6Al4V, Annealed
AMS 5517	Wrought Corrosion and Heat Resistant Steel Alloy Sheet and Strip, 18Cr - 8Ni, Cold Rolled, 125,000 psi (862 MPa) Tensile Strength
AMS-QQ-A-250/5	Aluminum Alloy Alclad 2024, Plate and Sheet
AS1241	Fire Resistant Phosphate Ester Hydraulic Fluid for Aircraft
AS5127	Methods for Testing Aerospace Sealants (May 1997)
AS5127/1	Methods for Testing Aerospace Sealants, Two-Component Synthetic Rubber Compounds (May 1997)
AS5127/2	Test Method for Aerospace Firewall Sealant Flame Penetration
AS5502	Standard Requirements for Aerospace Sealants

### 2.2 ASTM Publications:

None.

### 2.3 U.S. Government Publications:

None.

## 3. TECHNICAL REQUIREMENTS:

### 3.1 Date of Packaging:

Shall be in accordance with AS5502 (3.1).

- 3.1.1 Shelf Life of materials conforming to Types 1-4, 6 shall be a minimum of 6 months when stored at manufacturer's recommended conditions. Shelf life of materials conforming to Type 5 shall be a minimum of 2 years when stored at manufacturers recommended conditions.

### 3.2 Toxicological Formulations:

Shall be in accordance with AS5502 (3.2).

## 3.3 Quality:

Shall be in accordance with AS5502 (3.3).

## 3.4 Properties:

Shall conform to the following requirements and test methods in Table 1.

Table 1 - Properties

Property		Requirement	Test Procedures (paragraph)
3.4.1	Nonvolatile Content, % min.		AS5127/1 (5.1)
	Type 1	90	
	Type 2, 6	97	
	Type 3	96	
	Type 4	96	
	Type 5	80	
3.4.2	Flow, inches (mm), max	0.5 (13)	AS5127/1 (5.5.1)
3.4.3	Application Time, hours, minimum (25 g/minute requirement)		AS5127/1 (5.6.2)
	Type 1, 5		
	Type 2, 3	Not applicable	
	Type 4	4	
	Type 6 (5 g/minute requirement)	0.5	
		0.5	
3.4.4	Tack-Free Time, hours, max.		AS5127/1 (5.8)
	Types 1, 3, 5	6	
	Type 2, 6	24	
	Type 4	2	
3.4.5	Specific Gravity, max		AS5127/1 (6.1)
	Types – 1, 3, 4, 5	1.5	
	Type 2	1.6	
	Type 6	0.85	
3.4.6	14-Day Hardness, Durometer A, min.		AS5127/1 (6.2)
	Types – 1, 2, 3, 5, 6		
	Type 4	50	
		45	
3.4.7	Resistance to Thermal Rupture, max. deformation, oven air aging at 300°F (149°C), 10 psi (69 kPa) 30 minutes	0.125-inch (3.2 mm) No blistering or sponging	AS5127/1 (7.2)1

Table 1 - Properties (cont.)

3.4.8 Low Temperature Flexibility	No cracking or loss of adhesion	AS5127/1 (7.6.2) 1
3.4.9 Oil Resistance	No loss of adhesion, softening, blistering or reversion.	AMS 3374 (4.3.4)
3.4.10 Shear Strength, psi (kPa) min. 85% Cohesion min. Type 1, 2, 3, 4, 5 Type 6	150 (1034) 100 ( 690)	AMS 3374 (4.3.5)
3.4.11 Corrosion Resistance	Not Applicable per AS5127/1 (fuel tank sealant requirements)	
3.4.12 Flame Resistance	No Flame Penetration	AS5127/2, Class B
3.4.13 Peel Strength, lbs./inch (N/m), min. Type 1, 2, 3, 4, and 5 Type 6	10 (1750) 5 ( 875)	AS5127/1 (8.1) 2
3.4.14 Repairability	Adhere, meet 3.4.13 requirements	AS5127/1 (8.2) 3
3.4.15 Storage Stability		
3.4.15.1 Accelerated Storage Type 2 only	Meet AMS 3374 (4.2.1) requirements	AS5127/1 (9.1) 4
3.4.15.2 Long Term Storage	Meet AMS 3374 (4.2.1) requirements	AS5127/1 (9.2) 5

1 Test control specimens only, no AMS 2629 exposure requirement.

2 Test using 2 each AMS-QQ-A-250/5 aluminum alloy chemically treated per AS5127 (6.1), AMS 4911 titanium alloy and AMS 5517 stainless steel panels only. Test control specimens and specimens aged in air at 400 °F (204 °C) for 72 hours ± 1.

3 Omit AMS 2629 fluid soak from panel preparation.

4 Use AS5127/1 (9.1) for sealing compound material conditioning only.

5 AS5127/2 compliant materials shall be tested per manufacturers recommendations.

#### 4. QUALITY ASSURANCE PROVISIONS:

##### 4.1 Responsibility for Inspection:

Shall be in accordance with AS5502 (4.1).

##### 4.2 Classification of Tests:

Shall be in accordance with AS5502 (4.2).

- 4.2.1 Batch Acceptance Tests: Tests for the following requirements are acceptance tests and shall be performed on each batch prior to final packaging:

Test	Requirement Paragraph
Nonvolatile content	3.4.1
Flow	3.4.2
Application time	3.4.3
Tack-Free time	3.4.4
14-Day Hardness	3.4.5
Shear Strength <sup>1</sup>	3.4.10
Peel Strength <sup>2</sup>	3.4.13

<sup>1</sup> Test only using AMS 4911 titanium substrate.

<sup>2</sup> Test only using AMS-QQ-A-250/5 aluminum alloy chemically treated per AS5127 (6.1) substrate. Omit for Type 2 material.

- 4.3 Sampling and Testing:

Shall be in accordance with AS5502 (4.3).

- 4.3.1 For Qualification Tests: Samples shall consist of six containers of sealing compound. Purchaser and manufacturer shall agree upon the container size. Samples shall be identified as specified below and forwarded to the activity responsible for qualification testing as designated in the letter of authorization from that activity.

SEALING COMPOUND, AIRCRAFT FIREWALL

AMS 3374C Type \_\_\_\_\_

Manufacturer's Identification: \_\_\_\_\_

Batch Number \_\_\_\_\_

Date of Manufacturer \_\_\_\_\_

Submitted by (name) (date) for qualification test in accordance with AMS 3374 under authorization (reference authorization letter)

- 4.3.2 Test Methods: Shall be in accordance with test methods shown in Table 1.

- 4.3.3 Cure of Sealant Compound: Cure the sealing compound at standard conditions in accordance with AS5127 (4) according to the schedule in Table 2. Use Standard Cure for qualification or preproduction testing. Accelerated Cure is optional and may be used for acceptance testing.

Table 2

Type	Standard Cure	Accelerated Cure
1, 3, 5	14 days	None
2, 6	7 days	1 day at standard conditions + 4 hours at 120 °F (49 °C)
4	7 days	None