



AEROSPACE MATERIAL SPECIFICATION

AMS3381™**REV. B**Issued 2014-05
Revised 2020-10

Superseding AMS3381A

Sealing Compound, Flame Resistant, Non-Silicone

RATIONALE

Revise specification deleting requirement for AS5127/2 flame tolerant testing. Update specification requirements for sealant flame resistant testing that include application, panel preparation, burner equipment and calibration, test procedures, and test reporting.

1. SCOPE

1.1 Form

This specification covers non-silicone synthetic rubber sealing compounds supplied as a two-component system that cures at room temperature.

1.2 Application

These products are used primarily for sealing aircraft 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 can withstand flash temperatures of up to 2000 °F (1093 °C). Sealants qualified to this specification are defined as flame resistant and can prevent flame penetration from incidental exposure to smaller fires. Users should evaluate their specific flame-resistant requirements prior to specifying any sealing compound. The ultimate determination of acceptability should be based on the ability of the sealant to withstand exposure to the flame without resulting in a condition that will further increase hazard to the aircraft. If it is intended to use these products for aircraft firewall structures, users are advised to evaluate their design to the applicable FAR requirements of FAA AC 20-135.

1.3 Classification

None.

1.4 Safety - Hazardous Materials

Shall be in accordance with AS5502 (1.1).

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Documents

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2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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
AMS3021	Fluid, Reference for Testing Di-Ester (Polyol) Resistant Material
AMS4462	Aluminum Alloy, Sheet and Plate, Alclad, 4.4Cu - 1.5Mg - 0.60Mn (Alclad 2024, -T3 Sheet, -T351 Plate), Solution Heat Treated, Cold Worked and Naturally Aged
AMS4911	Titanium Alloy, Sheet, Strip, and Plate, 6Al-4V, Annealed
AMS5517	Steel, Corrosion Resistant, Sheet and Strip, 18Cr-8Ni (301), Cold Rolled, 125 ksi (862 MPa) Tensile Strength
AS1241	Fire Resistant Phosphate Ester Hydraulic Fluid for Aircraft
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.pri-network.org.

PD2103	Aerospace Quality Assurance, Product Standards, Qualification Procedure, Sealants
PRI-QPL-AMS3381	Products Qualified under AMS3381

2.3 U.S. Government Publications

Available from the Document Automation and Production Service (DAPS), Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257. For FAA documents, go to www.faa.gov.

FAA AC 20-135	Powerplant Installation and Propulsion System Component Fire Protection Test Methods, Standards and Criteria
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3. TECHNICAL REQUIREMENTS

3.1 Materials

The basic ingredients shall not contain silicone compounds. The base compound and curing agent shall possess enough color contrast 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 of sealing compounds shall be a minimum of 12 months from date of packaging when stored below 80 °F (27 °C).

3.6 Properties

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

Table 1 - Properties

	Property	Requirement	Test Procedures (Paragraph)
3.6.1	Nonvolatile content (% by weight), min	65%	AS5127/1 (5.1)
3.6.2	Flow, max	1.5 inches (38 mm)	AS5127/1 (5.5.1)
3.6.3	Application time, min, not less than 15 g/min shall be extruded	1.5 hours	AS5127/1 (5.6.2)
3.6.4	Tack-free time, hours, max	24 hours	AS5127/1 (5.8)
3.6.5	Specific gravity, max	1.5	AS5127/1 (6.1)
3.6.6	Curing - time to achieve 30 Scale A durometer hardness, max	48 hours	AS5127/1 (5.9)
3.6.7	Resistance to thermal rupture, max deformation		AS5127/1 (7.2) ¹
3.6.7.1	Oven air aging at 400 °F ± 10 °F (204 °C ± 5 °C), 5 psi ± 0.5 psi (34 kPa), 15 minutes	0.125 inch (3.2 mm) No blistering or sponging	
3.6.7.2	Room temp test of 2000 °F flame-tested panel, max deformation	0.125 inch (3.2 mm)	
3.6.8	Low temperature flexibility	No cracking, checking, or loss of adhesion	AS5127/1 (7.6.1) ¹
3.6.9	Oil resistance	No loss of adhesion, softening, blistering or reversion	AMS3381 (4.5.1)
3.6.10	Corrosion resistance	No loss of adhesion, softening, blistering or leaching of the sealing compound or corrosion of the panel under the sealant	AMS3381 (4.5.2)