AEROSPACE MATERIAL SPECIFICATION

AMS-S-4383™ REV. C

Issued 1999-07
Revised 2021-06

Superseding AMS-S-4383B

Sealing Compound, Topcoat, Fuel Tank, Buna-N Type

RATIONALE

Five-Year Review.

1. SCOPE

1.1 Form

This specification covers one type of one-component, air-drying protective coating which cures at room temperature.

1.2 Application

This material is a one part compound designed as topcoat or barrier coating for integral fuel tank sealants and coatings but usage is not limited to such applications. It may also be used for temporary repair of aircraft fuel tanks using a “fill-and-drain” technique. It may also be used as a bonding agent for materials such as synthetic rubber, metals, glass, and many plastics.

1.2.1 Notice

The cured coating is resistant to exposure from both jet fuel and aviation gas; it is not suitable for use with motor fuels containing alcohols.

1.3 Safety - Hazardous Materials

Shall be in accordance with AS5502 (1.1).

2. APPLICABLE DOCUMENTS

Shall be in accordance with AS5502 (Section 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.

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
AMS-S-8802	Sealing Compound, Fuel Resistant, Integral Fuel Tanks and Fuel Cell Cavities

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

For more information on this standard, visit
https://www.sae.org/standards/content/AMS-S-4383C/

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

SAE J1966 Lubricating Oils, Aircraft Piston Engine (Non-Dispersant Mineral Oil)

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.

PRI-QPL-AMS-S-4383 Products Qualified Under AMS-S-4383

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 B36 Standard Specification for Brass Plate, Sheet, Strip, and Rolled Bar

ASTM D130 Standard Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test

ASTM D381 Standard Test Method for Gum Content in Fuels by Jet Evaporation

ASTM D471 Standards Test Method for Rubber Property - Effect of Liquids

ASTM D1005 Standard Test Method for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers

ASTM D4976 Standard Specification for Polyethylene Plastics Molding and Extrusion Materials

2.4 U.S. Government Publications

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

CCC-C-432 Cloth, Sheeting, Cotton, (Unbleached, Bleached, and Dyed)

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

3. TECHNICAL REQUIREMENTS

3.1 Materials

The compound covered by this specification shall be formulated from butadiene acrylonitrile copolymer and shall be colored red by the use of an oil soluble dye.

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

Shall be a minimum of 6 months from date of packaging when stored below 80 °F (27 °C). Shelf life shall be a minimum of 6 months if calculated from date of shipment in accordance with individual manufacturer policies and warranties. Independent of shelf life policy, every container shall clearly indicate start and/or expiration date of shelf life prior to shipment. Material may be tested for shelf life extension per 4.3.3.

3.6 Properties

The compound shall conform to the requirements shown in Table 1 when determined in accordance with the specified test methods.

Table 1 - Properties

Paragraph	Property	Requirement	Test Method
3.6.1	Nonvolatile Content (by weight)	17 to 24%	AS5127/1 (5.1)
3.6.2	Viscosity	250 to 2000 centipoise (0.25 to 2.0 Pa-S)	AS5127/1 (5.3) Use No.2 spindle at 10 rpm
3.6.3	Tack Free Time, max	4 hours	AMS-S-4383 (4.6.1)
3.6.4	Accelerated Storage Stability	No greater than ±10% viscosity change from original viscosity per 3.6.2; topcoat material shall not separate or gel	AS5127/1 (9.1)
3.6.5	Working Properties	-	AMS-S-4383 (4.5.4)
3.6.5.1	Film Quality	Brush and dip coats of the topcoat compound, shall be smooth, uniform, and free of sagging, bubbles, pinholes, cracks, and other film irregularities	
3.6.5.2	Film Thickness	0.0005 to 0.0030 inch (0.013 to 0.076 mm)	ASTM D1005, Procedure C and AMS-S-4383 (4.6.9)
3.6.5.3	Recoating	A coat of the topcoat compound when applied over an initial, freshly dried film of topcoat compound on a cured film of polysulfide sealing compound qualified to AMS-S-8802 shall show satisfactory bonding and no lifting, cracking, blistering, or loss of adhesion during handling	
3.6.6	Peel Strength, min	5 pounds force/inch (875 N/m) on AMS4049; 10 pounds force/inch (1750 N/m) on AMS-S-8802	AMS-S-4383, (4.6.8) and AS5127/1 (8.1)
3.6.7	Low Temperature Flexibility	No visual evidence of cracking, checking, or loss of adhesion	AMS-S-4383 (4.6.2) and AS5127/1 (7.6)
3.6.8	Resistance to Heat	No evidence of hardening, blistering, checking, cracking, shrinkage, loss of adhesion, or loss of flexibility	AMS-S-4383 (4.6.3)
3.6.11	Resistance to Salt Water and Hydrocarbons	No evidence of softening, blistering, leaching, corrosion, or loss of adhesion. Color leaching into hydrocarbon is permitted	AMS-S-4383 (4.6.4)
3.6.12	Resistance to Hot Oil	No evidence of cracking, flaking, or loss of adhesion	AMS-S-4383 (4.6.5)
3.6.13	Fuel Contamination	20 mg per 100 mL, max; no more than slight discoloration shall be present on a freshly polished copper strip	AMS-S-4383 (4.6.6)
3.6.14	Sealing Compound Protection	No evidence of appreciable leaching, change in hardness, flexibility, or signs of cracking in sealing compound; no evidence of cracking, checking, or loss of adhesion of topcoat compound	AMS-S-4383 (4.6.7)