SAE Aerospace
An SAE International Group

AEROSPACE MATERIAL SPECIFICATION

SAE AMS3281D

Issued 1994-11
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Superseding AMS3281C

Sealing Compound, Polysulfide (T) Synthetic Rubber for Integral Fuel Tank and Fuel Cell Cavities Low Density for Intermittent Use to 360 °F (182 °C)

RATIONALE

Added types to differentiate by specific gravity.

1. SCOPE

1.1 Form

This specification covers three types and three classes of fuel-resistant polysulfide (T) sealing compound with low specific gravity, supplied as a two-component system which cures at room temperature.

1.2 Application

This sealing compound has been used typically in sealing aircraft integral fuel tanks, fuel tank fillets and faying surfaces, pressure barriers and moldline surfaces, but usage is not limited to such applications. The sealing compound is resistant to jet fuels and is capable of withstanding long-term exposure from -65 to +250 °F (-54 to +121 °C) and short-term exposure (six hours) to 360 °F (182 °C).

1.3 Classification

Type 1 - Sealing compound with a specific gravity of 1.20 to 1.35.

Type 2 - Sealing compound with a specific gravity of 1.06 to 1.19.

Type 3 - Sealing Compound with a specific gravity of 1.05 or less.

1.3.1 Sealing compounds covered by this specification are classified by method of application and application times as follows:

Class A Suitable for application by brushing, injecting, or spraying. Available with the following application times in hours:

A-1/2
A-2

Class B Suitable for application by extrusion gun or spatula. Available with the following application times in hours:

B-1/2
B-2

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Class C Suitable for faying surface or shim sealing, brush coating, or wet installation. Available with the following application times in hours:

Notation: ( ) Assembly time in hours.

C-2(2)
C-8(24)
C-12(48)
C-48(168)
C-96(336)

1.4 Safety - Hazardous Materials

Shall be in accordance with AS5502 (1.1).

2. APPLICABLE DOCUMENTS

Shall be in accordance with AS5502 (2.).

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org.

AMS2471	Anodic Treatment of Aluminum Alloys, Sulfuric Acid Process, Undyed Coating
AMS2629	Fluid, Jet Reference
AMS3020	Oil, Reference, for “L” Stock Rubber Testing
AMS3021	Fluid, Reference, for Testing Di-Eester (Polyol) Resistant Material
AMS3100	Adhesion Promoter, for Polysulfide Sealing Compounds
AMS3276	Sealing Compound, Integral Fuel Tanks and General Purpose, Intermittent Use to 360 °F (182 °C)
AMS4045	Aluminum Alloy Sheet and Plate, 5.6 Zn - 2.5Mg - 1.6 Cu -0.23 Cr (7075 -T6 Sheet, -T651 Plate), Solution and Precipitation Heat Treated
AMS4049	Aluminum Alloy Sheet and Plate, Alclad, 5.6 Zn - 2.5Mg - 1.6 Cu -0.23 Cr (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 (SAE 30302) Solution Heat Treated
AMS-C-27725	Coating, Corrosion Preventive, Polyurethane for Aircraft Integral Fuel Tanks
AS5127	Methods for Testing Aerospace Sealants
AS5127/1	Methods for Testing Aerospace Sealants, Two-Component Synthetic Rubber Compounds
AS5502	Standard Requirements for Aerospace Sealants

2.2 U.S. Government Publications

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094 or http://assist.daps.dla.mil/quicksearch/.

MIL-PRF-23377	Primer Coatings: Epoxy Polyamide, Chemical and Solvent Resistant
MIL-DTL-81706	Chemical Conversion Materials for Coating Aluminum and Aluminum Alloys
MIL-PRF-85285	Coating, Polyurethane, High Solids
MIL-PRF-85582	Primer Coatings, Epoxy, Waterborne

2.3 PRI Publications

Available from PRI, 161 Thorn Hill Road, Warrendale, PA 15086-7527 or www.pri.sae.org.

PD 2000	Procedures for an Industry Qualified Product Management Process

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 curing agent shall possess sufficient color contrast to the base compound to permit easy identification of an unmixed or incompletely mixed sealing compound. Neither the base compound nor the cured sealing compound shall be red or pink in color. No glass fillers shall be used.

3.1.1 Qualification

All products sold to this specification shall be listed, or approved for listing, on the PRI qualified products list. The qualified products list shall be in accordance with PD 2000.

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 shall be a minimum of 9 months from the date of packaging. Material may be retested for shelf life extension.

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. The date of mix/freeze shall be within the shelf life of the unmixed material.

3.6 Properties

The sealing compound and the curing agent, when mixed in accordance with manufacturers' instructions and cured in accordance with 4.5.8, shall conform to all requirements shown in Table 1, determined in accordance with the specified test methods.

TABLE 1 - PROPERTIES

Paragraph	Property	Requirement	Test Procedures (Paragraph)
3.6.1	Nonvolatile Content, by weight, min		AS5127/1 (5.1)
	Class A	85%	
	Class B	92%	
	Class C	85%	
3.6.2	Viscosity of Base Compound		AS5127/1 (5.3)
	Class A	100 to 500 poises	
	(Use No. 6 spindle at 10 rpm)	(10 to 50 Pa•S)	
	Class B	7000 to 16 000 poises	
	(Use No. 7 spindle at 2 rpm)	(700 to 1600 Pa•S)	
	Class C	1000 to 4000 poises	
	(Use No. 6 spindle at 2 rpm)	(100 to 400 Pa•S)	

TABLE 1 - PROPERTIES (CON'T.)

Paragraph	Property	Requirement	Test Procedures (Paragraph)
3.6.3	Viscosity of Curing Agent (Use No. 7 spindle at 10 rpm)	400 to 1600 poises (40 to 160 Pa•S)	AS5127/1 (5.4)
3.6.4	Flow		AS5127/1 (5.5.1)
	Class B	0.05 to 0.75 inches (1.2 to 19.0 mm)	
	Class C, min	0.010 inch (0.25 mm)	
3.6.5	Application Time, min		AS5127/1 (5.6)
	Class A - From the beginning of mixing, the viscosity shall not exceed 2500 poise (250 Pa•S), (Use No. 7 spindle at 10 rpm)		AS5127/1 (5.6.1)
	A-1/2	1/2 hour	
	A-2	2 hours	
	(Application Time, continued)		
	Class B - From the beginning of mixing, not less than 15 grams per minute shall be extruded.		AS5127/1 (5.6.2)
	B-1/2	1/2 hour	
	B-2	2 hour	
	Class C - From the beginning of mixing, not less than 30 grams per minute shall be extruded		AS5127/1 (5.6.2)
	C-2(2)	2 hours	
	C-8(24)	8 hours	
	C-12(48)	12 hours	
	C-48(168)	48 hours	
	C-96(336)	96 hours	
3.6.6	Assembly Time, min (Class C only)		AS5127/1 (5.7)
	C-2(2)	N/A	
	C-8(24)	24 hours	
	C-12(48)	48 hours	
	C-48(168)	168 hours	
	C-96(336)	336 hours	
3.6.7	Tack-Free Time (Measured from beginning of mixing), hours, max		AS5127/1 (5.8)
	Class A-1/2	10	
	Class A-2	24	
	Class B-1/2	12	
	Class B-2	24	
	C-2(2)	24	
	C-8(24)	96	
	C-12(48)	N/A	
	C-48(168)	N/A	
	C-96(336)	N/A	
3.6.8	Standard Cure Time (time to reach 30 Durometer A), hours, max		AS5127/1 (5.9)
	A-1/2	30	
	A-2	72	
	B-1/2	32	
	B-2	72	
	C-2(2)	72	
	C-8(24)	168	
	C-12(48)	336	
	C-48(168)	8 weeks	
	C-96(336)	16 weeks	

TABLE 1 - PROPERTIES (CON'T.)

Paragraph	Property	Requirement	Test Procedures (Paragraph)
3.6.9	Fluid Immersion Cure Time, min (Class A-1/2 and B-1/2 only)		AS5127/1 (5.11)
	After 48 hours	25 Durometer A	
	After 120 hours	35 Durometer A	
3.6.10	Specific Gravity		AS5127/1 (6.1)
	Type 1	1.20 to 1.35	
	Type 2	1.06 to 1.19	
	Type 3	1.05 or less	
3.6.11	Heat Reversion Resistance, Class B and C only	The sealant shall not revert to a liquid or paste-like consistency, nor shall it become brittle or lose adhesion.	AS5127/1 (6.5)
3.6.12	Hydrolytic Stability	30 Durometer A	AS5127/1 (6.6)
3.6.13	Shaving and Sanding	No tearing of the sealant, smooth finish	AS5127/1 (6.7)
3.6.14	Paintability	No separation from sealant	AS5127/1 (6.8)
3.6.15	Weathering	No cracking, chalking, peeling or loss of adhesion	AS5127/1 (6.9)
3.6.16	Chalking	Slight	AS5127/1 (7.1)
3.6.17	Resistance to Thermal Rupture, max (Class A and B only), Oven air aging at 300 °F (149 °C), 10 psi (69 kPa), 30 minutes	0.156 inch (3.96 mm) No blistering or sponging	AMS3281 (4.6.1) and AS5127/1 (7.2)
3.6.18	Fluid Rupture Resistance, Class B-1/2 only	No pressure loss	AS5127/1 (7.3)
3.6.19	Weight Loss & Flexibility (Standard Cure)		AS5127/1 (7.4)
	Weight Loss, max	8%	
	Flexibility	No cracking or checking	
3.6.20	Volume Swell	5 to 20%	AS5127/1 (7.5)
3.6.21	Tensile Strength and Elongation, min (Classes B-1/2, B-2, C-2(2) only)		AS5127/1 (7.7)
3.6.22	Low Temperature Flexibility	No visual evidence of cracking or checking. No loss of adhesion.	AMS3281 (4.6.2) and AS5127/1 (7.6)
3.6.22.1	Standard Cure	200 psi (1379 kPa), 250% elongation	
3.6.22.2	Standard Cure + 12 days at 140 °F (60°C), + 60 hours at 160 °F (71 °C), + 6 hours at 180 °F (82 °C) all in AMS2629, Type I	125 psi (862 kPa), 100% elongation	
3.6.22.3	Standard Cure + 12 days at 140 °F (60 °C) + 60 hours at 160 °F (71 °C) + 6 hours at 180 °F (82 °C), all in AMS2629, Type I, + 24 hours at 120 °F (49 °C), + Standard Heat Cycle as in accordance with 4.5.3, in air	125 psi (862 kPa), 25% elongation	
3.6.22.4	Standard Cure +, Standard Heat Cycle as in 4.5.3	100 psi (689kPa), 25% elongation	

TABLE 1 - PROPERTIES (CON'T.)

Paragraph	Property	Requirement	Test Procedures (Paragraph)
3.6.22.5	Standard Cure +, 72 hours at Standard Conditions in AMS3021	125 psi (862kPa), 100% elongation	
3.6.22.6	Standard Cure +, 72 hours at Standard Conditions in AMS3020	125 psi (862 kPa), 100% elongation	
3.6.23	Shear Strength, min (Class C only),	200 psi (1379 kPa), 100% cohesive failure	AS5127/1 (7.8)
3.6.24	Corrosion Resistance	No corrosion under sealant or signs of deterioration	AS5127/1 (7.9)
3.6.25	Peel Strength, min	20 lbf/inch (3503 N/m) /100% cohesive failure	AMS3281 (4.6.3) and AS5127/1 (8.1)
3.6.26	Repairability, min	20 lbf/inch (3503 N/m) /100% cohesive failure	AMS3281 (4.6.4) and AS5127/1 (8.2)
3.6.27	Storage Stability		
3.6.27.1	Accelerated Storage		AS5127/1 (9.1)
	Viscosity of Base Compound	Same as 3.6.2	
	Viscosity of Curing Agent	Same as 3.6.3	
	Flow	Same as 3.6.4	
	Application Time	Same as 3.6.5	
	Assembly Time	Same as 3.6.6	
	Tack Free Time	Same as 3.6.7	
	Standard Cure Time	Same as 3.6.8	
	Peel Strength: 4 aluminum panels, sulfuric acid (AMS2471) and coated with AMS-C-27725 Type II, Class B (See 8.6): 2 panels in AMS2629 Type I; 2 panels in AMS2629 Type I / 3% saltwater; (All fluid soaks at 140 °F (60 °C) for 7 days)	20 lbf/inch (3503 N/m)/ 100% cohesive failure	AS5127/1 (8.1)
3.6.27.2	Long Term Storage		AS5127/1 (9.2)
	Application Time	Same as 3.6.5	
	Tack-Free Time	Same as 3.6.6	
	Standard Cure Time	Same as 3.6.8	

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

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 8.1) and shall be performed on the initial production of the sealing compound prior to shipment to a purchaser, when a change in ingredients and/or processing requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.1.1 Qualification

All products sold to this specification shall be listed, or approved for listing, on the PRI Qualified Products List. The qualified products list shall be in accordance with PD 2000: See AS5502 (2.1). Class B-2 shall be the first material that is qualified for each supplier of sealing compound in accordance with (8.2). 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 classes of the sealing compound.

4.2.1.2 Qualification of Subsequent Classes

Once qualification for Class B-2 has been obtained, other classes of the sealing compound may be qualified. The formulation for other classes and for other Class B application times 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. However, other classes of the sealing compound and other Class B application times need only to be tested to the initial acceptance tests listed in Table 2, plus all peel strength tests listed in Table 6, or as defined by purchaser or QPL agency.

4.2.2 Initial Acceptance Tests

Requirements shown in Table 2 are initial acceptance tests and shall be performed on each batch.

4.2.3 Final Acceptance Tests

Requirements shown in Table 3 are final acceptance tests and shall be performed on each lot.

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, including 4.3.1.1 through 4.3.2.6).

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 as finished product in one size and/or type of container at the same time. The lot, when used, shall be traceable to the batches of base compound and curing agent.

TABLE 2 - INITIAL ACCEPTANCE TESTS

Test	Requirement Paragraph
Nonvolatile Content	3.6.1
Viscosity of the Base Compound[1]	3.6.2
Viscosity of the Curing Agent[1]	3.6.3
Flow (Class B only)	3.6.4
Application Time	3.6.5
Assembly Time (Class C only)	3.6.6
Tack-Free Time	3.6.7
Standard Cure Time	3.6.8
Fluid Immersion Cure Time (Class A-1/2 and B-1/2 only)	3.6.9
Chalking	3.6.16
Resistance to Thermal Rupture (Class A and B only)	3.6.17
Weight Loss & Flexibility	3.6.19
Volume Swell	3.6.20
Shear Strength (Class C only)	3.6.23
Peel Strength (See 4.6.3.4)	3.6.25

[1] Testing not required on material packaged in sectionalized containers or small size containers less than eight ounces (235 mL).

TABLE 3 - FINAL ACCEPTANCE TESTS

Test	Requirement Paragraph
Application Time	3.6.5
Tack-Free Time	3.6.7
Standard Cure Time	3.6.8

4.3.1.2 Initial and Final Acceptance Tests

Each batch shall be subjected to both initial and final acceptance testing. Sufficient material for initial acceptance testing shall be packaged in the same type containers that are being procured. 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. During packaging, test kits shall be selected at random for final acceptance testing. Final acceptance testing is to be conducted on the final packaged product and consist of those tests outlined in Table 3.

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

4.3.1.4 Plastic Injection Kits

Shall be in accordance with AS5502 (4.3.1.3).

4.3.1.5 Cans, Pails, and Drums

Shall be in accordance with AS5502 (4.3.1.4).

4.3.1.6 Both Type Containers

Shall be in accordance with AS5502 (4.3.1.5).

4.3.2 Statistical Sampling Plan

When a statistical sampling plan has been agreed upon by the purchaser and supplier, sampling shall be in accordance with such plan in lieu of sampling as in 4.3.3 and the report for 4.7 shall state that such plan was used.

4.3.3 Qualification Test Samples

Samples shall be from a production batch of material. Enough material shall be supplied to perform all required tests.

Samples shall be identified as specified herein and below:

SEALING COMPOUND, POLYSULFIDE (T) SYNTHETIC RUBBER, FOR INTEGRAL FUEL TANK AND FUEL CELL CAVITIES, LOW DENSITY
FOR INTERMITTENT USE TO 360 °F (182 °C)
AMS3281 Type XX Class XX
MANUFACTURER'S IDENTIFICATION
BATCH/LOT NUMBER _____
DATE OF PACKAGING _____
SHELF LIFE EXPIRATION DATE _____
STORE BELOW 80 °F (27 °C) _____

4.3.4 Shelf Life Surveillance and Updating

4.3.4.1 Sampling

Shall be in accordance with AS5502 (4.1.2).

4.3.4.2 Shelf-Life Testing

The inspections to be conducted for shelf-life surveillance and updating are listed in Table 4.

TABLE 4 - SHELF-LIFE TESTING

Test	Requirement Paragraph
Appearance	3.1
Viscosity of Base Compound*	3.6.2
Viscosity of Curing Agent*	3.6.3
Application Time	3.6.5
Tack-Free Time	3.6.7
Standard Cure Time	3.6.8
Peel Strength (See 4.6.3.4)	3.6.25

* Not required for sectional-type containers.

4.3.4.3 Tests are to be conducted in accordance with test methods outlined in this specification for acceptance tests. If the 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 may be extended an additional three months. A maximum of three extensions are allowed.

4.4 Approval

Shall be in accordance with AS5502 (4.4).

4.4.1 Purchaser Approval

Shall be in accordance with AS5502 (4.4.1).

4.4.2 Methods of Inspection

Shall be in accordance with AS5502 (4.4.2).

4.5 Test Methods

4.5.1 Standard Tolerances

Unless otherwise specified herein, standard tolerances of AS5127 (3.1) “Standard Tolerances” 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 % ± 5 relative humidity 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 Standard Heat Cycle to which sealants shall be exposed shall consist of six cycles of exposures as follows:

4 hours at 250 °F (121 °C), followed by
40 minutes at 320 °F (160 °C), followed by
1 hour at 360 °F (182 °C).
Temperature shall be reduced to below 100 °F (38 °C) between cycles.

4.5.4 Preparation of Test Specimens

Test specimens shall be prepared in accordance with AS5127 (6.).

4.5.4.1 Cleaning of Test Panels

Test panels shall be cleaned in accordance with AS5127 (6.).

4.5.4.2 Preparation of Peel Strength Test Panels

Test panel preparation and testing shall be performed in accordance with AS5127/1 (8.) “Peel Strength Properties”, (8.1) “Peel Strength Testing” and (Figure 22) “Five-Inch Peel Specimen Configuration”.

4.5.5 Preparation of Sealing Compound

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”, (4.3) “Quick-Freezing of Sealing Compound”, and (4.4) “Thawing of Quick-Frozen Sealing Compound” as applicable.

4.5.6 Application of Adhesion Promoter

AMS4911, AMS5516, AMS-C-27725, MIL-PRF-85285 and MIL-PRF-85582 panels shall be treated with AMS3100 adhesion promoter in accordance with AS5127 (6.7) “Application of Adhesion Promoter”.

4.5.7 Application of Sealing Compound

Unless otherwise specified herein, freshly mixed sealing compound shall be applied to test panels in accordance with AS5127 (6.8) “Application of Sealing Compound”. For Class A material, a time equal to the application life shall be used between the three applications to permit release of solvents.

4.5.8 Curing of Sealing Compounds

Shall be in accordance with AS5127 (6.9) “Curing of Sealing Compounds.” For Qualification testing, Class A and B sealing compounds shall be cured for 14 days at Standard Conditions. For Acceptance testing, Class A and B sealing compounds may be given an accelerated cure for 48 hours at Standard Conditions followed by 24 hours at 140 °F (60 °C). For Qualification testing and Acceptance testing of Class C sealing compounds, accelerated cure shall be 48 hours at Standard Conditions, followed by the number of hours listed in Table 5 at 140 °F (60 °C) according to the sealing compound designation. Tests on the cured sealing compound shall commence not more than two days after the completion of the specified cure.

TABLE 5 - CLASS C ACCELERATED CURE TIMES

Sealing Compound	Hours at 140 °F (60 °C)
Class C-2(2)	24
Class C-8(24)	24
Class C-12(24)	24
Class C-48(168)	168
Class C-96(336)	336

4.6 Test Procedures

Standard Test Methods are in accordance with AS5127 and AS5127/1. In the event of a conflict between the text of this document and AS 5127 and/or AS5127/1, the text of this document takes precedence.

4.6.1 Resistance to Thermal Rupture

4.6.1.1 Resistance to Thermal Rupture shall be conducted in accordance with AS5127/1 (7.2). The air circulating oven shall be preset at 300 °F (149 °C) and the clamp fixture shall be placed in the oven at 10 psi +1, -0 (69 kPa +6.9, -0) for 30 minutes.

4.6.2 Low Temperature Flexibility

4.6.2.1 Low temperature flexibility shall be conducted in accordance with AS5127/1 (7.6). At the end of the standard cure in accordance with 4.5.8, two of the four panels shall be immersed in AMS2629, Type I at each of the following conditions 120 hours at 140 °F (60 °C) followed by 60 hours at 160 °F (70 °C) and 6 hours at 180 °F (80 °C). At the completion of the fluid exposures, the specimens shall be removed from the fluid. All four specimens shall be exposed to the standard heat cycle as in 4.5.3, after which all four panels shall be immediately placed in a low temperature flexibility fixture and tested in accordance with AS5127/1 (7.6).

4.6.3 Peel Strength

4.6.3.1 The type and quantity of panels listed in AMS3281, Table 6 shall be used for the evaluation of peel strength. All panels shall be 2.75 × 6 inches (69.8 × 152 mm). The thickness of the panels shall be as listed in Table 6. The panels shall be prepared in accordance with AS5127/1 (8.1). Sealing compound shall cover 5 inches (127 mm) of one side of the panel surface in accordance with AS5127/1 (Figure 22). When specified, AMS3100 adhesion promoter shall be applied per 4.5.6.

4.6.3.2 The sealing compound shall be cured in accordance with 4.5.8. At the end of the cure, panels of each substrate shall be subjected to the immersion media listed in Table 6. When 70-day exposures are specified, the fluid shall be changed every 14 days.

4.6.3.3 Fuel/Saltwater Heat Cycle

A total of six fuel/saltwater heat cycles shall be performed. Each cycle consists of 100 hours at 140 °F (60 °C) in AMS2629 Type I / 3% saltwater, followed by 10 hours at 160 °F (71 °C) in AMS2629 Type I / 3% saltwater, followed by 1 hour at 180 °F (82 °C) in AMS2629 Type I / 3% saltwater. After each cycle, the panels shall be cooled to room temperature and shall be directly transferred to fresh test fluid for each succeeding cycle.

4.6.3.4 Acceptance Test and Shelf-Life Testing (only)

For Acceptance and Shelf-Life testing, prepare two AMS4045 aluminum alloy panels measuring 0.040 x 2.75 × 6 inches (1.02 × 69.8 × 152 mm), sulfuric acid anodized in accordance with AMS2471, and coat with AMS-C-27725, Type II, Class B corrosion preventative coating (See 8.6). Apply sealing compound per AS5127/1 (Figure 22), cure sealing compound in accordance with 4.5.8, and age panels in AMS2629, Type I for 7 days at 140 °F (60 °C) prior to peel strength testing per AS5127/1 (8.1).

4.6.4 Repairability

4.6.4.1 Panels shall be prepared and tested in accordance with AS5127/1 (8.2) "Repairability", with the following exceptions. AMS4045 aluminum alloy panels measuring 0.025 to 0.040 × 2.75 × 6 inches (0.64 to 1.02 × 69.8 × 152 mm), shall be sulfuric acid anodized in accordance with AMS2471 and overcoated with AMS-C-27725, Type II, Class B corrosion preventative coating (See 8.6). Prepare two panels for the sealing compound being qualified to AMS3281, plus a sufficient number of test panels so that there are two panels for all Class B-2 sealing compounds that have already been qualified to AMS3281 and two panels for at least one material qualified to AMS3276.

4.6.5 Long Term Storage

Long Term Storage shall be conducted in accordance with AS5127/1 (9.2). The period of storage shall be 9 months.

4.7 Reports

Shall be in accordance with AS5502 (4.5.)

4.8 Resampling and Retesting

Shall be in accordance with AS5502 (4.6)

4.9 Qualification

Shall be in accordance with AS5502 (4.7)

TABLE 6 - PEEL STRENGTH PANELS

Quantity Required	Panel Thickness, Inch (mm)	Panel Material	Immersion Media at 140 °F (60 °C)
6	0.040 (1.02)	Al alloy AMS4049, chemical conversion coating per MIL-DTL-81706, Class 1A, Form II, Method C (See Note 1)	2 panels in AMS2629 Type I for 7 days 2 panels in AMS2629 Type I / 3% saltwater for 7 days 2 panels for Fuel/Saltwater Heat Cycle in accordance with 4.6.3.3
6	0.040 (1.02)	Al alloy AMS4045 sulfuric acid anodized per AMS2471	2 panels in AMS2629 Type I for 7 days 2 panels in AMS2629 Type I / 3% saltwater for 7 days 2 panels 2 panels for Fuel/Saltwater Heat Cycle in accordance with 4.6.3.3