

Submitted for recognition as an American National Standard

ADHESIVE/SEALANT, FLUOROSILICONE
Aromatic Fuel Resistant, One-Part
Room Temperature Vulcanizing

1. SCOPE:

- 1.1 Form: This specification covers a one-part fluorosilicone (FVMQ) adhesive/sealant, supplied in cartridges, suitable for extrusion and curing to an elastomeric material upon exposure to air. It also covers a compatible primer.
- 1.2 Application: For bonding cured fluorosilicone rubber and for sealing applications requiring resistance to fuels, oils, or solvents from -55° to +200°C (-65° to +400°F). This product should not be used for fay surface sealing or similar applications where exposure to air cannot be maintained. This product should not be used in thicknesses greater than 0.25 in. (6.2 mm), particularly in applications involving encapsulation.
- 1.3 Precautions: It has been found that materials meeting this specification do not adhere very well to corrosion resistant steel conforming to AMS 5516 or MIL-S-5059. Also, these materials liberate acetic acid during cure and proper precautions must be taken (See 8.1).
2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications shall apply. The applicable issue of other documents shall be as specified in AMS 2350.
- 2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

SAE Technical Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

AMS documents are protected under United States and international copyright laws. Reproduction of these documents by any means is strictly prohibited without the written consent of the publisher.

2.1.1 Aerospace Material Specifications:

- AMS 2350 - Standards and Test Methods
- AMS 2471 - Anodic Treatment of Aluminum Alloys, Sulfuric Acid Process, Undyed Coating
- AMS 2473 - Chemical Treatment for Aluminum Alloys, General Purpose Coating
- AMS 2825 - Material Safety Data Sheets
- AMS 3217/5 - Test Slabs, Fluorosilicone (FVMQ) 55 - 65
- AMS 3326 - Fluorosilicone Rubber, Fuel and Oil Resistant, 50 - 65
- AMS 4045 - Aluminum Alloy Sheet and Plate, 5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr (7075-T5)
- AMS 4049 - Aluminum Alloy Sheet and Plate, Alclad, 5.6Zn - 1.5Mg - 1.6Cu - 0.23Cr (Alclad 7075-T6 Sheet, -T651 Plate)
- AMS 4911 - Titanium Alloy Sheet, Strip, and Plate, 6Al - 4V, Annealed
- AMS 5516 - Steel Sheet, Strip, and Plate, Corrosion Resistant, 18Cr - 9.0Ni (SAE 30302)

2.2 ASTM Publications: Available from American Society of Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

- ASTM D297 - Rubber Products - Chemical Analysis
- ASTM D412 - Rubber Properties in Tension
- ASTM D471 - Rubber Property - Effect of Liquids
- ASTM D573 - Rubber - Deterioration in an Air Oven
- ASTM D2137 - Rubber Property - Brittleness Point of Flexible Polymers and Coated Fabrics
- ASTM D2240 - Rubber Property - Durometer Hardness
- ASTM D3182 - Rubber - Materials, Equipment, and Procedures for Mixing Standard Compounds and Preparing Standard Vulcanized Sheets

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Federal Specifications:

- QQ-A-250/4 - Aluminum Alloy 2024, Plate and Sheet
- QQ-A-250/12 - Aluminum Alloy 7075, Plate and Sheet
- QQ-A-250/13 - Aluminum Alloy Alclad 7075, Plate and Sheet
- TT-S-735 - Standard Test Fluids; Hydrocarbon

2.3.2 Military Specifications:

- MIL-S-5059 - Steel, Corrosion-Resistant (18-8), Plate, Sheet and Strip
- MIL-A-8625 - Anodic Coatings, for Aluminum and Aluminum Alloys
- MIL-T-9046 - Titanium and Titanium Alloy, Sheet, Strip and Plate
- MIL-C-27725 - Coating, Corrosion Preventive, for Aircraft Integral Fuel Tanks
- MIL-C-38334 - Corrosion Removing Compound, Prepaint, for Aircraft Aluminum Surfaces

2.3.2 (continued)

- MIL-C-38736 - Compound, Solvent, For Use in Integral Fuel Tanks
 MIL-C-81706 - Chemical Conversion Materials for Coating Aluminum and Aluminum Alloys
 MIL-C-87936 - Cleaning Compounds, Aircraft Exterior Surfaces, Water Dilutable

2.3.3 Military Standards:

- MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

3. TECHNICAL REQUIREMENTS:

3.1 Material: The adhesive/sealant shall be a one-part fluorosilicone (FVMQ) compound of caulking consistency capable of curing to an elastomeric material upon exposure to air at ambient conditions.

3.1.1 Storage Life: The adhesive/sealant shall meet the requirements of 3.2 and 3.3 after storage at not higher than 30°F (90°C) for up to 6 months from date of shipment from the manufacturer.

3.1.2 Primer: The adhesive/sealant requires the use of a one-part primer on most substrates to ensure acceptable adhesion. Such a primer shall be supplied by the adhesive/sealant vendor and it shall be the same primer used to qualify the adhesive/sealant to this specification. Primer shall be supplied in an amount compatible with the amount of adhesive/sealant furnished (See 5.1.1), and instructions for its proper storage, handling, and use shall also be included.

3.2 Properties of Uncured Material: Shall be as follows, determined in accordance with specified test procedures:

3.2.1 Nonvolatile Content, min	92%	4.5.4
--------------------------------	-----	-------

3.2.2 Flow	0.05 to 0.5 in. (1.5 to 12.5 mm)	4.5.5
------------	-------------------------------------	-------

3.2.3 Tack Free Time, max	80 min.	4.5.6
---------------------------	---------	-------

3.3 Properties of Cured Material: Shall be as follows, determined in accordance with specified test procedures after the material has cured for not less than 14 days at standard conditions:

3.3.1 As Cured:

3.3.1.1 Hardness, Durometer "A" or equiv., min	35	ASTM D2240
--	----	------------

3.3.1.2 Tensile Strength, min	400 psi (2.75 MPa)	ASTM D412, Die C
-------------------------------	--------------------	------------------

3.3.1.3	Elongation, min	200%	ASTM D412, Die C
3.3.1.4	Specific Gravity	Preproduction Value \pm 0.05	ASTM D297
3.3.2	<u>Adhesion:</u>		
3.3.2.1	Peel Strength (to cured fluorosilicone rubber), min	10 lb/in. width (1750 N/m width)	4.5.7
3.3.3	<u>Dry Heat Resistance:</u>		
3.3.3.1	Hardness Change, Durometer "A" or equiv.	\pm 5	ASTM D573 Temperature: $200^{\circ}\text{C} \pm 3$ ($392^{\circ}\text{F} \pm 5$) Time: 168 hr \pm 4
3.3.3.2	Tensile Strength Change, max	-35%	
3.3.3.3	Elongation Change, max	-35%	
3.3.4	<u>Aromatic Fuel Resistance:</u>		
3.3.4.1	Hardness Change, Durometer "A" or equiv.	0 to -12	ASTM D471 Medium: TT-S-735, Type VII Temperature: $60^{\circ}\text{C} \pm 1$ ($140^{\circ}\text{F} \pm 2$) Time: 168 hr \pm 4
3.3.4.2	Tensile Strength Change, max	-55%	
3.3.4.3	Elongation Change, max	-55%	
3.3.5	<u>Peel Strength:</u>		
3.3.5.1	Peel Strength To specified metal sub- strates, min		4.5.8
3.3.5.1.1	7 day immersion	10 lb/in. width (1750 N/m)	
3.3.5.1.2	70 day immersion	5 lb/in. width (880 N/m)	
3.3.6	<u>Hydrolytic Stability:</u>		
3.3.6.1	Hardness Change, Durometer "A" or equiv.	0 to -5	4.5.9
3.3.6.2	Tensile Strength Change, max	-25%	
3.3.6.3	Elongation Change, max	-25%	

3.3.7 Low-Temperature Brittleness: Pass ASTM D2137, Method A
Temperature: -60°C
(-75°F)

3.4 Quality: The uncured adhesive/sealant, as received by purchaser, shall be uniform in quality and consistency and free of agglomerates, foreign particles, or entrapped air. The cured compound shall present an appearance of smooth homogeneity.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the adhesive/sealant shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.6. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the adhesive/sealant conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to the following requirements are classified as acceptance tests and shall be performed on each lot:

Requirement	Reference Paragraph
Nonvolatile Content	3.2.1
Flow	3.2.2
Tack Free Time	3.2.3
Hardness as cured	3.3.1.1
Tensile Strength as cured	3.3.1.2
Elongation as cured	3.3.1.3
Specific Gravity as cured	3.3.1.4
Peel Strength (to MIL-C-27725 coated aluminum after 7 days fuel/salt water exposure, only)	3.3.5.1

4.2.2 Preproduction Tests: Tests to determine conformance to all technical requirements of this specification are classified as preproduction tests and shall be performed prior to or on the initial shipment of adhesive/sealant to a purchaser, when a change in material, processing, or both requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.

4.3 Sampling: Shall be as follows:

- 4.3.1 For Acceptance Tests: Sufficient adhesive/sealant shall be taken at random from each lot to permit performing all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three.
- 4.3.1.1 A lot shall be all adhesive/sealant produced in a single production run from the same batches of raw materials under the same fixed conditions and presented for vendor's inspection at one time. An inspection lot shall not exceed 1000 lb (450 kg) and may be packaged and delivered in small quantities under the basic lot approval provided lot identification is maintained.
- 4.3.1.2 When a statistical sampling plan and acceptance quality level (AQL) have been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3.1 and the report of 4.6 shall state that such plan was used.
- 4.3.2 For Preproduction Tests: As agreed upon by purchaser and vendor.
- 4.4 Approval:
- 4.4.1 Sample adhesive/sealant shall be approved by purchaser before adhesive/sealant for production use is supplied, unless such approval be waived by purchaser. Results of tests on production adhesive/sealant shall be essentially equivalent to those on the approved sample.
- 4.4.2 Vendor shall use ingredients, manufacturing procedures, processes, and methods of inspection on production adhesive/sealant which are essentially the same as those used on the approved sample adhesive/sealant. If necessary to make any change in ingredients, in type of equipment for processing, or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in material, processing, or both and, when requested, sample adhesive/sealant. Production adhesive/sealant made by the revised procedure shall not be shipped prior to receipt of reapproval.
- 4.5 Test Methods:
- 4.5.1 Standard Conditions: Standard laboratory conditions are $25^{\circ}\text{C} + 1$ ($77^{\circ}\text{F} + 2$) and $50\% + 5$ relative humidity. All test specimens shall be prepared and cured under these conditions. In addition, flow and tack-free time shall be tested under those conditions. Other tests shall be conducted at $25^{\circ}\text{C} + 3$ ($77^{\circ}\text{F} + 5$) with no control on humidity necessary.
- 4.5.2 Chemical Conversion Coating Application:
- 4.5.2.1 Coating Preparation: A chemical conversion coating conforming to MIL-C-81706, Class IA, Form II, Method C, shall be used. It shall be prepared according to manufacturer's instructions. The pH of the resulting solution shall be adjusted to 1.5 using nitric acid.

4.5.2.2 Panel Preparation:

- 4.5.2.2.1 Vapor degrease using trichloroethane or solvent degrease using trichloroethane or ketone.
- 4.5.2.2.2 Alkaline detergent clean using MIL-C-87936, Type I, cleaning compound or an equivalent commercially available alkaline cleaner. The cleaning may be accomplished by brushing, swabbing, or soaking the panels in the detergent solution or by combination of the above techniques. Rinse the cleaned panels in warm flowing tap water at 15° to 40°C (60° to 100°F) and check for cleanliness by observing for waterbreak free surface. If a waterbreak occurs on the panel surfaces, return them to the detergent solution and repeat cleaning procedure until a waterbreak-free surface is obtained.
- 4.5.2.2.3 Immediately transfer the cleaned panels to a deoxidizing solution consisting of the following:

	Wt %
Butyl alcohol	35
Distilled or deionized water	22
Isopropyl alcohol	25
Phosphoric acid (H ₃ PO ₄ 85% by weight)	18

Acid deoxidizer conforming to MIL-C-38334 may also be used. Allow the panels to remain in the above solution for 3 to 5 minutes. Rinse the panels thoroughly under flowing tap water.

- 4.5.2.3 Coating Application (Immersion): Transfer the deoxidized panels immediately to MIL-C-81706 chemical conversion coating solution. Immerse the panels in the solution at standard temperature for 3 to 5 min. or until a light straw color develops. Color development time will vary with aluminum alloy being conversion coated. After removal from the conversion coating solution, immediately rinse thoroughly in flowing distilled or deionized water. Arrange the panels in an upright position to drain dry. Apply test materials to the conversion coated surfaces within 48 hours.
- 4.5.2.3.1 Mix the conversion coating solution in either 18-8 corrosion-resistant steel, polyethylene, or other compatible plastic containers. DO NOT MIX IN GLASS CONTAINERS.

4.5.3 Specimen Preparation:

- 4.5.3.1 For hardness, tensile strength and elongation, specific gravity, and low-temperature resistance tests, prepare test slabs in accordance with ASTM D3182 and the following:
- 4.5.3.1.1 Spray the mold cavity with a suitable release agent or apply a 0.004 in. (0.10 mm) thick sheet of polyethylene in the mold cavity.

- 4.5.3.1.2 Prepare a release paper by soaking a sheet of photographic paper in distilled water for 1 - 5 min. at room temperature. Place this wet release paper on the mold upper surface such that the emulsion surface will face the compound. Wipe excess water from the release paper. A porous polytetrafluoroethylene-coated glass fabric may be used in lieu of the wet release paper.
- 4.5.3.1.3 Fill the mold cavity with sufficient fluorosilicone compound to completely fill the cavity. Close the mold and apply approximately 50 psig (445 kPa) pressure at 25°C \pm 1 (77°F \pm 2).
- 4.5.3.1.4 After 60 min. \pm 5, release the pressure and remove the upper surface of the mold and carefully remove the release paper from the surface of the fluorosilicone sheet.
- 4.5.3.1.5 Cure the sheet in the mold at standard conditions with the upper surface exposed to the air for 18 to 24 hours.
- 4.5.3.1.6 Remove the test sheet from the mold, lay flat, and allow to cure in still air at standard conditions for not less than 14 days.
- 4.5.3.2 For other tests, prepare the specimens as specified in the applicable test procedure.
- 4.5.4 Nonvolatile Content: Weigh a cup, approximately 3 in. (75 mm) in diameter and 0.75 in. (20 mm) deep, with a fitted cover to the nearest milligram. Transfer 5 to 10 g of the adhesive/sealant to the cup as rapidly as possible, install the cover, and weigh immediately to the nearest milligram. Remove the cover and heat the adhesive/sealant and cup at 70°C \pm 1 (160°F \pm 2) for 24 hr \pm 1. Cool to room temperature in a desiccator, install the cover, and weigh to the nearest milligram. Subtract the weight of the cup and cover from the weights of the cup, cover, and adhesive/sealant before and after heating. Calculate the percentage of nonvolatile content as follows:

$$\text{Nonvolatile Content, \%} = \frac{\text{Final Weight}}{\text{Initial Weight}} \times 100$$

- 4.5.5 Flow: The flow test shall be conducted using the flow test jig shown in Fig. 1. Depth of plunger is critical and shall be controlled within the tolerance during the test. Place the jig on a table with the front face upward and the plunger depressed to the limit of its travel. Extrude a sufficient amount of the adhesive/sealant into the cavity to fill the cavity and level off even with the block by scraping with a spatula. Scrape in two passes, each starting in the center and moving toward the sides of the jig. Within 10 sec after the leveling operation, place the jig on its base and immediately advance the plunger to the limit of its forward travel. Allow the cylindrical section of adhesive/sealant formed by the plunger to flow under its own weight down the vertical surface of the jig. Make the flow measurement 30 min. \pm 1 after the plunger is advanced to the limit of its forward travel. The flow shall be measured from tangent to the lower edge of the plunger to the farthest point to which the flow has advanced on the jig.

- 4.5.6 **Tack-Free Time:** Solvent clean a metal panel or suitable substrate using MIL-C-38736 cleaner. Apply a 0.125 in. + 0.063 (3.00 mm + 1.50) thickness of the adhesive/sealant to a cleaned metal panel or suitable substrate. After 80 min. + 1 at 25°C + 1 (77°F + 2), place a piece of polyethylene film approximately 0.004 x 1 x 6 in. (0.10 x 25 x 150 mm) on the adhesive/sealant and hold in place with a pressure not exceeding 0.5 oz per sq in. (215 Pa) for 120 sec + 10. Slowly withdraw the polyethylene film at a right angle to the adhesive/sealant surface. There shall be no adhesive/sealant adhering to the film.
- 4.5.7 **Peel Strength (to Cured Fluorosilicone Rubber):** Test specimens shall consist of an AMS 4045 or QQ-A-250/12, Temper -T6 aluminum alloy panel, (See 8.2), nominally 0.040 x 2.0 x 6.0 in. (1.0 x 50 x 150 mm), and a cured strip of AMS 3326 or AMS 3217/5 fluorosilicone rubber, nominally 0.063 x 1.5 x 12.0 in. (1.5 x 40 x 300 mm). Scuff sand the rubber surface to be bonded with No. 320 (46 μm) grit abrasive paper and then solvent clean the sanded surface using MIL-C-38736 cleaner. Use MIL-C-38736 cleaner to clean the metal panel. Apply a compatible primer to the metal panel using cheesecloth. Allow the primer to air dry for not less than 60 min. at room temperature. If the primer is allowed to dry for more than four hours, the panels should be cleaned and the primer re-applied. Apply the adhesive/sealant to a thickness of approximately 0.025 in. (0.5 mm) over a 5.0 in. (125 mm) length of the panel beginning at one end of the panel. Using a small spatula or filleting tool, apply adhesive/sealant to the sanded rubber surface such that it is made to "wet" the rubber surface. Join the rubber strip and adhesive/sealant coated panel within 10 min. after spreading the adhesive/sealant. Press the parts firmly together with finger pressure using a progressive action starting at one end so air will be excluded from the joint. Apply pressure to the joint by lightly rolling with a small roller. Allow the specimen to cure for not less than 10 days at room temperature. After cure, cut through the rubber and bond joint to the panel surface to provide a 1.0 in. + 0.1 (25 mm + 2.5) wide rubber test strip. Pull back the rubber strip at an angle of 180 deg to the panel and test in a suitable tensile testing machine using a jaw separation rate of 2 in. (50 mm) per minute. The peel strength shall be determined from the numerical average of the peak loads.
- 4.5.8 **Peel Strength to Metal Panels:** Test specimens shall consist of the panels listed in Table I and shall include 20 to 40 mesh (850 to 425 μm) aluminum woven wire strips utilizing 0.010 in. (0.25 mm) diameter wire nominally 1.0 x 12.0 in. (25 x 300 mm). Solvent clean both the panel and woven wire fabric strip using MIL-C-38736 cleaner. Apply a compatible primer to the panels and to approximately one-half the length of the woven wire strip using primer dampened cheesecloth. Allow the primer to air dry for not less than 60 min. at room temperature. Apply a layer of adhesive/sealant approximately 1.5 in. (40 mm) wide by 0.063 in. (1.50 mm) thick down the center of the panel. Impregnate the woven wire fabric with adhesive/sealant for a length of approximately 5 in. (125 mm) beginning at the primed end of the fabric. Immediately apply the impregnated fabric to the adhesive/sealant coated panel taking care to exclude air from the

4.5.8 (Continued)

joint. Apply adhesive/sealant to a thickness of approximately 0.063 in. (1.50 mm) over the wire fabric on the panel such that the wire fabric is completely covered. After approximately 24 hr, trim and remove the adhesive/sealant along the edges of the wire fabric. Allow the specimen to cure for not less than 14 days at standard conditions. After cure, the panels shall be completely immersed in covered glass vessels in the fluids and under the conditions listed in Table I. After the specified exposure at $60^{\circ}\text{C} \pm 1$ ($140^{\circ}\text{F} \pm 2$), the panels shall be cooled in the fluid for 24 hr at room temperature. The peel strength shall be measured within 10 min. after removal from the test fluid. The wire fabric shall be stripped back at an angle of 180 deg to the metal panel in a suitable tensile testing machine having a jaw separation rate of 2 in. (50 mm) per minute. During the peel strength testing, three cuts shall be made through the sealing compound to the panel in an attempt to promote adhesive failure. The cuts shall be at approximate 1-in. (25 mm) intervals. Peel strength results shall be the numerical average of the peak loads. The adhesive/sealant shall exhibit 100% cohesive failure, except for bubbles, knife cuts, and other causes that are obviously not the fault of the adhesive/sealant.

TABLE I

Peel Strength Panels

Quantity Required	Panel	Immersion medium at $60^{\circ}\text{C} \pm 1$ ($140^{\circ}\text{F} \pm 2$)
4	0.040 x 2.0 x 6.0 in. (1.0 x 50 x 150 mm) AMS 4049 or QQ-A-250/13, -T6 alclad aluminum alloy	2 panels into TT-S 735, Type VII, fluid for 7 days 2 panels into equal parts TT-S-735, Type VII, fluid and 3% aqueous sodium chloride solution (See 4.5.8.1) for 7 days
4	0.040 x 2.0 x 6.0 in. (1.0 x 50 x 150 mm) AMS 4045 or QQ-A-250/12, -T6 aluminum alloy chemically treated in accordance with AMS 2473 or MIL-C-81706, Class 1A, Form II, Method C	2 panels into TT-735, Type VII, fluid for 7 days 2 panels into TT-S-735, Type VII/salt water (See 4.5.8.1) for 7 days

Note: The AMS 2473 or MIL-C-81706 coating shall not be more than 48 hr old before sealant application.

4	0.040 x 2.0 x 6.0 in. (1.0 x 150 mm) AMS 4045 or QQ-A-250/12, -T6 aluminum alloy anodized in accordance with AMS 2471 or MIL-A-8625, Type II, Class 1 (dichromate sealed)	2 panels into TT-S-735, Type VII, fluid for 7 days
		2 panels into TT-S-735, Type VII/salt water (See 4.5.8.1) for 7 days
8	0.040 x 2.0 x 6.0 in. (1.0 x 50 x 150 mm) AMS 4045 or QQ-A-250/12, -T6 aluminum alloy anodized in accordance with AMS 2471 or MIL-A-8625, Type II, Class 1 (dichromate sealed) and coated with material conforming to MIL-C-27725	2 panels into TT-S-735, Type VII, fluid for 7 days
		2 panels into TT-S-735, Type VII/salt water (See 4.5.8.1) for 7 days
		2 panels into TT-S-735, Type VII, fluid for 70 days with fluid change every 14 days
		2 panels into TT-S-735, Type VII/salt water (See 4.5.8.1) for 70 days with fluid change every 14 days
		2 panels into TT-S-735, Type VII fluid for 7 days
8	0.040 x 2.0 x 6.0 in. (1.0 x 50 x 150 mm) AMS 4911 or MIL-T-9046, Type III, Composition C, annealed 6al - 4V titanium alloy	2 panels into TT-S-735, Type VII/salt water (See 4.1.5.8.1) for 7 days
		2 panels into TT-S-735, Type VII fluid for 70 days with fluid change every 14 days
		2 panels into TT-S-735, Type VII/salt water (See 4.5.8.1) for 70 days with fluid change every 14 days

- 4.5.8.1 The TT-S-735, Type VII/salt water test fluid shall consist of equal parts of TT-S-735, Type VII fluid and 3% aqueous solution of sodium chloride.
- 4.5.9 Hydrolytic Stability: Hardness, and tensile strength and elongation specimens shall be prepared in accordance with 4.5.3. Orient the specimens vertically in a suitable holder on a tray and place in a suitable (250 mm) glass desiccator. Fill the bottom of the desiccator with a glycerine in water solution (22% by weight glycerine) which will produce a relative humidity of 95% at the test temperature. Close the desiccator containing the specimens and place in a circulating-air oven. Heat the oven to $95^{\circ}\text{C} + 1$ ($200^{\circ}\text{F} + 2$) and hold at temperature for 28 days + 4 hours. At the end of the exposure period, remove the desiccator from the oven, cool to $25^{\circ}\text{C} + 1$ ($77^{\circ}\text{F} + 2$), and hold at temperature for 16 to 24 hr before removing the specimens from the desiccator. Determine hardness, tensile strength, and elongation.
- 4.6 Reports: The vendor of the product shall furnish with each shipment a report showing the results of tests to determine conformance to the acceptance test requirements and stating that the product conforms to the other technical requirements of this specification. This report shall include the purchase order number, AMS 3375, vendor's name and product designation, lot number, date of manufacture, and quantity.
- 4.6.1 A material safety data sheet conforming to AMS 2825 or equivalent shall be supplied to each purchaser prior to, or concurrent with, the report of preproduction test results or, if preproduction testing be waived by purchaser, concurrent with the first shipment of the product for production use. Each request for modification of product formulation shall be accompanied by a revised data sheet for the proposed formulation.
- 4.7 Resampling and Retesting: If any specimen used in the above tests fails to meet the specified requirements, disposition of the product may be based on the results of testing three additional specimens for each original nonconforming specimen. Failure of any retest specimen to meet the specified requirements shall be cause for rejection of the product represented and no additional testing shall be permitted. Results of all tests shall be reported.
5. PREPARATION FOR DELIVERY:
- 5.1 Packaging and Identification:
- 5.1.1 Unless specified otherwise by the purchaser, the adhesive/sealant shall be furnished in 8 fl oz (235 ml) polyethylene cartridges which contain 5.4 fl oz (160 mL) of the adhesive/sealant. Each cartridge shall include a self-contained plastic nozzle, the tip of which is designed to be cut off to allow extrusion of the adhesive/sealant. Sufficient primer in a glass vial shall be provided with each cartridge.