

# AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

## Adhesion Promoter For Polysulfide Sealants, Non-crazing of Acrylic and Polycarbonate

### 1. SCOPE:

#### 1.1 Form:

This specification covers adhesion promoters in liquid form.

#### 1.2 Application:

This product has been used typically for use in enhancing the adhesion of polysulfide adhesives of sealing compounds to acrylic and polycarbonate windshield materials, but usage is not limited to such applications.

#### 1.3 Safety - Hazardous Materials:

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

### 2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification 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.

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## 2.1 SAE Publications:

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

- AMS 2471 Anodic Treatment, Aluminum Alloys, Sulfuric Acid Process, Undyed Coating
- AMS 2820 Packaging, Aerosol
- AMS 2825 Material Safety Data Sheets
- AMS 3333 Sealing Compound, Polysulfide for Aircraft Windshields and Canopies, For Use Up to 250 °F (121 °C)
- AMS 4045 Aluminum Alloy Sheet and Plate, 5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr (7075; -T6 Sheet, -T651 Plate), Solution and Precipitation Heat Treated
- AMS 4901 Titanium Sheet, Strip and Plate, Annealed, 70,000 psi (485 Mpa) Yield
- AMS 5516 Steel, Corrosion Resistant, Sheet, Strip and Plate, 18Cr - 9.0Ni (SAE 30302), Solution Heat Treated
  
- AS 5127 Methods for Testing Aerospace Sealants
- AS 5127/1 Methods for Testing Aerospace Sealants, Two-Component Synthetic Rubber Compounds

## 2.2 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

- MIL-P-5425 Plastic, Sheet, Acrylic, Heat Resistant
- MIL-P-8184 Plastic, Sheet, Acrylic, Modified
- MIL-P-23377 Primer Coatings: Epoxy, High Solids
- MIL-G-25667 Glass, Monolithic, Aircraft Glazing
- MIL-P-25690 Plastic, Sheets and Formed Parts, Modified Acrylic Base, Monolithic, Crack Propagation Resistant
- MIL-P-83310 Plastic, Sheet, Polycarbonate, Transparent
- MIL-P-85285 Coating, Polyurethane, High Solids
- MIL-P-85582 Primer Coatings: Epoxy, Waterborne

## 3. TECHNICAL REQUIREMENTS:

## 3.1 Material:

The adhesion promoter shall be an un-dyed liquid, formulated to meet the requirements of 3.2.

## 3.2 Properties:

The adhesion promoter shall conform to the following requirements as determined by the test methods of 4.5.

## 3.2.1 Color: The adhesion promoter shall be not be intentionally tinted.

3.2.2 Peel Strength: Qualification tests shall be all tests specified in Table 1. Acceptance tests shall consist of Tests 6, 7, and 8.

TABLE 1 - Peel Strength Tests

Test No.	Panel Material and Preparation (See 4.5.2)	Adhesion Promoter Applied	Immersion Medium	Peel Strength, min, lbf/in (N/m)	Cohesive Failure, Percent	Test Method Paragraph
1	MIL-P-5425 Acrylic	Yes	None	15 (3500)	100	4.5.5
2	MIL-P-25690 Stretched acrylic	Yes	None	15 (3500)	100	4.5.5
3	MIL-P-88310 Polycarbonate	Yes	None	15 (3500)	100	4.5.5
4	AMS 4045 Al alloy anodized AMS 2471	Yes	(1)	15 (3500)	100	4.5.5
5	AMS 4901 Titanium alloy	Yes	(1)	15 (3500)	100	4.5.5
6	MIL-P-5425 Acrylic	Yes	(1)	15 (3500)	100	4.5.5
7	MIL-P-25690 Stretched acrylic	Yes	(1)	15 (3500)	100	4.5.5
8	MIL-P-83310 Polycarbonate	Yes	(1)	15 (3500)	100	4.5.5
9	Al alloy, MIL-P-23377 Primer	Yes	(1)	15 (3500)	100	4.5.5
10	Al alloy, MIL-P-85582 Primer	Yes	(1)	15 (3500)	100	4.5.5
11	MIL-G-25667 Type 1 Glass	Yes	(1)	15 (3500)	100	4.5.5

NOTE: (1) Seven days immersion in distilled water.

3.2.3 Storage Stability:

3.2.3.1 Long-Term Stability: Shall be as specified in Table 1, Test 6, and shall conform to 3.2.1, 3.2.2, and 3.2.6 when tested in accordance with 4.5.6.1.

3.2.3.2 Short-Term Stability: Shall be as specified in Table 1, Test 7, 8, and 11 when tested in accordance with 4.5.6.2.