

3M™ AC-251 Black Class B Aerospace Sealants

Technical Data Sheet

NOTE: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

3M™ AC-251 Black Class B Aerospace Sealants are designed for aircraft windshield, window, and canopy applications. When mixed, these two-part manganese dioxide cured polysulfide sealants form a thixotropic paste that is easily dispensed with a cartridge applicator or spatula. AC-251 Sealants have a service temperature range of -65 °F to 250 °F (-54 °C to 121 °C).

Key Features

- Resistant to UV exposure and weathering
- Retain shape and volume during cure
- Formulated for sealing acrylic, glass, and polycarbonate without crazing surfaces
- Compatible with 3M™ Adhesion Promoter AC-137 Red or Clear for enhanced bonding

Application, Physical and Performance Properties¹

	B-1/2	B-1	B-2
Application Time ²	30 minutes	1 hour	2 hours
Tack Free Time ³	4 hours	6 hours	8 hours
Cure Time to ≥ 30A	4 hours	7 hours	8 hours
Color	Base: Black / Accelerator: Black Mixed: Black		
Mix Ratio, base to accelerator	10 : 1 by weight		
Nonvolatile Content	98%		
Base Viscosity #7 spindle, 2 rpm, 77 °F (25 °C)	9000 – 16000 poise 900 – 1600 Pa·s		
Specific Gravity	1.6		
Ultimate Hardness (Durometer A)	48 - 55		
Low Temperature Flexibility - Windshield Sealant ⁴ -65 °F (-54 °C)	No cracking, checking or adhesion loss*		
Thermal Rupture Resistance 250 °F (121 °C), 10 psi (69 kPa), 60 minutes	< 0.125 inch (3.2 mm) No blistering or sponging		
Crazing ⁵ – MIL-PRF-5425 Acrylic 3000 psi (20.7 MPa), 30 minutes	No crazing or cracking		
Crazing ⁵ – AMS-P-83310 Polycarbonate 3000 psi (20.7 MPa), 30 minutes	No crazing or cracking		
Repairability to self, dry	98 lbf/inch (430 N/25 mm), 98% cohesive failure		



Weathering Resistance

ASTM G154 Cycle 2 Exposure⁶ for 20 days

180° Peel Strength, 100% cohesive failure, all specimens

Substrate	Load lbf/inch (N/25 mm)
Clear Annealed Glass	30 (130)*
MIL-PRF-5425 Acrylic	69 (300)*
AMS-P-83310 Polycarbonate	67 (290)*
AMS4045 Aluminum + SAA	69 (300)*

Tensile Strength and % Elongation

Conditioning	Tensile Strength psi (MPa)	Elongation %
Standard cure	360 (2.48)	348
7 days at 250 °F (121 °C) in air	447 (3.08)	223
Distilled water, 7 days at 140 °F (60 °C)	208 (1.43)	419

180° Peel Strength

100 % cohesive failure, all specimens

Substrate	Cure Time	Load lbf/inch (N/25 mm)
Clear Annealed Glass	48 hours	76 (330)*
MIL-PRF-5425 Acrylic	48 hours	75 (330)*
AMS-P-83310 Polycarbonate	48 hours	69 (300)*
AMS4045 Aluminum + SAA	48 hours	88 (390)*
AMS4037 Aluminum + MIL-DTL-81706 1A/II/C	7 days	67 (290)
AMS4045 Aluminum + MIL-DTL-81706 1A/II/C	7 days	65 (280)
AMS4049 Alclad Aluminum + MIL-DTL-81706 1A/II/C	7 days	65 (280)
MIL-PRF-85285 Gloss Topcoat ⁷	14 days	80 (350)

¹ Testing per AS5127/1 unless otherwise stated.
Standard Conditions: 77 °F (25 °C) and 50 % Relative Humidity.
Sealant cure for Performance Properties: 14 Days at Standard Conditions OR 48 hours at Standard Conditions + 24 hours at 140 °F (60 °C).

² Extrusion rate of 30 g/minute, minimum, at Application Time.

³ No sealant transfer to low density polyethylene film.

⁴ Panels tested unconditioned and heat conditioned for 7 days at 248 °F ± 2 °F (120 °C ± 1 °C).

⁵ Test fixture per AS5127/1.

⁶ UVB cycle, 0.71 W/(m² * nm), 310 nm, 4-hour UV at 140 °F (60 °C) / 4-hour condensation at 122 °F (50 °C).

⁷ Topcoat abraded.

* 3M™ Adhesion Promoter AC-137 Red used.

Shelf Life and Storage

The shelf life of 3M™ AC-251 Black Class B Aerospace Sealants in 2-part kits is 9 months from Date of Packaging (DOP) when stored below 80 °F (27 °C) in the original unopened containers.

Note: Industry and/or OEM specifications to which the product is qualified may establish different storage requirements. The information shown on the product label and/or the accompanying Certificate of Analysis (COA) takes precedence over the Technical Data Sheet.

Mixing Instructions

2-Part Injection Kits: Hand Mix: 50 - 75 strokes;
Machine Mix: 37 strokes (1.5 minutes at 25 strokes/min).

2-Part Can Kits (Bulk): Only base and catalyst compounds with the same lot numbers should be mixed. Stir catalyst before using. Mix entire contents of both containers together or mix in the appropriate base to accelerator ratio until sealant is uniform in color with no streaks.

Precautionary Information: Refer to Product Label and Safety Data Sheet for health and safety information before using this product. For additional health and safety information, visit www.3m.com/3M/en_US/company-us/SDS-search/

Authorization to Use: Ensure products meet all applicable specifications, standards, and maintenance manual requirements for the platform being worked on and validate all aircraft approvals against current technical documentation.

These products are manufactured under a 3M Quality Management System registered to the AS9100 standard.

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