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3M™ AC-380 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-380 Class B Aerospace Sealants are designed for aircraft integral fuel tank and fuselage applications. When mixed, these two-part manganese dioxide cured polysulfide sealants form a thixotropic paste that is easily extruded from a cartridge or applied with a spatula. AC-380 Sealants have a service temperature range of -65 °F to 250 °F (-54 °C to 121 °C), with intermittent excursions (6 hours total) to 360 °F (182 °C).

Key Features

- Low density, offering up to 30% weight savings per unit volume over traditional sealants with similar purpose
- Resistant to common commercial and military jet fuels
- Retain shape and volume during cure
- Maintain flexibility and bond strength on a variety of metal, composite, and coated substrates during service

Application Properties[1]

Class	Application Time[2]	Tack Free Time[3]	Cure Time to ≥ 30A Hardness
B-1/2	30 minutes	5 hours	5 hours
B-2	2 hours	9 hours	9 hours

Physical and Performance Properties

Color	Base: Off-white Accelerator: Dark Brown Mixed: Dark Brown
Mix Ratio, base to accelerator	10 : 1 by weight
Nonvolatile Content	97%
Base Viscosity #7 spindle, 2 rpm, 77 °F (25 °C)	11000 – 18000 poise 1100 – 1800 Pa·s
Specific Gravity, cured	1.1
Ultimate Hardness, Durometer A	44
Low Temperature Flexibility -80 °F (-62 °C)	No cracking, checking or adhesion loss
Thermal Rupture Resistance 300 °F (149 °C), 10 psi (69 kPa), 30 minutes	≤ 0.156 inch (3.96 mm) No blistering or sponging
Weight Loss / Flexibility / Swell 7 days at 140 °F (60 °C) in JRF	< 8 % weight loss / No cracking or checking / < 8 % volume swell
Resistance to Corrosion in JRF / Saltwater	No corrosion under sealant or signs of deterioration
Repairability after JRF Immersion To self To AMS3281 sealant	All 100% cohesive failure 30 lb_f/inch (130 N/25 mm) 50 lb_f/inch (220 N/25 mm)

180° Peel Strength

AMS2629 Type 1 Jet Reference Fluid (JRF) Immersion
7 days at 140 °F (60 °C), 100% cohesive failure

Substrate	Load lb_f/inch (N/25 mm)
MIL-DTL-5541 Conversion Coating	33 (140)
AMS2471 Sulfuric Acid Anodize	37 (160)
AMS-C-27725 Ty 2 Fuel Tank Coating	30 (130)
AMS5516 Stainless Steel	37 (160)*
AMS4911 Titanium Alloy	36 (160)*
AS4/3501-6 Graphite epoxy (ply side)	37 (160)
AS4/3501-6 Graphite epoxy (tool side)	33 (140)
IM7/5250-4 Graphite BMI (ply side)	37 (160)
IM7/5250-4 Graphite BMI (tool side)	36 (160)

AMS2629 Type 1 JRF/3% Saltwater Bi-layer Immersion
7 days at 140 °F (60 °C), 100% cohesive failure

Substrate	Load lb_f/inch (N/25 mm)
MIL-DTL-5541 Conversion Coating	21 (92)*
AMS2471 Sulfuric Acid Anodize	37 (160)
AMS-C-27725 Ty 2 Fuel Tank Coating	33 (140)
AMS5516 Stainless Steel	34 (150)*
AMS4911 Titanium Alloy	34 (150)*
AS 4/3501-6 Graphite epoxy (ply side)	30 (130)
AS 4/3501-6 Graphite epoxy (tool side)	29 (130)
IM7/5250-4 Graphite BMI (ply side)	26 (110)
IM7/5250-4 Graphite BMI (tool side)	31 (140)

3% Saltwater Immersion
7 days at 140 °F (60 °C), 100% cohesive failure

Substrate	Load lb_f/inch (N/25 mm)
MIL-PRF-85285 Urethane Topcoat	31 (140)*
MIL-PRF-85582 Water-based Primer	31 (140)*
MIL-PRF-23377, Standard cure	33 (140)
MIL-PRF-23377, 200°F (93°C) cure	29 (130)

Tensile Strength and % Elongation

Conditioning	Tensile Strength psi (MPa)	Elongation %
Standard cure	219 (1.51)	326
12 days at 140 °F (60 °C) + 60 hours at 160 °F (71 °C) + 6 hours at 180 °F (82 °C) in JRF	203 (1.40)	307
12 days at 140 °F (60 °C) + 60 hours at 160 °F (71 °C) + 6 hours at 180 °F (82 °C) in JRF; 24 hours at 120 °F (49 °C) + Standard Heat Cycle[4] (x6) in air	255 (1.76)	350
Standard Heat Cycle[4] (x6) in air	280 (1.93)	407

[1] Testing per AMS3281 and AS5127/1.
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 40 g/minute, minimum, at Application Time.
[3] No sealant transfer to low density polyethylene film.
[4] Standard Heat Cycle: 4 hours at 250 °F (121 °C) + 40 minutes at 320 °F (160 °C) + 1 hour at 360 °F (182 °C).
* AMS3100 Adhesion Promoter applied to substrate.

Shelf Life and Storage

The shelf life of 3M™ AC-380 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. Pre-mixed and frozen (PMF) AC-380 Class B will maintain typical application properties for a minimum of 30 days if stored below -40 °F (-40 °C).

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 and Thawing 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 appropriate base to accelerator ratio until sealant is uniform in color with no streaks.

Pre-Mixed Frozen (PMF): Thaw at ambient temperature until core reaches 50 °F (10 °C), minimum, and/or until condensation no longer forms after wiping the cartridge exterior. Do not refreeze after thawing.

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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