

# 3M™ Aerospace Sealant AC-380 Class B

## Product Description

3M™ Aerospace Sealant AC-380 Class B are fast cure, 1.1 specific gravity, solvent free, low shrinkage, and high temperature integral fuel tank sealants. This material is designed for fillet sealing of fuel tanks and other aircraft fuselage sealing applications. It offers as much as thirty percent weight savings, per unit volume, over traditional sealants with similar purpose. The cured sealants have outstanding resistance to aviation gasoline and jet fuel, as well as resistance to chemicals and petroleum products common to the aircraft industry. The sealants will resist limited contact to diphosphate ester based hydraulic fluid.

3M AC-380 Class B Sealants are two-part, manganese dioxide cured, polysulfide polymer based sealants that maintain flexibility and bond strength on most metal substrates such as aluminum, titanium, steel, stainless steel, common composites and many coatings under extremes of temperature, weathering and stress. The mixed compound is a thixotropic paste easily applied by extrusion, injection gun or spatula, and exhibits superb tooling properties.

## Applications

- Sealing integral fuel tanks
- Repairing integral fuel tanks
- Sealing fuselages

## Typical Physical and Application Properties

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

<b>Color</b>	
<b>Base:</b>	Off White
<b>Accelerator:</b>	Black
<b>Mix Ratio</b>	100 base / 10 catalyst (by weight)
<b>Nonvolatile Content</b>	97%
<b>Base Viscosity (RVF Brookfield #7 spindle @ 2 rpm, 77°F)</b>	10,000 - 14,000 poise

## Application Life and Cure Time

(@ 77°F, 50% Relative Humidity)

	Minimum Application Life <sup>1</sup>	Typical Tack-Free Time <sup>2</sup>	Typical Cure Time <sup>3</sup>
B-1/2	1/2 hour	5 hours	5 hours
B-2	2 hours	8-10 hours	8-10 hours

<sup>1</sup>Application life refers to the length of time that mixed compound remains at a consistency suitable for application with spatula or caulking gun. Application life is always measured at a standard temperature of 77°F with a relative humidity level of 50%. In general, for every 20°F rise in temperature, the application life is halved; for every 20°F drop, it is doubled.

<sup>2</sup>Tack-free time is the length of time after which a mixed sealant will no longer tightly adhere to L-LP-690 standard low density polyethylene film.

<sup>3</sup>Cure time is defined as the length of time it takes 3M™ Aerospace Sealant AC-380 Class B to reach 30A hardness. It depends on three factors: remaining application life, temperature, and relative humidity. The temperature/humidity factors for application life also apply to curing. High humidity during cure will speed up the cure. To accelerate the curing process, apply heat up to (but not more than) 120°F.

## Typical Physical and Performance Properties of Cured Compound after 14 Days @ 77°F/50% RH (Tested per AMS3281)

<b>Color (mixed)</b>	Dark Gray
<b>Specific Gravity</b>	1.1
<b>Hardness</b>	45-50 Shore "A"
<b>Low Temperature Flexibility</b>	No checking or adhesion loss when tested at -80°F (-62°C)
<b>Service Temperature</b>	-80° to +250°F (-62° to +121°C)
<b>Short Term Service Temperature</b>	-80° to +360°F (-62° to +182°C)
<b>Thermal Rupture Resistance (300°F, 30 minutes)</b>	Conforms
<b>Thermal Rupture Resistance (320°F, 30 minutes)</b>	Conforms
<b>Weight Loss (in fuel after drying)</b>	4.2%
<b>Volume Swell in JRF 7 days at 140°F</b>	8%
<b>Corrosion</b>	None
<b>Repairability (to itself)</b>	47 piw / 100% cohesive failure
<b>To other AMS3281</b>	44 piw / 100% cohesive failure
<b>To AMS3276 sealants</b>	54 piw / 100% cohesive failure



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## Typical Values of 3M™ Aerospace Sealant AC-380 Class B

### Tensile Strength and % Elongation

Conditioning	Specification Requirements	Results
Standard Cure	200 psi / 250%	269 psi / 500%
+ 12 days at 140°F + 60 hours at 160°F + 6 hours at 180°F in JRF I	125 psi / 100%	170 psi / 570%
12 days at 140°F + 60 hours at 160°F + 6 hours at 180°F in JRF I + 24 hours air dry at 120°F + standard heat cycle (AMS)	125 psi / 25%	300 psi / 190%
Standard heat cycle (AMS)	100 psi / 25%	260 psi / 170%

### Peel Strength\*

Substrate	Conditioning	Load / % Cohesion
MIL-C-5541	7 days @ 140°F in JRF	35 piw / 100%
	7 days @ 140°F in JRF/SW	38 piw / 100%
	6 temp cycles in JRF/SW	35 piw / 100%
AMS 2471 Anodized	7 days @ 140°F in JRF	43 piw / 100%
	7 days @ 140°F in JRF/SW	51 piw / 100%
	6 temp cycles in JRF/SW	44 piw / 100%
AMS 4911 Titanium	7 days @ 140°F in JRF	31 lbs. / 100%
	7 days @ 140°F in JRF/SW	43 lbs. / 100%
	*6 temp cycles in JRF/SW	40 piw / 100%
Stainless Steel	7 days @ 140°F in JRF	39 lbs. / 100%
	7 days @ 140°F in JRF/SW	52 lbs. / 100%
	*6 temp cycles in JRF/SW	35 piw / 100%
MIL-C-27725	7 days @ 140°F in JRF	39 lbs. / 100%
	7 days @ 140°F in JRF/SW	36 lbs. / 100%
	6 temp cycles in JRF/SW	42 piw / 100%
MIL-P-23377 RT Cure	7 days @ 140°F in SW	45 lbs. / 100%
MIL-P-23377 200°F Cure	7 days @ 140°F in SW	45 lbs. / 100%
*MIL-PRF-85582	7 days @ 140°F in SW	48 lbs. / 100%
AS 4/3501-6 (epoxy graphite, peel)	7 days @ 140°F in JRF	41 piw / 100%
	7 days @ 140°F in JRF/SW	41 piw / 100%
	6 temp cycles in JRF/SW	35 piw / 100%
AS 4/3501-6 (epoxy graphite, tool)	7 days @ 140°F in JRF	34 piw / 100%
	7 days @ 140°F in JRF/SW	48 piw / 100%
	6 temp cycles in JRF/SW	34 piw / 100%
IM7/5250-4 (graphite/BMI, peel)	7 days @ 140°F in JRF	43 lbs. / 100%
	7 days @ 140°F in JRF/SW	46 lbs. / 100%
	6 temp cycles in JRF/SW	35 piw / 100%
IM7/5250-4 (graphite/BMI, tool)	7 days @ 140°F in JRF	42 lbs. / 100%
	7 days @ 140°F in JRF/SW	45 lbs. / 100%
	6 temp cycles in JRF/SW	33 piw / 100%

\*Required use of AMS3100 adhesion promoter

## Health and Safety Precaution

3M™ Aerospace Sealant AC-380 Class B are safe to use and apply when recommended precautions are followed. Before using this product, read and understand the Material Safety Data Sheet (MSDS), which provides information on health, physical and environmental hazards, handling precautions and first aid recommendations. An MSDS is available on request.

## Storage

The shelf life of 3M™ Aerospace Sealant AC-380 Class B is 9 months from date of packaging, when stored at temperatures below 80°F in its original unopened container.

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## For Additional Information

In the U.S., call toll free 1-800-235-2376, or fax 1-800-435-3082 or 651-737-2171. For U.S. Military, call 1-866-556-5714. If you are outside of the U.S., please contact your nearest 3M office or one of the following branches:

<b>Australia</b> 61-2-498-9711 tel 61-2-498-9710 fax	<b>Austria</b> 01-86686-298 tel 01-86686-229 fax	<b>Brazil</b> 55 19 3838-7876 tel 55 19 3838-6892 fax	<b>Canada</b> 800-410-6880 ext. 6018 tel 800-263-3489 fax
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## Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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



### Aerospace and Aircraft Maintenance Department

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