3M™ Aerospace Sealant AC-275 Class B

Polysulfide two-component sealant

Product Description

3M™ Aerospace Sealant AC-275 Class B is a high temperature resistant polysulfide sealant suitable for fuel tank and fuselage sealing and repairs. These two-component, manganese dioxide cured sealants have outstanding resistance to aviation gasoline and jet fuel, as well as resistance to chemicals and petroleum products commonly used in the aircraft industry. 3M AC-275 Class B Sealants maintain flexibility and bond strength on most metal substrates like aluminium, stainless steel, steel, 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 has excellent tooling properties.

Key Features

- High temperature resistant
- Non Chromate
- Easy to tool
- Standard density

Product Characterization

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

General properties	
Colour Base:	White
Colour Accelerator:	Black
Mixing Ratio	100 base / 10 accelerator (by weight)
Non-volatile Content	97%
Base Viscosity, poise (RVF Brookfield #7 spindle) @ 2 rpm, 25°C)	10,000 - 16,000 poise
Accelerator Viscosity, poise (RVF Brookfield #7 spindle @ 10 rpm, 25°C)	700 – 1,600 poise

Application Life and Cure Time (@ 25°C, 50% Relative Humidity)

Grade	Minimum Application Life[1]	Typical Tack-Free Time[2]	Typical Cure Time[3]
B-1/2	1/2 hour	8 hours	24 hours
B-2	2 hours	24 hours	48 hours
B-6	6 hours	48 hours	120 hours

[1]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 25°C with a relative humidity level of 50%. In general, for every 10°C rise in temperature, the application life is halved; for every 10°C drop, it is doubled. High humidity levels during the mixing process will shorten application life.

[2]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.

[3]Cure time is defined as the length of time it takes 3M™ Aerospace Sealant AC-275 Class B to reach 30A hardness. It depends on three factors: remaining application life, temperature, and relative humidity. To a certain extent, the temperature / humidity factors for application life also apply to curing. To accelerate the curing process, heat may be applied up to (but not exceeding) 60°C.

Product Performance

Typical Physical and Performance Properties of Cured Compound after 14 days @ 25°C / 50% RH when Tested to AMS3276

Colour	Grey
Specific Gravity	1.64
Hardness	60 Shore "A"
Temperature Range	-65° to +250°F (-54° to +121°C) Intermittent exposure to 360°F (182°C)
Low Temperature Flexibility	No checking or adhesion loss when tested at -54°C
Thermal Rupture Resistance	Does not blister or sponge
Corrosion Resistance	Does not cause corrosion
Repairability	7.0 N/mm to itself and other AMS3276 qualified sealants
Weight loss and flexibility	No cracking when bent 180° over a 3mm mandrel. No more than 6% loss of the sealant compound after fluid immersion

Typical Values of 3M™ Aerospace Sealant AC-275 Class B to AMS3276

Tensile Strength and % Elongation

Conditioning	Specification requirements	Results
Standard Cure - 14 days	1.7MPa / 250%	2.4 MPa / 220%
JRF - 12 days @ 60°C + 60 hours @ 71°C + 6hrs @ 82°C	0.9 MPa / 100%	1.5 MPa / 210%
JRF - 12 days @ 60°C + 60 hours @ 71°C + 6hrs @ 82°C + 24hrs @ 49°C + std heat cycle	0.9 MPa / 100%	2.5 MPa / 155%
Std heat cycle	0.7 MPa / 25%	1.7 MPa / 100%

Peel Strength *

Substrate	Conditioning	Load % Cohesion
MIL-C-5541	7 days @ 60°C in JRF	231 N/25mm / 100%
	7 days @ 60°C in JRF/SW	245N/25mm/ 100%
AMS 2471 (Anodised)	7 days @ 60°C in JRF	214 N/25mm / 100%
	7 days @ 60°C in JRF/SW	218 N/25mm / 100%
MIL-C-27725	7 days @ 60°C in JRF	245 N/25mm / 100%
	7 days @ 60°C in JRF/SW	254 N/25mm / 100%
MIL-P-23377	7 days @ 60°C in DI water	214 N/25mm / 100%
	7 days @ 60°C in SW	222 N/25mm / 100%
Stainless Steel	7 days @ 60°C in JRF	245 N/25mm / 100%
	7 days @ 60°C in JRF/SW	262 N/25mm / 100%
Graphite epoxy AS4/3501-6	7 days @ 60°C in JRF	196 N/25mm / 100%
	7 days @ 60°C in JRF/SW	214 N/25mm / 100%

**Specification requirement – 90N/25mm / 100%, wire mesh.*

Handling, Application, Storage

Precautionary information

Refer to product label and Material Safety Data Sheet (MSDS) for health and safety information before using this product. For MSDS visit our website: www.3M.com\msds.

Instructions for use

Refer to the 3M Application Guide for 3M Polysulfide Sealants and the Surface Preparation Guide for usage details. While this information is provided as general application guideline based upon typical conditions, it is recognized that no two applications are identical due to, among other things, different assemblies, methods of heat and pressure application, production equipment and other limitations. It is therefore suggested that experiments be run, within the actual application environment to determine optimum conditions for your specific application and to determine suitability of product for particular intended use.

Storage conditions

The shelf life of 3M™ Aerospace Sealant AC-275 Class B is 9 months from date of packaging, when stored at temperatures below 27°C in its original container.

Mixed 3M AC-251 Black Class B Sealants may be stored under refrigeration as follows:

- 15 days at -23°C
- 30 days at -40°C

It is important to remember that freezing, storing and thawing procedures reduce application life. In addition, frozen storage will reduce application life by varying amounts depending on the storage temperature and length of storage time. All aspects of storage, freezing and thawing should be planned carefully and it is not recommended to mix and freeze with less than 30 minute application time.

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Reference: 197