Technical data sheet

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3M™ AEROSPACE SEALANT AC-730 CLASS B

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3M™ Aerospace Sealant AC-730 Class B

Polysulfide two-component sealant

Product Description

3M™ Aerospace Sealant AC-730 Class B is a fast cure, two-part, non-chromated corrosion inhibiting sealant. Excellent for sealing faying surfaces of mating parts and sealing joints from passage of liquid or air, these manganese cured sealants provide an effective barrier against the common causes of corrosion on aluminium and between dissimilar metals. 3M AC-730 Class B Sealants have outstanding resistance to aviation gasoline and jet fuel, as well as resistance to chemicals, hydraulic fluids and petroleum products commonly used in the aircraft industry. The mixed compound is a thixotropic paste, easily applied by spatula, extrusion gun or injection gun. They maintain flexibility and bond strength on most metal substrates under extremes of temperature, weathering and stress.

Key Features

- Non-chromate corrosion inhibitive
- Fast cure
- Less shrinkage due to low solvent formulation
- Easy to tool

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	Off White
Colour Accelerator	Black
Mix Ratio	100 base / 10 accelerator (by weight)
Non volatile Content	98%
Base viscosity (RVF Brookfield #7 spindle @ 2 rpm, 25°C)	9500 to 16000 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	30 minutes	4 hours	6 hours
B-2	2 hours	16 hours	24 hours
B-6	6 hours	48 hours	72 hours
B-12	12 hours	108 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-730 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 more than) 60°C.

Product Performance

Tensile strength and % Elongation

Conditioning	Requirements	Results
Standard Cure – 14 days	1.4 MPa / 200%	2.8 MPa / 460%
JRF – 12 days @ 60°C	1.4 MPa / 200%	1.9 MPa / 390%
JRF – 12 days @ 60°C, 60 hrs @ 71°C, 6 hrs @ 82°C	0.9 MPa / 100%	2.1 MPa / 525%
JRF – 12 days @ 60°C, 60 hrs @ 71°C,6 hrs @ 82°C + Heat Cycle	0.9 MPa / 25%	2.1 MPa / 60%
Heat Cycle- 6 cycles of 4 hrs @ 121°C, 40 min @ 160°C, and 1 hr @ 182 °C	0.7 MPa / 25%	2.05 MPa / 67%

Peel Strength *

Substrate	Conditioning	Load /% cohesion
MIL-C-5541	7days@60°C in JRF	303 N/25 mm/100%
	7 days @60°C in JRF/SW	249 N/25 mm./100%
	6 temp cycles in JRF/SW[1]	192 N/25 mm ./100%
MIL-C-27725	7days@ 60°C in JRF	258 N/25 mm./100%
	7 days @ 60°C in JRF/SW	294 N/25 mm./100%
	70 days @ 60°C in JRF	218 N/25 mm./100%
	70 days @ 60°C in JRF/SW	258 N/25 mm./100%
	6 temp cycles in JRF/SW[1]	249 N/25 mm./100%
MIL-P-23377 RT Cure	7 days @ 60°C in SW	321 N/25 mm./100%
Stainless Steel	7days@60°C in JRF	294 N/25 mm./100%
	7 days @60°C in JRF/SW	330 N/25 mm./100%
	6 temp cycles in JRF/SW[1]	267 N/25 mm./100%
AMS2471 Anodized	7days@60°C in JRF	289 N/25 mm./100%
	7 days @60°C in JRF/SW	312 N/25 mm./100%
	6 temp cycles in JRF/SW[1]	285 N/25 mm./100%
AMS 4911 Titanium	7days @ 60°C in JRF	263 N/25 mm./100%
	7 days @ 60°C in JRF/SW	312 N/25 mm./100%
	70days @ 60°C in JRF	241 N/25 mm./100%
	70days @ 60°C in JRF/SW	263 N/25 mm./100%
	6 temp cycles in JRF/SW[1]	272 N/25 mm./100%
MIL-PRF-85285	7days @ 60°C in SW	343 N/25 mm./100%
MIL-PRF-85582	7days @ 60°C in SW	312 N/25 mm./100%
AS 4/3501-6 (epoxy graphite, peel side)	7days @ 60°C in JRF	280 N/25 mm./100%
	7 days @ 60°C in JRF/SW	307 N/25 mm./100%
	6 temp cycles in JRF/SW[1]	285 N/25 mm./100%
AS 4/3501-6 (epoxy graphite, tool side)	7days @ 60°C in JRF	285 N/25 mm./100%
	7 days @ 60°C in JRF/SW	316 N/25 mm./100%
	6 temp cycles in JRF/SW[1]	263 N/25 mm./100%

*Used AMS3100 adhesion promoter
[1] Cycle is 100 hours at 60°C + 10 hours at 71°C + 1 hour at 82°C

Typical Physical and Performance Properties of Cured compound After 14 Days @ 25°C/50% RH

Colour (mixed)	Black
Specific Gravity	1.52
Hardness	50 Shore "A"
Low Temperature Flexibility	No cracking, checking or adhesion loss when tested at -65°F (-54°C)
Thermal Stability 48 hrs @ 121°C	Does not soften, blister, crack or blow
Service Temperature	-65° to +250°F (-54° to +121°C)
Short Term Service Temperature	-65° to +360°F (-54° to +182°C)
Corrosion	Excellent protection from corrosion caused by galvanic coupling of dissimilar metals
Repairability (to itself)	178 N/25 mm / 100% cohesive failure

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 Polysulfide Sealant Application Guide and Surface Preparation Guide for instructions for product use. 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 application, production equipment and other limitations. This document is not intended to substitute for engineering assembly and/or manufacture instructions. 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-3730 Class B is 9 months from date of packaging, when stored at temperatures below 27°C in its original unopened container.

Mixed 3M AC-730 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. Also, 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 1/2 hour of available application time.

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