3M™ Aerospace Sealant AC-645 B-2

Product Description

3M™ Aerospace Sealant AC-645 B-2 is a low density, two-component, manganese dioxide cured, liquid polysulfide polymer system. It is suitable for use in fuel tank, fuselage hole filling, cavity filling and fuel tank filleting applications. It has outstanding resistance to jet fuel, as well as resistance to chemicals and petroleum products common to the aircraft industry. 3M AC-645 B-2 Sealant maintains its flexibility and bond strength on most metal substrates such as: aluminum, titanium, steel, stainless 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. It has excellent tooling properties.

Applications

- Cavity and hole filling
- Fuel tank and fuselage filleting

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.

Color **Base:** **Accelerator:**	 Off White Black
Mix Ratio	100 base / 10 accelerator (by weight)
Nonvolatile Content	97%
Base Viscosity (RVF Brookfield #7 spindle) @ 2 rpm, 77°F)	8,000 - 12,000 poise
Accelerator Viscosity (RVF Brookfield #7 spindle) @ 10 rpm, 77°F)	700 - 1,600 poise

Application Life and Cure Time

(@ 75°F, 50% Relative Humidity)

	Minimum Application Life[1]	Typical Tack-Free Time[2]	Typical Cure Time[3]
B-2	2 hours	24 hours	24 hours

[1]Application life refers to the length of time the 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; and for every 20°F 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-645 B-2 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, apply heat up to (but not more than) 120°F.

Typical Physical and Performance Properties of Cured Compound after 14 Days @ 77°F/55% RH when tested in accordance with STM 40-107

Color	Black
Specific Gravity	1.07
Hardness	55 Shore “A”
Low Temperature Flexibility	No cracking, checking or adhesion loss when tested at -65°F (-54°C)
Service Temperatures	-65° to +250°F (-54° to +121°C)
Corrosion	None
Repairability	12 piw / 100% cohesive failure to other STM 40-107 qualified sealants

Typical Values of 3M™ Aerospace Sealant AC-645 B-2 tested per STM 40-107

Tensile Strength and % Elongation

Conditioning	Results
Standard Cure	155 psi / 170%
7 days @ 140°F in JRF	120 psi / 270%

Peel Strength

Substrate	Conditioning	Peel Strength and % Cohesion
Alcad	Dry-Std	18 piw / 100%
Alcad	7 day JRF soak at 140°F	12 piw / 100%
Alcad	70 day JRF soak at 140°F	12 piw / 100%

Mixing Instructions

Two-Part Sealant Cartridges:

1. Holding the cartridge, grasp the dasher rod and pull back approximately one inch.
2. Insert the ramrod into the hollow of the dasher rod, break the piston loose, and inject about 1/3 of the contents into the cartridge.

Note: *Do not inject all of catalyst in one location. Distribute evenly throughout base material.*

3. Repeat steps 2 and 3 until all the contents of the rod are emptied into the cartridge. Remove the ramrod.
4. Mix for the required number of strokes (hand mixing) or for the required amount of time (machine mixing) indicated in the kit instructions.
5. When mixing is complete, remove bottom cap.
6. Pull the dasher rod back to the neck of the cartridge, grasp the cartridge firmly at the neck, unscrew the dasher rod and remove.
7. Screw the nozzle into the cartridge, insert into the extrusion gun and use as required. For hand extrusion, press the used dasher rod against the plunger to force the material from the cartridge.

Cleaning of Equipment

1. Immediately after use or before the sealant cures, wash equipment and tools with a solvent.
2. For inaccessible areas (such as interior surfaces of extrusion guns), commercially available integral fuel tank stripping compound should be used to remove cured sealant.

Health and Safety Precaution

3M™ Aerospace Sealant AC-645 B-2 is 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-645 B-2 is 9 months from date of packaging, when stored at temperatures below 80°F in its original container. Storage at lower temperatures increases shelf life.

Mixed 3M AC-645 B-2 Sealant may be stored under refrigeration as follows:

15 days at -10°F
30 days at -40°F

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.

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:

Australia
61-2-949-89333 tel

Austria
01-86686-298 tel

Brazil
55 19 3838-7876 tel

Canada
800-410-6880 ext. 6018 tel

China
86-21-62753535 tel

Denmark
45-43-480100 tel

France
0810-331-300 tel

Germany
02131-14-2344 tel

Hong Kong
852-2806-6111 tel

India
1-800-425-3030 tel
(inside country only)

Italy
02 7035-3423 tel
02 7035-2162 fax

Japan
+81 3 3709 8165 tel

Korea
+82 2 3771 4114 tel

Malaysia
60 3 7806 2888 tel

New Zealand
64-9-477-4040 tel

Netherlands
31-71-5-450-272 tel

Philippines
63-2-588-9100 tel

Singapore
65-6450-8888 tel

South Africa
11-922-9111 tel

Spain
34-91-321-6000 tel

Switzerland
01-724-9114 tel

Taiwan
+88 62 2704 9011 tel

Thailand
66-2260-8577 tel

United Kingdom
(0) 161-237-6174 tel

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.

Product Use

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.

Warranty, Limited Remedy, and Disclaimer

Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability

Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

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

3M

Aerospace and Aircraft Maintenance Division
3M Center, Building 223-1N-14
St. Paul, MN 55144-1000
1-800-235-2376
www.3M.com/aerospace

60-9700-0345-9

3M