



# AC-<sup>®</sup>251 Class B Black Exterior Moldline and Canopy/Windshield Sealant

SIN# 834-100

## Description

AC-251 Class B Black is a two-part, quick curing, polysulfide based canopy and windshield sealant. This product is formulated for sealing acrylic, glass, and polycarbonate aircraft canopies and windshields. AC-251 B Black contains no solvents and does not craze. The sealant quickly cures and exhibits excellent adhesion and resistance to UV and weather exposure.

AC-251 Class B Black has a thixotropic, non-sag consistency. It can be readily applied with a spatula or extrusion gun on vertical surfaces.

## Applications

- Canopy and windshield sealant
- Exterior moldline applications

## Specifications

MAT-645 – Qualified (B-1/2, B-1, B-2)  
TAPS 1123 – Qualified

## Typical Physical and Application Properties

Color	
Base:	Black
Accelerator:	Black
Final:	Black
Mixing Ratio	100 base / 10 accelerator (by weight)
Nonvolatile Content	98%
Base Viscosity (Brookfield #7 spindle @ 2 rpm)	9,000-14,000 poise

## Application Life and Cure Time

Tested at 77°F, 50% R.H.	Minimum Application Life <sup>1</sup>	Typical Tack-Free Time <sup>2</sup>	Typical Cure Time <sup>3</sup>
B-½	½ hour	<3 hours	4 hours
B-1	1 hour	5 hours	7 hours
B-2	2 hours	8 hours	9 hours

## Typical Physical and Performance Properties of Cured Compound After 14 Days @ 77°F/50% RH when tested per AMS-S-8802

Color	Black
Specific Gravity	1.59
Hardness	55 Shore "A"
Low Temperature Flexibility	No cracking, checking or adhesion loss when tested at 65°F (-54°C)
Service Temperatures	-65°F to +250°F (-54° to +121°C)
Intermittent Exposure To	360°F (182°C)
Thermal Rupture Resistant	Does not blister or sponge
Corrosion	None
Repairability	35 piw to itself and other AMS-S- 8802 qualified sealants
Weight loss and Flexibility	No cracking when bent 180° over a 1/8 inch mandrel. No more than 6% loss of the sealant compound after fluid immersion
Fungus Resistance	Meets MIL-STD-810 requirement
Crazing	No effect on acrylic or polycarbonate

<sup>1</sup>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 as 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.

<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 AC-251 Class B Black sealant 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. To accelerate the curing process, apply heat up to (but not more than) 160°F. If the humidity is low, increasing the humidity will cure the sealant more quickly.



## Tensile Strength and % Elongation

Conditioning	Specification Requirements	Results
Standard Cure--14 days --7 days @ 250°F	200 psi/200% 125 psi/100%	350 psi/370% 310 psi/300%

## Peel Strength\*\*

Substrate	Conditioning	Load/% Cohesion
MIL-G-25667 (Glass)	Standard Cure 7 days @ 140°F	50 lbs./100% 48 lbs./100%
MIL-P-8184 (Acrylic)*	Standard Cure 7 days @ 140°F	38 lbs./100% 41 lbs./100%
MIL-P-5425 (Acrylic)*	Standard Cure 7 days @ 140°F	35 lbs./100% 38 lbs./100%
MIL-P-83310 (Polycarbonate)*	Standard Cure 7 days @ 140°F	35 lbs./100% 33 lbs./100%
MIL-T-9046 (Titanium)	Standard Cure 7 days @ 140°F	44 lbs./100% 39 lbs./100%
AMS 2471 (Anodized Al)	Standard Cure 7 days @ 140°F	38 lbs./100% 38 lbs./100%
AMS 5516 (Stainless Steel)	Standard Cure 7 days @ 140°F	53 lbs./100% 46 lbs./100%

\* Cleaned with Isopropyl alcohol and tested with AC-137 Red or Clear Adhesion Promoter

\*\* Specification requirement - 20 lbs./100% cohesion, wire mesh

## 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 1 and 2 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.

All values are typical and are not intended for specification use.

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US Patent 6,486,268

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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.

## Storage

The shelf life of AC-251 Class B Black is 9 months from date of packaging, when stored at temperatures below 80°F in its original container. Pre-mixed and frozen sealant has a shelf life dependant upon the storage temperature. Mixed AC-251 Class B Black 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. 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 ½ hour application time.

## Health and Safety Precautions

AC-<sup>®</sup>251 Class B Black sealant 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. Avoid overexposure. Obtain medical care in case of extreme overexposure.