Technical Data Sheet

Aerospace Sealants

PR-2001 Class B rapid curing fuel tank sealant

Description

PR-2001 Class B is a rapid cure, low odor, aircraft integral fuel tank, fuselage and aerodynamic smoothing sealant. It has a service temperature range from -80 °F (-62 °C) to 320 °F (160 °C), with intermittent excursions up to 420 °F (216 °C). This material is designed for fillet sealing of fuel tanks and other aircraft fuselage sealing applications. The cured sealant maintains excellent elastomeric properties after prolonged exposure to both jet fuel and aviation gas.

PR-2001 Class B is a two-part, epoxy cured PERMAPOL® P-3.1 polythioether compound. The uncured material is a low sag, thixotropic paste, suitable for application by extrusion gun or spatula. Unlike standard polysulfide fuel tank sealants, it can cure at low temperatures and is unaffected by changes in relative humidity. The sealant has excellent adhesion to properly prepared common aircraft substrates.

PR-2001 Class B is also available in preformed parts using PPG's proprietary Ambient Reactive Extrusion (PPG ARE™) additive printing technology.

The following tests are in accordance with AMS 3277 Type II, Class B specification test methods.

Application properties (typical)

Color	
Part A	black
Part B	white
Mixed	gray
Mixing Ratio By weight	Part A: Part B 18.5:100
Base Viscosity, Poise (Pa-s) (Brookfield #7 @ 2 rpm)	13,700 (1,370)

Slump, inches (mm)

	Initial	50 minutes	90 minutes
B-1/2	0.10 (2.5)	——	——
B-2	0.10 (2.5)	0.10 (2.5)	0.10 (2.5)
	Initial	120 minutes	210 minutes
B-4	0.10 (2.5)	0.10 (2.5)	0.10 (2.5)

Application life and cure time @ 77 °F (25 °C), 50% RH

	Application life (hours)	Tack free time (hours)	Cure time to 30 Durometer A (hours)
B-1/2	1/2	< 2	3
B-2	2	< 8	9
B-4	4	< 24	24
@ 50 °F (10 °C), 50% RH			
B-1/2	1/2	< 4	4

Performance properties (typical)

Cured 7 days @ 77 °F (25 °C), 50% RH

Specific Gravity	1.45
Nonvolatile Content, %	98
Ultimate cure hardness, Durometer A	48

Peel strength, pli (N/25 mm), 100% cohesion

AMS2629 Type I Fuel immersion, 7 days @ 140 °F (60 °C)	
AMS2471 (anodized aluminum)	39 (170)
AMS4901 (titanium)*	40 (180)
AMS5516 (stainless steel)*	41 (180)
AMS4901 (titanium)	32 (140)
AMS5516 (stainless steel)	38 (170)
MIL-DTL-5541 (alodined aluminum)	40 (180)
AMS-C-27725 (IFT coating)	41 (180)
AMS2629 Type I fuel /3% saltwater immersion, 7 days @ 140 °F (60 °C)	
AMS2471 (anodized aluminum)	44 (200)
AMS4901 (titanium)*	45 (200)
AMS5516 (stainless steel)*	45 (200)
AMS4901 (titanium)	39 (170)
AMS5516 (stainless steel)	44 (200)
MIL-DTL-5541 (alodined aluminum)	40 (180)
AMS-C-27725 (IFT coating)	42 (190)
3% saltwater immersion, 7 days @ 140 °F (60 °C)	
MIL-PRF-85582 (waterborne epoxy)	45 (200)
MIL-PRF-85285 (urethane coating)*	44 (200)
MIL-PRF-85285 (urethane coating)	53 (240)
MIL-PRF-23377 (epoxy coating)	44 (200)

*Primed with AMS3100 Adhesion Promoter

Tensile Strength, psi (kPa)	
Standard cure	400 (2800)
Standard cure + AMS3277 Standard heat cycle	434 (2990)
Elongation, %	
Standard cure	268
Standard cure + AMS3277 Standard heat cycle	262
Volume shrinkage, %	
Standard cure + 48 hours at 185 °F (85 °C)	< 0.7

Thermal rupture resistance – Retains pressure of 10 psi with only negligible deformation, both before and after immersion in AMS2629 Type I fuel.

Low Temperature Flexibility @ -80 °F (-62 °C) – No cracking, checking or loss of adhesion.

Corrosion resistance – no corrosion, adhesion loss, softening, or blistering after immersion in 2-layer AMS2629 Type I/3% saltwater/vapor after 12 days @ 140 °F (60 °C) + 60 hours @ 160 °F (71 °C) + 6 hours @ 180 °F (82 °C).

Resistance to hydrocarbons – AMS2629 Type I Fuel immersion, 7 days @ 140 °F (60 °C) + 24 hours @ 120 °F (49 °C) in air:

Weight loss, %	3.4

Flexibility – no cracks after bending 180° over 0.125 inch (3.18 mm) mandrel.

Repairability to itself – Excellent to both freshly-cured and as well as fuel-aged and abraded fillets.

Repairability to polysulfide (AMS-S-8802) - Excellent to both freshly cured as well as fuel aged and abraded fillets when primed with PR-187 adhesion promoter (AP).

Fungus resistance	non-nutrient

Note: The application and performance property values above are typical for the material but not intended for use in specifications or for acceptance inspection criteria because of variations in testing methods, conditions, and configurations.

Surface preparation

Immediately before applying sealant to primed substrates, the surfaces should be cleaned with solvents. Contaminants such as dirt, grease and/or processing lubricants must be removed prior to sealant application.

A progressive cleaning procedure should be employed using appropriate solvents and a new lint-free cloth. (Reclaimed solvents or tissue paper should not be used.) Always pour solvent on the cloth to avoid contaminating the solvent supply. Wash one small area at a time.

It is important that the surface is dried with a second clean cloth prior to the solvent evaporating to prevent the redeposition of contaminants on the substrate.

For repair applications over polysulfide sealants, the use of PR-187AP is mandatory. On typical substrates, PR-187 is not essential and may be applied at the users discretion. However, PR-187 can only enhance the adhesive bond.

Substrate composition can vary greatly. This can affect sealant adhesion. It is recommended that adhesion characteristics to a specific substrate be determined prior to application on production parts or assemblies.

For a more thorough discussion of proper surface preparation, please consult the SAE Aerospace Information Report AIR 4069. This document is available through SAE, 400 Commonwealth Avenue, Warrendale, PA 15096-0001.

Packing options

PR-2001 Class B is supplied in Semkits® or pre-mixed and frozen Semco® cartridges. PR-187AP is included in *Semkit*. See container for sealant mixing instructions.

PR-2001 Class B is also available in preformed parts using *PPG ARE* technology.

Storage life

The storage life of PR-2001 Class B is at least 6 months when stored at temperatures between 60 °F (15 °C) and 80 °F (27 °C) in original, unopened containers.

The storage life of PR-2001 Class B pre-mixed and frozen cartridges is a maximum of 30 days when stored at temperatures of -80 °F (-62 °C) or below.

Recommended thawing procedure

To thaw pre-mixed and frozen PR-2001 stored at -80 °F (-62 °C), place the frozen cartridges in a 120 °F (49 °C) water bath for 5 – 7 minutes. The application life for the sealant starts when the thawed cartridges are removed.

Health precautions

Follow all use instructions and recommended precautions when applying this product. Before using this product, read and understand the Safety Data Sheet (SDS) which provides information on health, physical and environmental hazards, handling precautions and first aid recommendations. An SDS is available upon request.

For industrial use only. Keep away from children.

For emergency medical information call 1-800-228-5635

Additional information can be found at: www.ppgaerospace.com

For sales and ordering information call 1-800-AEROMIX (237-6649).

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