PRC-DeSoto
International

Aerospace Sealants

LABORATORY PRODUCT REPORT

PR-1826 CLASS A

DESCRIPTION

PR-1826 Class A is a two-part, rapid curing, polythioether polymer based sealant. The mixed compound can be applied by brush in thicknesses up to 25 mils (.6 mm) without dripping or flowing from vertical or overhead surfaces. PR-1826 Class A cures at temperatures down to 0°F (-18°C), and will adhere to all commonly used aircraft materials when primed with PR-1826 Adhesion Promoter. The cured sealant resists temperatures up to 300°F (149°C) and for short exposure times, up to 420°F (216°C). The sealant is also flexible down to -80°F (-62°C). The sealant has excellent resistance to aircraft fuels (aviation gasoline or jet fuel), petroleum based oils and to deterioration by the diphosphate ester type hydraulic fluids.

USE

PR-1826 Class A is a brushable consistency sealing compound designed for rapid sealing of integral fuel tanks. PR-1826 Class A is supplied in two contrasting colors, [redacted] PR-1826 A Black to allow uniform, multilayer applications.

APPLICATION PROPERTIES (Typical)

Color				
PR-1826 A, [redacted] Black, accelerator	Black			
[redacted]	[redacted]			
PR-1826 A, Black, base compound	Light tan			
Mix Ratio By weight	Part A:Part B 8.2:100			
Nonvolatile Content, %	85			
Viscosity, Poise (Pa-s)	400 (40)			
	A-1/4	A-1/2	A-1	A-2
Application Life @ 77°F (25°C)/50% RH, hrs:min.	:15	:30	1:00	2:00
Cure to 25 Rex, hours	1-1/2	3	6	16

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Specific Gravity	1.45
Hardness, Shore A	43
Resistance to Thermal Rupture, inch (mm) 400°F (204°C) for 1 hr, with and without JRF exposure	1/8 (3.18)
Low Temperature Flexibility @ -80°F (-62°C)	passes

Adhesion, *pli (N/25mm)
Peel strength (cohesive) after 7 days immersion in JRF or JRF 3% salt water bi-layer at 140°F (60°C).

	JRF	3% Salt Water
Alclad	32 (142)	45 (200)
MIL-C-5541	34 (151)	46 (204)
MIL-A-8625	32 (142)	45 (200)
MIL-C-27725	36 (160)	47 (209)
Titanium	37 (164)	47 (209)
Stainless Steel	35 (155)	49 (218)

Tensile Strength @ 77°F (25°C), psi (kPa)	400 (2760)
Ultimate Elongation @ 77°F (25°C), %	350
Corrosion Resistance (20 days @ 140°F (60°C) in JRF 3% salt water)	passes

Resistance to Heat and Fuel Exposure after:	Tensile, psi (kPa)	Elongation, %
2 hours @ 420°F (216°C)	180 (1242)	140
14 days in JRF II @ 140°F (60°C)	220 (1518)	300
16 hours @ 360°F (182°C)	149 (1028)	100

*All substrates primed with PR-1826 Adhesion Promoter

SURFACE PREPARATION AND PRIMING

To obtain excellent adhesion to all surfaces, the surface should be cleaned with solvents to remove dirt, grease and oils. Just prior to adhesion promoter application all surfaces should be cleaned by the progressive cleaning procedure using only clean rags or paper towels. Wash one small area at a time, then dry with a clean cloth before solvent evaporates to prevent redeposition of oil, wax or other surface contaminants. To maintain a clean solvent supply, always pour the solvent on the washing cloth.

After the surface has been cleaned, apply PR-1826 Adhesion Promoter with a clean brush or by wiping on with a gauze pad. Care must be taken with either a brush or gauze to obtain a uniform thin coat - one that is thin enough to cover, but not heavy enough to run. At standard temperature, allow the adhesion promoter to dry 30 minutes. At lower temperatures, allow a proportionally longer time to dry. The sealant may be applied up to 8 hours after the application of the adhesion promoter. After 8 hours, the surface should be recleaned and adhesion promoter reapplied. On porous materials, such as old sealants, multiple coats should be used. The surface should show a slight gloss adhesion promoter when it is done properly. PR-1826 applied over cured PR-1826 does not require a coat of adhesion promoter.

The appearance of the adhesion promoter can be clear yellow to hazy, but should not have particles or precipitate in it.

MIXING INSTRUCTIONS

1. Premeasured kits have the proper amount of base and accelerator to be mixed together. The bulk containers should be mixed in the ratio of 8.2 parts accelerator to 100 parts base compound by weight.

2. Stir the base and accelerator together until the mix is even and consistent. A very thorough mix of accelerator and base is required for proper tack free, cure and physical properties.

3. The ratio of the accelerator to base is critical and can not vary more than 3% or it will adversely affect the final properties of the sealant.

APPLICATION INSTRUCTIONS

PR-1826 Class A is suitable for application with a brush for the time listed on the container. The material cures normally down to 20°F (-6°C). Below this temperature the solvent evaporates very slowly and, although the sealant cures, it is softer than would be expected. To store the premixed and frozen material, the storage should be in a CO_2 free container at or below -70°F (-57°C). This will provide 7 to 10 days storage.

SPRAY APPLICATION INSTRUCTIONS

PR-1826 Class A may be diluted with solvent so that it may be applied by spray. Certain steps should be taken to insure a proper application. The solvent recommended for dilution is 100 percent methyl ethyl ketone. However, when appearance is more critical, a mix of 75 percent methyl ethyl ketone and 25 percent toluene should be used. This mixture does not provide all of the outstanding cure advantages of PR-1826. The best method for preparing PR-1826 Class A for spraying is a follows:

1. Mix PR-1826 Class A part B and part A in the proper ratio.

2. Add solvent, methyl ethyl ketone, one volume to one volume of mixed PR-1826 Class A, or 80 parts of MEK to 100 parts by weight of mixed PR-1826 Class A.

3. Adjust the solvent as necessary for the specific spray equipment.

4. The rated application life of the PR-1826 Class A, when diluted with MEK for spraying, usually doubles. But the tack free time and cure time remains the same or is accelerated.

5. When sprayed, PR-1826 Class A can be applied to a 5 to 10 mil (0.13 to 0.26 mm) wet film.

CURE

PR-1826 Class A cures rapidly at room temperature and lower temperatures. The A-1 will typically reach 25 Rex A at 6 hours and is strong enough to withstand refueling pressure of 10 psi and the repaired aircraft flown away, if the material was used for repair. The time required for cure of the PR-1826 Class A is dependent on the temperature that it is cured. Its cure will be halved or doubled for each 18°F (10°C) up or down, respectively, from the standard 77°F (25°C).

The ultimate properties for PR-1826 Class A are obtained once the solvent has evaporated from the sealant.

CLEANING OF EQUIPMENT

Wash equipment with a chlorinated solvent immediately after use or before sealant cures. Use commercial stripping compounds to remove cured sealant. Suitable compounds are available from the following companies:

B & B Chemical Company, Incorporated	Miami, Florida
Turco Products, Incorporated	Los Angeles, California
Pennwalt Corporation	Los Angeles, California
Wyandotte Chemicals Corporation	Wyandotte, Michigan
Eldorado Chemical Company	San Antonio, Texas

STORAGE LIFE

The shelf life of unmixed PR-1826 Class A is at least 9 months when stored at temperatures between 40°F (4°C) and 80°F (27°C) in the original unopened containers. Slight changes in the application properties may occur during storage, but these changes should not affect the performance properties of the cured material.

HEALTH PRECAUTIONS

PR-1826 Class A is a safe material to handle when reasonable care is observed. Avoid ingestion and all contact with the body, especially open breaks in the skin. Always wash hands before eating or smoking. Use adequate ventilation, polyethylene mitts and chemical type goggles when working with this product. If accelerator contacts skin, flush area with warm water and wash with soap and water. Obtain medical attention in cases of extreme exposure or ingestion.

PR-1826 Class A and PR-1826 Adhesion Promoter contain methyl ethyl ketone. The maximum allowable concentration in air is 200 parts per million for safe working conditions. Use adequate ventilation or air-supplied respirators during application. Avoid repeated or prolonged exposure. In case of overexposure, remove affected personnel to fresh air immediately and obtain medical attention. For additional information, consult a Material Safety Data Sheet.

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