PROTAC®
Engineering Adhesives, Industrial Sealants

Protac 2890 Threadlock – Penetrating / Wicking grade

Product description

Protac 2890 Nutlock is a medium-high strength penetrating grade anaerobic threadlocker. The product cures when confined in the absence of air on close-fitting metal surfaces.

Specification

Military specifications: MIL-S-46163A Type III Grade R
Military specifications: MIL-S-22473E Letter Grade AA

Typical applications

Protac 2890 is formulated to be a very low viscosity anaerobic threadlocker. Used mainly to wick into pre-assembled parts. Due to the very low viscosity, 2890 can be used for some interference fit retaining applications. Protac 2890 can also be used as a porosity sealant for cast components.

Properties of material

Chemical type	Di-Methacrylate
Appearance	Light green
Specific Gravity	1.07
Viscosity cPs(Range)[1]	7-12
(Typical value)	10
Breakaway Torque (N.m)[3]	7-21
Typical value	17
Prevail Torque (N.m)[3]	26-44
Typical value	35
Fixture Time[3]	≤15
Full Cure @ 20°C (hours)	24
Flash Point (°C)	>100
Shelf Life @ 20°C (months)	12
Max Gap Fill (mm)	-
Operating temp. Range (°C)	-50 to +150

[1]ISO 3104/3105
[2]On M10 black oxide steel bolt and M10 bright steel nut, ISO10964
[3]ISO 10964

Typical curing speed, % of final strength:-

15 mins	Finger tight
1 hour	~ 50% strength
24 hours	100% strength

Cure speed vs. substrate

Cure speed and strength vary according to the substrates. When used on mild steel and brass components anaerobic adhesives will reach full cure faster than more inert materials such as stainless steel and zinc dichromate. Protac AC32 activator may be used to accelerate cure speed.

Cure speed vs. bond gap

The size of the bond gap greatly affects the speed of cure of anaerobic adhesives. Bond gap varies with thread type and size of the fastener. The larger the gap between threads, the slower the cure speed. Maximum recommended gap fill for 2890 is 0.15mm.

Cure speed vs. temperature

All figures relating to cure speed are tested at 22°C. Lower temperatures will result in slower cure. Heating the assembled parts accelerates the curing process. Activator AC32 should be used when the temperature is less than 5°C.

Typical environmental resistance

Hot strength

Protac 2890 is suitable for use at temperatures up to 150°C. At 130°C the bond strength will be ~30% of the strength at 21°C.

Heat ageing

Protac 2890 retains ~90% full strength when heated to 100°C for 90 days then cooled and tested at 22°C.

Chemical / Solvent Resistance

Protac anaerobic adhesives exhibit excellent chemical resistance to most oils and solvents including motor oil, leaded petrol, brake fluid, acetone, ethanol, propanol and water. Anaerobic adhesives are not recommended for use in pure oxygen or chlorine lines.

Chemical	**Temp.**	**% Initial Strength Retained**	
		500 hours	1000 hours
Acetone	22°C	95	95
Ethanol	22°C	95	95
Motor Oil	125°C	85	50
Petrol	22°C	90	90
Brake Fluid	22°C	90	85
Water/Glycol	87°C	90	90

General information

For safe handling of this product consult the Material Safety Data Sheet.

Anaerobic adhesives only cure in the absence of air and with metal part activation. Adhesive outside the joint will remain uncured and may be wiped away with a cloth.

2890 is suitable for most for most standard diameter, fine to medium threaded screws, nuts and bolts. Not recommended on certain plastics as stress cracking can sometimes result. Some anti-corrosion chemicals inhibit the cure system in this type of anaerobic. Trials are recommended to establish whether cleaning of the parts is necessary. AC32 Activator may be required on plated parts.

Directions for use

Ensure parts are clean, dry and free from oil and grease. Apply adhesive to all engaged threads. Assemble parts and allow to cure. Wipe excess adhesive from outside of joint.

Storage

Store in a cool area out of direct sunlight. Refrigeration to 5°C gives optimum storage stability.

Packaging	Bottles: 50ml and 250ml. Available in bulk for use with dispensing systems.
Data ranges	The data contained in this data sheet may be reported as typical value and/or range. Values are based on actual test data and are verified on a regular basis.
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