PERMABOND® A1046

Anaerobic Retainer

Technical Datasheet

Features & Benefits

- Toughened
- Rapid cure
- Ideal when bonding dissimilar materials
- Improved fatigue life

Description

Permabond® A1046 is a rapid curing adhesive designed to provide permanent locking and sealing of metal parts such as bearings, gears, pulleys and threaded components. It exhibits high strength and excellent durability, even under the most arduous conditions. Permabond A1046 helps joints resist vibration, fatigue and fretting corrosion, which allows machining tolerances to be relaxed and mechanical locking devices to be eliminated. Permabond A1046 will help reduce processing costs.

Physical Properties of Uncured Adhesive

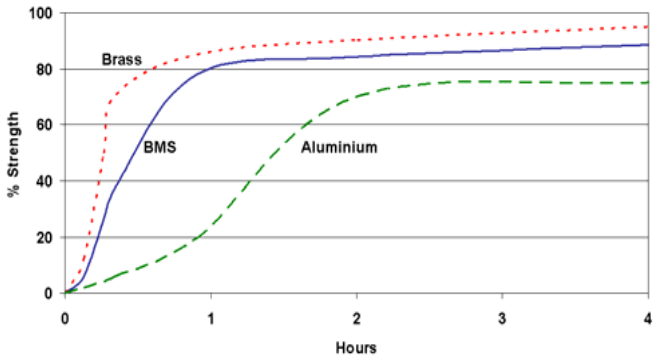
Chemical composition	Acrylic
Appearance	Green
Viscosity @ 25°C	9000 mPa.s (cP) Thixotropic
Specific gravity	1.07
UV fluorescence	Yes

Typical Curing Properties

Maximum gap fill Maximum thread size	0.25 mm ***0.01"*** M30 ¾"
Handling strength (steel)	5-10 minutes*
Working strength	30 minutes
Full strength	24 hours

**Handling time at 23°C / 73°F. Copper and its alloys will make the adhesive cure more quickly, while oxidised or passivated surfaces (like stainless steel) will reduce cure speed. To reduce curing time, use Permabond activator A905 or ASC10.*

Strength Development

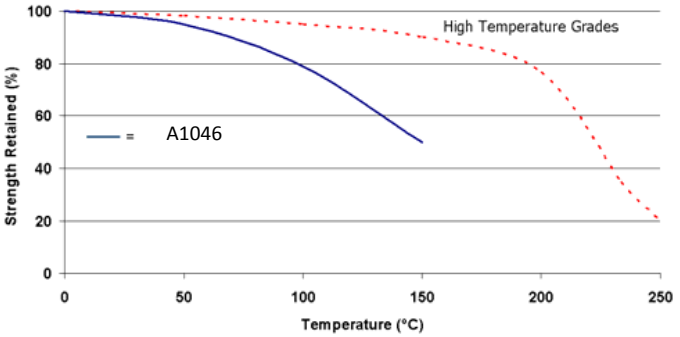


Cure times are typical at 23°C. Copper and its alloys will follow the faster cure while oxidised or passivated surfaces like stainless steel will tend towards the slower curve. Lower temperatures or large gaps will tend to extend the cure time. To reduce the cure time the use of Permabond A905, ASC10, or heat can be considered.

Typical Performance of Cured Adhesive

Torque strength (M10 Zn plated ISO10964)	Break 33 Nm ***290 in.lb*** Prevail 58 Nm ***520 in.lb***
Shear strength (steel collar & pin)	25 MPa ***3600 psi***
Coefficient of thermal expansion	90 x 10^{-6} mm/mm/°C
Dielectric strength	11 kV/mm
Thermal conductivity	0.19 W/(m.K)

Temperature Resistance



"Hot strength" shear strength tests performed on mild steel. 24hr cure at room temperature and conditioned to pull temperature for 30 minutes before testing.

A1046 can withstand higher temperatures for brief periods (such as for paint baking and wave soldering processes) providing the joint is not unduly stressed. The minimum temperature the cured adhesive can be exposed to is -55°C (-65°F) depending on the materials being bonded.

Chemical Resistance

Immersion (1,000 Hours)	Temperature (°C)	Strength Retention (%)
Engine Oil	125	235
Water/Glycol	75	100
Leaded Petrol	23	175
Unleaded Petrol	23	175
Diesel	23	160
Brake Fluid	23	180
Trichloroethane	23	175
99% IMS	23	170
Acetone	23	160

This product is not recommended for use in contact with oxygen, oxygen rich systems and other strong oxidizing materials. This product may adversely affect some thermoplastics and users must check compatibility of the product with such substrates before using.

Surface Preparation

Though the anaerobic adhesives will tolerate a slight degree of surface contamination, best results are obtained on clean, dry and grease free surfaces. The use of a suitable solvent-based cleaner (such as acetone or isopropanol) is recommended.
In general, roughened surfaces (~25µm) give higher bond strengths than polished or ground surfaces.
To reduce the curing time, especially on inactive surfaces (such as zinc, aluminium and stainless steel), the use of Permabond A905 or ASC10 can be considered.

Directions for Use

1) Apply a circumferential bead; preferentially to the female component. Assemble with a twisting action.
2) For larger components use thixotropic products to prevent run off.
3) Take care to ensure adhesive does not enter ball races or other mechanisms.

Storage & Handling

Storage Temperature	5 to 25°C ***(41 to 77°F)***
Users are reminded that all materials, whether innocuous or not, should be handled in accordance with the principles of good industrial hygiene. Full information can be obtained from the Material Safety Data Sheet.	

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