Permabond® Engineering Adhesives

A1046
Anaerobic Retainer
Technical Information Sheet

Major Features

* Toughened
* Rapid Cure
* Ideal when bonding dissimilar metals
* Improved fatigue life

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.

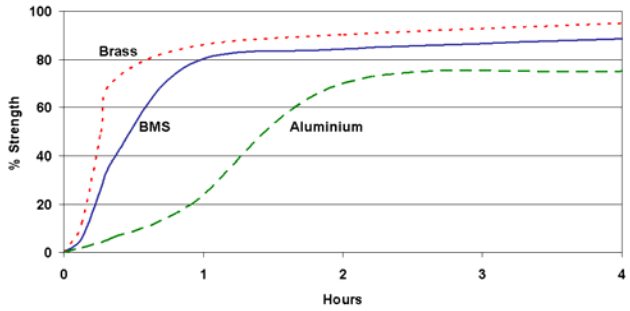
Physical Properties

Chemical Type	**Acrylic Single Part**
Colour	**Green**
Viscosity @ 25°C mPa.s	**9,000 Slightly Thixotropic**
Density	**1.07**
UV Fluorescent	**Yes**

Performance

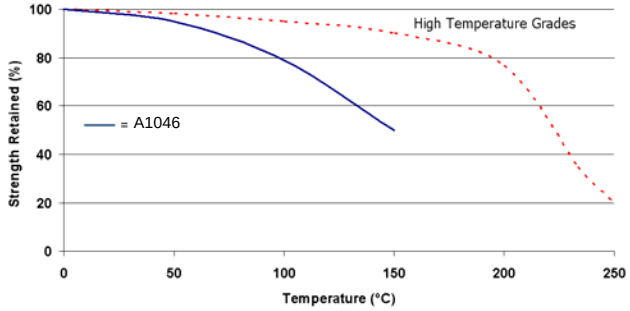
Maximum Gap Fill		**0.25 mm**
Max. Thread Size		**M30 1¼"**
Handling strength	Steel	**5-10 minutes**
Working strength		**30 minutes**
Full strength		**24 hours**
Torque strength (Break / Prevail)	M10 Steel ISO10964	**33 / 58 Nm**
Shear strength	Steel Collar and Pin	**25 MPa**
Service Temp.		**-55 to +150°C**

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, or heat, can be considered.

Hot Strength



The reduction in strength shown here is reversed on cooling providing the joint is not overstressed. Exposure to higher temperatures may be acceptable for short periods

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 joints which will be in contact with either steam or pure oxygen. Avoid prolonged contact with strong acids, alkalis and very polar solvents

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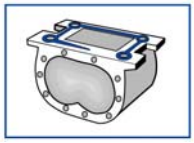
Surface Preparation

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 Permabond Cleaner A 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 can be considered.

Adhesive Application



Gasketing

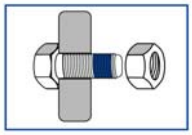
Apply as a bead , by roller, silkscreen or stencil. Ensure all potential leak paths such as flange bolt holes are encircled.

Removal: use normal tools to to prise the surfaces apart. Ensure old adhesive is removed before reassembling the parts.

Retaining

Apply a circumfrential bead; preferentially to the female component. Assemble with a twisting action.

For larger components use thixotropic products to prevent run off. Take care to ensure adhesive does not enter ball races or other mechanisms.



Thread Locking

Apply sufficient adhesive to the bolt to ensure adequate coverage. For coarse threads use thixotropic grades.

For blind holes adhesive should be applied to the lower end of the female thread to ensure it is not forced out of the joint during assembly.

Thread Sealing

Apply a continuous bead circumfrentially 1-2 threads from the leading edge. Ensure sufficient is applied to give a complete seal.

For taper/parallel threads ensure adhesive is positioned where the threads will engage fully. Gaps, and therefore cure times, may be greater than expected with this joint configuration.

Tighten with normal tools.

Storage and Handling

Storage Temperature	5 to 25°C

Users are reminded that all materials, whether innocuous or not, should be handled in according to the principles of good industrial hygiene. Full information can be obtained from the Material Safety Data Sheet.

Other products in the Permabond range….

Anaerobics
- ✓ Toughened
- ✓ Gas & Water approved
- ✓ High temperature resistance

Cyanoacrylates
- ✓ Low bloom / low odour
- ✓ Flexible,
- ✓ High temperature resistance

Epoxies
- ✓ Fast cure
- ✓ Toughened
- ✓ Flexible grades

Toughened Acrylics
- ✓ Rapid cure
- ✓ Low odour

UV Light Cured
- ✓ Glass / plastic bonding
- ✓ Optically clear
- ✓ Non yellowing

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