

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

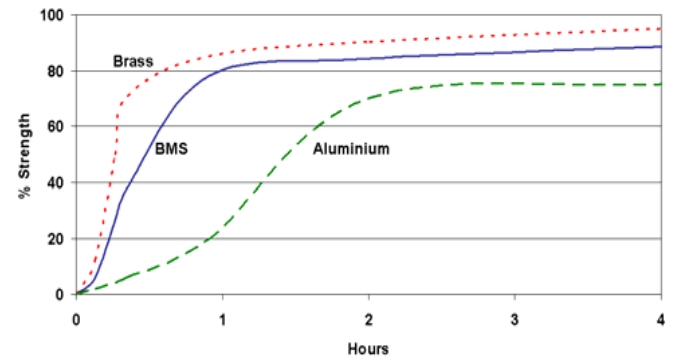
Chemical composition	Acrylic
Appearance	Green
Viscosity @ 25°C	9000 mPa.s (cP) Thixotropic
Density	1.07
UV fluorescence	Yes

Typical Curing Properties

Maximum gap fill	0.25 mm 0.01"
Maximum thread size	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.

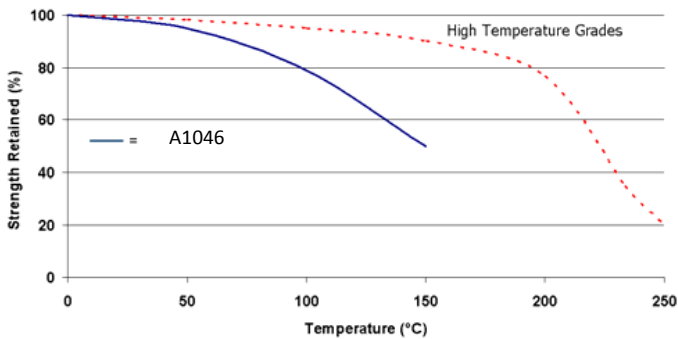
Typical Performance of Cured Adhesive

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)

The information given and the recommendations made herein are based on our research and are believed to be accurate but no guarantee of their accuracy is made. In every case we urge and recommend that purchasers before using any product in full-scale production make their own tests to determine to their own satisfaction whether the product is of acceptable quality and is suitable for their particular purpose under their own operating conditions. THE PRODUCTS DISCLOSED HEREIN ARE SOLD WITHOUT ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED.

No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the non-existence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of this patent. We also expect purchasers to use our products in accordance with the guiding principles of the Chemical Manufacturers Association's Responsible Care® program.

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 steam, strong oxidizing materials and polar solvents although will withstand a solvent wash without any bond strength deterioration.

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.	

Contact Permabond:

Europe: Tel. +44 (0)1962 711661
 UK Helpline: 0800 975 9800
 Deutschland: 0800 10 13 177
 France: 0805 11 13 88
 info.europe@permabond.com

US: Tel. +1 732-868-1372
 Helpline: 800-640-7599
 info.americas@permabond.com
Asia: Tel. +86 21 5773 4913
 info.asia@permabond.com

www.permabond.com

The information given and the recommendations made herein are based on our research and are believed to be accurate but no guarantee of their accuracy is made. In every case we urge and recommend that purchasers before using any product in full-scale production make their own tests to determine to their own satisfaction whether the product is of acceptable quality and is suitable for their particular purpose under their own operating conditions. THE PRODUCTS DISCLOSED HEREIN ARE SOLD WITHOUT ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED.

No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the non-existence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of this patent. We also expect purchasers to use our products in accordance with the guiding principles of the Chemical Manufacturers Association's Responsible Care® program.