

# Permabond Anaerobics

The Permabond range of anaerobic adhesives is formulated to provide superior performance benefits in applications with self-supporting or closely-mating metallic components such as retaining bearings, locking threads, flange seals or gaskets and sealing pipe work.

## How Do Anaerobic Adhesives Work?

Permabond anaerobic adhesive formulations are designed to cure when air is absent and metal surfaces (both ferrous and non-ferrous) are present. The liquid adhesive fills imperfections in the metal surfaces and gaps between the mated parts. The adhesive then rapidly cures to an inert acrylic adhesive/sealant creating a solid 100% mechanical surface-to-surface contact and physical lock.

## Why Use Anaerobics?

- ▶ Liquid adhesive provides greater surface-to-surface contact than mechanical fasteners.
- ▶ Quick curing without air; accelerates assembly rates.
- ▶ Resistant to oils, solvents and other surface treatments.
- ▶ Available in permanent and removable formulations.
- ▶ Superior bond strength; often exceeds that of substrate material.
- ▶ Wide temperature range; from -50°C to +200°C.
- ▶ Gap fill capability from interference fits up to 0.5mm.
- ▶ Seals, bonds and locks with one product.

Anaerobics



Retaining

Threadlocking

Pipe Sealing

Gasketing

Adhesive Applications

Permabond has developed anaerobic adhesive products for use in retaining applications once reserved for mechanical joining methods such as keyways, interference fits and shrink fits. Permabond high performance anaerobic retaining formulations provide:

- ▶ 100% surface-to-surface contact, thus improving strength and vibration resistance
- ▶ Enhanced torque resistance over mechanical joining 5-times greater load carrying capacity than mechanical joining methods
- ▶ Greater design freedom through possibility of joining dissimilar materials
- ▶ Inherent corrosion resistance and extended component durability
- ▶ Reduced machining tolerances in part design.

Permabond threadlocking sealants are a cost-effective and performance-improving alternative to lock washers, locking threads and studs. Permabond high-performance anaerobic threadlocking formulations provide:

- ▶ Fast cure speeds for quick pressure testing
- ▶ Dismantleable and permanent threadlocking that increases project versatility
- ▶ 100% leak-free thread lock, even with mis-threaded fittings
- ▶ Inherent corrosion resistance thus maintaining thread lock integrity
- ▶ Wicking grade sealants to penetrate tight fitting and porous parts.

Permabond pipe sealing products have been specially formulated for durability and resistance to harsh environments. Permabond pipe sealant products provide:

- ▶ PTFE based formulations for durable, long-term sealing
- ▶ Inert finished cure; resistant to acids, solvents and glycol-based products
- ▶ Multiple viscosities; to seal both fine and coarse threads.
- ▶ Fast cure speeds for quick pressure testing; instantly sealing to 1000 psi (70 bar)
- ▶ Dismantleable and permanent sealants that increase project versatility
- ▶ 100% leak-free pipe sealing, even with mis-threaded pipes

Final cure strength that exceeds that of most pipe materials.

Permabond high-performance gasketing products are anaerobic formulations specifically developed to exceed the application speed and flange seal integrity of conventional gasketing material. Permabond anaerobic gasketing sealants provide:

- ▶ Fast cure speed and high strengths that eliminates flange re-tightening
- ▶ A full range of viscosities for various gap-filling requirements. Fast cure speeds for quick pressure testing
- ▶ A wide range of temperature resistance; appropriate for harsh environments
- ▶ Dismantleable and permanent gasketing grades, expanding project versatility
- ▶ Excellent flexural and vibration tolerance with no loss in seal integrity
- ▶ Reduced need for mechanical fasteners; bonds to 100% of entire surface.

## Permabond Anaerobic Adhesives Comparison Chart

This table represents a selection of the complete range of Permabond anaerobic adhesives. For more detailed technical information and product Material Safety Data Sheet visit [www.permabondllc.com](http://www.permabondllc.com). To discuss your specific application requirements call the Permabond Helpline and our technical advisors will recommend the best adhesive for you.

Grade	Primary Application	Colour	Viscosity (mPa.s)	Maximum Gap Fill (mm)	Shear Strength (MPa)	Torque Strength (Nm)	Strength Development		Service Temperature (°C)
							Handling	Working (60%)	
A1042	Threadlocking	Blue	8,000	0.12	12	10	5-10 mins	30 mins	-55 to +150
A1044	Pipe Sealing	White	70,000 Thixotropic	0.5	17	18	10-25 mins	1 hr	-55 to +150
A1046	Retaining	Green	9,000	0.25	25	25	5-10 mins	30 mins	-55 to +150
A011	Low Strength Threadlocking	Red	500	0.12	5	5	10-25 mins	1 hr	-55 to +150
A025	High Temperature Resistance	Orange	750	0.2	8	20	10-25 mins	2hrs	-55 to +200
A113	Threadlocking	Blue	500	0.12	12	10	10-25 mins	1 hr	-55 to +150
A118	Retaining	Green	500	0.12	21	25	10-25 mins	1 hr	-55 to +150
A126	Wicking Post Application	Green	30	0.05	21	25	10-25 mins	1 hr	-55 to +150
A129	Pipe Sealing	Orange	65,000 Thixotropic	0.5	12	10	10-25 mins	1 hr	-55 to +150
A130	Threadlocking	Blue	8,000	0.12	12	10	10-25 mins	1 hr	-55 to +150
A131	Pipe Sealing	White	40,000 Thixotropic	0.5	6	8	30-60 mins	2 hrs	-55 to +150
A134	Retaining	Green	70,000 Thixotropic	0.5	21	25	10-25 mins	1 hr	-55 to +150
A136	Gasketing	Red	75,000 Thixotropic	0.5	12	10	30-60 mins	2 hrs	-55 to +150
F201	Toughened Retainer	Brown	9,000	0.2	30	25	10-25 mins	1 hr	-55 to +100
F202	Toughened Retainer	Brown	135,000 Thixotropic	0.5	30	25	10-25 mins	1 hr	-55 to +100

The strength development figures listed here are typical for steel surfaces at 23°C. Copper and its alloys will give a faster cure whilst oxidised or passivated surfaces such as stainless steel or zinc will require longer times. Full strength will generally be achieved within 24 hours at room temperature. The properties quoted here are nominal values: please consult our technical group or refer to the Technical Data Sheet if more detail is required. The shelf lives of these products is a minimum of 12 months from the date of despatch from Permabond when stored between 5 and 25°C in their original unopened containers.

## Other Products in the Permabond Range...

### Cyanoacrylate adhesives...

General purpose  
Low bloom / Low odour  
High temperature resistance  
Flexible  
Toughened



We also have a new polyolefin primer for pre-treating polypropylene, polyethylene, PTFE. For use with cyanoacrylate adhesive.

**If you require help with an application, please contact the Permabond team for technical advice on surface preparation, joint design, adhesive selection and how to optimise your production process.**

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 discussed herein are sold without any warranty, expressed 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 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 recommendations to practice any invention covered by any patent without authority from the owner of the patent.

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