

# 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 seal or gaskets and sealing pipe work.*

## How Do Permabond 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 to +200°C.
- ▶ Gap fill capability from interference fits up to 0.5mm. Seals, bonds and locks with one product.

Anaerobics



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 jointing 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 1000psi (70bar)
- ▶ 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 and high strength 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.

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## Permabond Anaerobics 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 Sheets, 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 Steel (MPa)	Torque Strength (Nm)	Strength Development		Service Temp. °C
							Handling	Working (60%)	
<b>A1042</b>	Threadlocking	Blue	8000	0.12	12	10	5-10 mins	30 mins	-55 to +150
<b>A1044</b>	Pipe Sealing	White	70000 Thixotropic	0.5	17	18	10-25 mins	1 hr	-55 to +150
<b>A1046</b>	Retaining	Green	9000	0.25	25	25	5-10 mins	30 mins	-55 to +150
<b>A011</b>	Low Strength Threadlocking	Red	500	0.12	5	5	10-25 mins	1 hr	-55 to +150
<b>A025</b>	High Temperature Resistance	Orange	750	0.2	8	20	10-25 mins	2 hrs	-55 to +200
<b>A113</b>	Threadlocking	Blue	500	0.12	12	10	10-25 mins	1 hr	-55 to +150
<b>A118</b>	Retaining	Green	500	0.12	21	25	10-25 mins	1 hr	-55 to +150
<b>A126</b>	Wicking Post Application	Green	30	0.05	21	25	10-25 mins	1 hr	-55 to +150
<b>A129</b>	Pipe Sealing	Orange	65000 Thixotropic	0.5	12	10	10-25 mins	1 hr	-55 to +150
<b>A130</b>	Threadlocking	Blue	8000	0.12	12	10	10-25 mins	1 hr	-55 to +150
<b>A131</b>	Pipe Sealing	White	40000 Thixotropic	0.5	6	8	30-60 mins	2 hrs	-55 to +150
<b>A134</b>	Retaining	Green	70000 Thixotropic	0.5	21	25	10-25 mins	1 hr	-55 to +150
<b>A136</b>	Gasketing	Red	75000 Thixotropic	0.5	12	10	30-60 mins	2 hrs	-55 to +150
<b>F201</b>	Toughened Retainer	Brown	9000	0.2	30	25	10-25 mins	1 hr	-55 to +100
<b>F202</b>	Toughened Retainer	Brown	135000 Thixotropic	0.5	30	25	10-25 mins	1 hr	-55 to +100
<b>MH196</b>	Gasketing	Red	150000 Thixotropic	0.5	13	15	10-20 mins	1 hr	-55 to +200
<b>LH197</b>	Gasketing	Green	34000 Thixotropic	0.3	6	4	20-40 mins	3-6 hrs	-55 to +150
<b>MH199</b>	Gasketing	Red	175000 Thixotropic	0.5	10	6	15-30 mins	3-6 hrs	-55 to +200
<b>HM129</b>	Threadlocking	Red	500	0.15	20	17	10-20 mins	1-3 hrs	-55 to +230
<b>HH131</b>	Threadlocking	Red	10000 Thixotropic	0.3	20	20	20-40 mins	3-6 hrs	-55 to +230
<b>MH052</b>	Pipe Sealing	Yellow	50000 Thixotropic	0.5	20	4	15-30 mins	1-3 hrs	-55 to +150
<b>HM162</b>	Retaining	Green	900	0.2	35	28	2-5 mins	1-3 hrs	-55 to +200
<b>HM165</b>	Retaining	Green	10000 Thixotropic	0.3	20	20	20-40 mins	3-6 hrs	-55 to +230
<b>HH167</b>	Retaining	Silver	Thick Paste	0.5	35	10	15-30 mins	3-6 hrs	-55 to +150

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.

The information given and the recommendations made herein are based on our experience and are believed to be accurate. No guarantee as to, or responsibility for, their accuracy can be given or accepted, however, and no statement herein is to be treated as a representation or warranty. In every case we urge and recommend that purchasers, before using any product, make their own tests to determine, to their own satisfaction, its suitability for their particular purposes under their own operating conditions.

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