



# *Adhesives for Maintenance, Repair & Overhaul*

[www.permabond.com](http://www.permabond.com)



# **PermaBond**<sup>®</sup> *Engineering Adhesives*

# Bonding & Repair Jobs



Cyanoacrylate “instant” adhesives are an ideal way to quickly and effectively bond and repair parts. They only take seconds to cure to handling strength, do not require any sort of mixing and they will bond most substrate materials.

## Adhesive Selection - Cyanoacrylate

Product	102	105	737	792	910	947	2011
<b>Features</b>	General purpose for bonding plastic, metal & rubber. WRAS approved	For difficult to bond plastics and rubbers. WRAS approved	Rubber-toughened, high impact resistance. Black	Ultra-rapid cure, ideal for difficult surfaces	Very high strength metal-bonder	Low-odour, non-blooming - ideal for dark surfaces	Non-drip instant cyanoacrylate gel. Ideal for vertical applications
<b>Shear strength (steel)</b>	19-23 MPa	18-22 MPa	19-23 MPa	18-22 MPa	23-29 MPa	16-20 MPa	20-24 MPa
<b>Handling time* / full strength</b>	10-15 secs / 24 hrs	10-15 secs / 24 hrs	15-20 secs / 24 hrs	2-3 secs / 24 hrs	10-15 secs / 24 hrs	20-30 secs / 24 hrs	5-10 secs / 24 hrs
<b>Packaging</b>	3g tube 20g bottle 50g bottle 500g bottle	20g bottle 50g bottle 500g bottle	20g bottle 50g bottle 500g bottle	20g bottle 50g bottle 500g bottle	20g bottle 50g bottle 500g bottle	20g bottle 50g bottle 500g bottle	20g tube 300g cartridge

Product	CSA Activator	POP Primer
<b>Features</b>	Activator for non-active surfaces / to speed up cure	Polyolefin Primer for PP, PE, PTFE, Silicone rubber
<b>Shear strength (steel)</b>	Use in conjunction with any cyanoacrylate adhesive	
<b>Handling time* / full strength</b>		
<b>Packaging</b>	200ml aerosol spray 500ml bottle 1 litre bulk liquid	50ml bottle 1 litre bottle



\*Tested at 23°C on mild steel.

## Cyanoacrylate Directions for use



Protective gloves are recommended

Abrade with wet and dry grit paper

Degrease with solvent

Do not use too much cyanoacrylate, it will not cure

Use sparingly (apply only a small amount)

Assemble parts ASAP

Clip or Clamp firmly for at least handling time, if possible, longer

# Bonding & Repair Jobs

For ultimate high-strength bonding performance, rapid cure and excellent durability, look no further than Permabond TA4246 structural acrylic adhesive. The product comes with a separate brush on initiator and bonds wood, most plastics, composites, metals, ceramics and many other materials.

## TA4246 Usage Instructions



Protective gloves are recommended



Abrade with wet and dry grit paper



Degrease with solvent



Brush on Initiator



Cut end of cartridge off to open



Dispense bead of adhesive, do not spread



Assemble parts ASAP



Clip or Clamp firmly for at least handling time, if possible, longer

## Adhesive Selection - Epoxy & Toughened acrylic

Product	ET500	ET5003	TA4207	TA4246	TA4611
<b>Chemistry &amp; Cure</b>	2-part room temperature cure epoxy	2-part room temperature cure epoxy	2-part, room temperature cure toughened acrylic	2-part, no mix room temperature cure toughened acrylic	2-part, room temperature cure toughened acrylic
<b>Features</b>	Rapid bonding of wood, most plastics, composites, concrete, metal	Fast set, sandable & paintable, metallic finish (unsanded)	Little/no surface prep needed, good impact, chemical & environmental resistance	Rapid bonding of most materials in convenient no-mix packaging (no need for gun & nozzles)	Polyolefin bonder, small gap fill, good impact strength & chemical resistance.
<b>Shear strength (steel)</b>	12-18 MPa	20-24 MPa	26MPa	33-35 MPa	11 MPa
<b>Handling time* / full strength</b>	5-8 mins / 24 hrs	12-15 mins / 24 hrs	12-15 mins / 1hr	2-4 mins / 24 hrs	12-15 mins / 24-36 hrs
<b>Packaging</b>	25ml dual syringe 50ml dual cartridge 200ml cartridge 400ml cartridge	25ml dual syringe	24ml dual syringe 50ml dual cartridge 400ml cartridge	TA4246 / Initiator 46 kit (1x65ml resin / 1x10ml I46) TA4246 10x310ml (use I46) TA4246 1 x 2kg (use I46)	25ml dual syringe 50ml dual cartridge 400ml cartridge

\*Tested at 23°C on mild steel

## ET500 Directions for use



Protective gloves are recommended



Abrade with wet and dry grit paper



Degrease with solvent



For 50ml dual cartridge, use nozzle and gun to dispense



Apply adhesive as a continuous bead



Assemble parts



Clip or Clamp together until handling time is reached



# Threadlocking

## Locking of threaded fasteners

- Prevents vibration loosening
- Stops rust and corrosion - makes maintenance easier
- Nuts and bolts can be re-used
- Seals threads - prevents leaks
- Lubricates threads - making assembly much easier
- Reduces risk of cross-threading during assembly
- Can be used on a variety of fastener sizes - reduced inventory
- Quick and easy to apply
- High-strength threadlockers help prevent theft / vandalism

### Using adhesive threadlocking compounds helps to prevent:

- Potential injury
- Damaged goods, waste
- Damage to expensive equipment
- Faulty or poor quality products = damage to brand
- Production line down time = idle staff & associated costs

## Adhesive Selection - Anaerobics

Product	A011	A113	A126	A1042	HH131	HM129
Features	Easy to undo	General purpose, dismantlable	Penetrating for pre-assembled parts	Rapid cure, dismantlable	High temperature resistance	Ideal for oily surfaces
Maximum Fastener size	M20 ¾"	M20 ¾"	M10 ½"	M20 ¾"	M56 2"	M20 ¾"
Strength*	Low	Medium	High	Medium	High	High
Handling time* / full strength	15 mins / 24 hrs	15 mins / 24 hrs	15 mins / 24 hrs	5 mins / 24 hrs	15 mins / 24 hrs	10 mins / 24 hrs
Breakaway / Prevail Torque	4/5 Nm	12/7 Nm	14/34 Nm	16/8 Nm	27/54 Nm	33/58 Nm
Maximum Temperature	150 °C	150 °C	150 °C	150 °C	230 °C	150 °C
Approvals	WRAS	WRAS	-	WRAS	DVGW	-
Packaging	50ml bottle 200ml bottle	10ml bottle 50ml bottle 200ml bottle	10ml bottle 50ml bottle 200ml bottle	10ml bottle 50ml bottle 200ml bottle	10ml bottle 50ml bottle 200ml bottle	50ml bottle 200ml bottle

\*Tested at 23°C on mild steel



**For faster cure**, surface activator PermaBond A905 can be used. This is also suitable for treating inactive or passive surfaces such as stainless steel and certain plastics.

## Directions for use



Protective gloves are recommended



Abrade & degrease with solvent



Snip tip off nozzle



Apply adhesive, take care not to contaminate nozzle



Adhesive should be applied where there is maximum contact



Screw nut onto bolt



Replace lid

# Pipe Threadsealing

## Sealing of threaded pipe joints

- Lubricates threads - making assembly much easier
- Reduces risk of cross-threading during assembly
- Stops rust and corrosion - makes maintenance easier
- Will not creep, shrink or shred - will not block valves
- Taps and valves can be easily aligned in pipework system
- Use instead of PTFE tape or pipe dope
- Pipe joints can be re-used
- Quick and easy to apply
- Can be used on a variety of pipe sizes
- Various approvals available, including KIWA Hydrogen



### Adhesive Selection - Anaerobics

Product	A129	A131	A1044	A1058	F201HV	MH052
Features	For coarse threads	Low strength, easy to dismantle	High strength, excellent chemical resistance	Very low strength paste for coarse threads	Ideal for dissimilar materials, improved fatigue life.	General use, oxygen approval
Maximum Pipe Thread Diameter	M56 2"	M56 2"	M56 2"	M56 2"	M50 1 1/2"	M56 2"
Pressure sealing	Seal to burst rating of pipe					
Strength*	Medium	Low	High	Low	Very High	High
Handling time* / full strength	15 mins / 24 hours	45 mins / 24 hours	15 mins / 24 hours	90 mins / 72 hours	15 mins / 24 hours	15 mins / 24 hours
Breakaway / Prevail Torque M10 Steel	12/7 Nm	10/7 Nm	20/10 Nm	8/6 Nm	28/30 Nm	20/11 Nm
Maximum Temperature (°C)	150	150	150	150		150
Approvals	-	WRAS Potable Water, KIWA	WRAS Potable Water	WRAS Potable Water	WRAS Potable Water, KIWA	WRAS Potable Water, DVGW, BAM Oxygen
Packaging	50ml bottle 200ml bottle	50ml bottle 200ml bottle	50ml bottle 200ml bottle	250ml tube	50ml bottle 200ml bottle	50ml bottle 75ml bottle 200ml bottle 300ml cartridge

\*Tested at 23°C on mild steel

**For faster cure**, surface activator PermaBond A905 can be used. This is also suitable for treating inactive or passive surfaces (such as aluminium, zinc, titanium, chrome, black oxide & others).



- Using adhesive threadsealing compounds helps to prevent:**
- Flood damage & contamination
  - Production line down time
  - Clean up costs
  - Personal injury
  - Risk of fire / explosion

### Directions for use



Protective gloves are recommended



Abrade & degrease with solvent



Snip tip off nozzle



Apply adhesive to leading edge



Assemble pipe

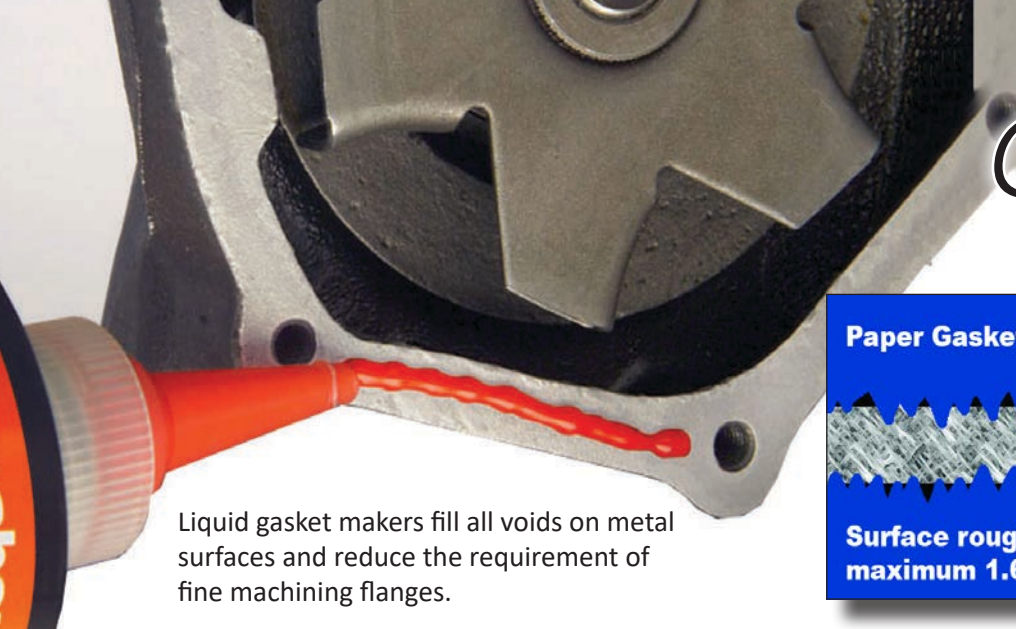


Tighten with normal tools



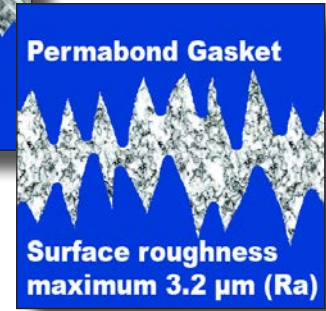
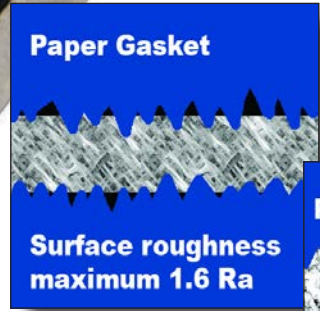
Replace lid

# Gasketing



Liquid gasket makers fill all voids on metal surfaces and reduce the requirement of fine machining flanges.

Sealing  
of  
flanges



## Adhesive Selection - Anaerobic

Product	A136	LH197	MH196	MH199
Features	General purpose, WRAS approved	Flexible, low strength, easy to remove	High strength, flexible, high temperature resistance	High strength, rigid, high temperature resistance
Instant Pressure sealing	Good	Good	Excellent	Excellent
Strength*	Medium	Low	High	High
Handling time* / full strength	<30 mins / 24 hours	20 mins / 24 hours	15 mins / 24 hours	20 mins / 24 hours
Maximum Temperature (°C)	150	150	200	200
Packaging	50ml bottle 200ml bottle 300ml cartridge	50ml bottle 75ml bottle	75ml bottle 300ml cartridge	75ml bottle 300ml cartridge

\*Tested at 23°C on mild steel

- Use instead of pre-cut gaskets
- One bottle for all gaskets = reduced inventory
- Vibration proof – will not loosen over time
- No “bedding in” compression relaxation – no servicing required
- Better stress distribution
- Easy to apply
- Will not degrade - no loose particles to block valves
- Will not creep or shrink
- Parts can be disassembled easily
- 100% metal to metal contact, adhesive fills all voids & creates a much better seal



## Directions for use



Protective gloves are recommended



Clean off rust & debris with a wire brush



Abrade & degrease with solvent



Snip tip off nozzle



Apply adhesive as a continuous bead, encircle bolt holes



Replace lid

# Retaining

## Securing Cylindrical Assemblies

- Replaces keyways, splines, expensive & time consuming fine machining for shrink or press fits
- Vibration proof – will not loosen over time
- 100% metal to metal contact for better stress distribution
- Protects against metal fretting & corrosion
- Single part – no mixing required, easy clean up
- Ability to bond dissimilar metals, fast assembly
- Parts can be re-used and are undamaged
- Easy to apply
- No design change – standard parts can be used
- Machining tolerances can be relaxed = lower cost



### Adhesive Selection - Anaerobic

Product	A118	A126	A1046	F202	HH167	HM165
Features	Low viscosity, general purpose	Penetrating for pre-assembled parts	Medium viscosity, toughened, rapid cure	High viscosity, rubber toughened	Silver-coloured metal repair paste	High temperature resistance
Maximum Gap Fill	0.12mm	0.05mm	0.25mm	0.5mm	0.3mm	0.5mm
Handling time* / full strength	15 mins / 24 hours	15 mins / 24 hours	5-10 mins / 24 hours	15 mins / 24 hours	15-20 mins / 24 hours	15 mins / 24 hours
Strength*	21 MPa	10-20 MPa	25 MPa	30 MPa	20 MPa	32 MPa
Breakaway / Prevail Torque M10 Steel	33/58 Nm	14/34 Nm	30/50 Nm	28/30 Nm	35/50 Nm	45/32 Nm
Maximum Temperature	150 °C	150 °C	150 °C	100 °C	230 °C	150 °C
Approvals	WRAS	-	DVGW	WRAS	-	-
Packaging	10ml bottle 50ml bottle 200ml bottle	50ml bottle 200ml bottle	50ml bottle 200ml bottle	50ml bottle 200ml bottle	50ml bottle 200ml bottle	10 ml bottle 75ml bottle 300ml cartridge

\*Tested at 23°C on mild steel



For faster cure, surface activator PermaBond A905 can be used. This is also suitable for treating inactive or passive surfaces such as stainless steel or certain plastics.

### Directions for use



Protective gloves are recommended



Clean off rust & debris with a wire brush



Abrade & degrease with solvent



Snip tip off nozzle



Apply adhesive, avoid getting in bearing race



Replace lid

## Adhesives for • Design • Manufacturing • Assembly • Maintenance • Repair & Overhaul

Permabond's history of developing and manufacturing engineering adhesives spans **four decades** and three continents. Today, Permabond Engineering Adhesives Ltd (Europe & Asia) and Permabond LLC (Americas) provide technological solutions to engineers all over the world, with offices and facilities in America, Asia and Europe, backed by a high-tech **ISO 9001** certified production plant in Europe.



- **Technical** – Our chemists and technicians are available to provide application assistance, custom formulation, in-house prototype testing, joint product development programs and much more.

- **Training** – Permabond's knowledgeable sales group will provide your staff with the information they need to maximize the efficiencies, cost savings, and safety benefits Permabond products generate.

- **Sales** – From preliminary project appraisals and product needs assessments through to process reliability analysis, Permabond's knowledgeable sales group will support you from product concept through to production.

## **Permabond**<sup>®</sup> Engineering Adhesives

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