

# Adhesives for Medical Devices



**PermaBond**®  
Engineering Adhesives  
[www.permabond.com](http://www.permabond.com)  
[www.glueonline.co.uk](http://www.glueonline.co.uk)

# Adhesives for Medical Devices

## Disposable Medical Devices

Face masks, filters, scalpels, needles, catheters and blood collection devices are just some of the items that benefit from using UV light-curable, cyanoacrylate and epoxy adhesives in the manufacturing & assembly process. They are ideal for streamlining manufacturing, increasing production and improving quality.

### Application: Scalpel Bonding

Permabond 4C20, instant adhesive, quickly bonds scalpels in high-speed production.

#### Benefits of Permabond Cyanoacrylate:

- Rapid-curing
- Non-flammable
- 100% solids
- Easy application process



- Good adhesion to metals & plastics
- Single-part, ready to use
- ISO10993 cytotoxicity approved

Adhesive used: Permabond 4C20

Problems bonding plastics?

Use POP Primer (with cytotoxicity approval) before applying the adhesive.

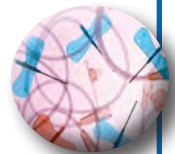


### Application: Bonding Needles

#### Benefits of Permabond UV Curable needle bonding adhesives:

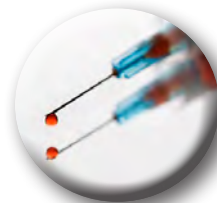
- Single component- no mixing required
- Cure on demand with low intensity UV light = efficient process
- Long shelf life and no elaborate storage requirements
- Various viscosities available to suit application- all non-stringing for faster processing
- ISO10993 cytotoxicity approval

Adhesive used: Permabond 4UV80



#### Benefits of Permabond Epoxy needle bonding adhesives:

- Single component- No mix required
- Strong bonds to cannulae
- Various viscosities available to suit application needs. All are non-stringing for easy application



Adhesive used: Permabond 4ES70

## Assistive Devices

From bonding foam and rubber padding, retaining cylindrical joints and structurally joining components to bonding, sealing and coating electronics, Permabond's extensive range supports design creativity in assistive device applications.

### Application: Rubber Bonding & Threadlocking

Permabond 4C40 bonds the rubber bumpers and tube caps to wheel chairs. Permabond A1042 is used to lock fasteners against vibration loosening.

#### Benefits of Permabond 4C40 cyanoacrylate adhesive:

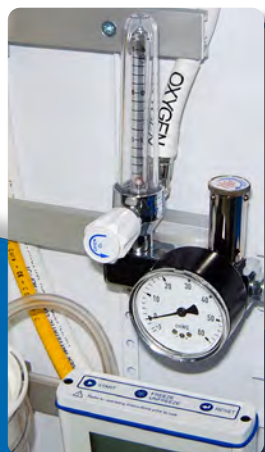
- Instant fixture- no clamping necessary
- Ambient cure- energy efficient
- Good dispensing viscosity- easy process



#### Benefits of Permabond A1042 anaerobic threadlocker:

- Prevents loosening of threaded fasteners
- Ambient cure- energy efficient
- Prevents corrosion & resists cleaning agents

Adhesive used: Permabond 4C40 & A1042



## Respirators, Ventilators & Breathing Equipment

Permabond MH052 is BAM approved to 145 psi (10 bar) /140 °F (60 °C). This anaerobic thread sealant is used to seal threaded metal connections.

#### Application: Sealing Connections in Oxygen System

Adhesive used: Permabond MH052

#### Benefits of Permabond MH052 thread sealant:

- Easy to apply
- Approved for contact with oxygen
- 100% Seal to burst rating of pipe
- Can be taken apart with normal tools
- Single-part room temperature cure
- Helps lubricate threaded pipe joints allowing easier assembly / less risk of cross threading



# Product Selector

Permabond's medical range includes cyanoacrylate, UV curable, acrylic, anaerobic and epoxy adhesives. Below is a brief overview of the standard products in the range. Please note that bespoke formulations are also possible, subject to minimum order quantities.

## Cyanoacrylate Adhesives: *Solvent free - High strength - Instant curing - Ambient cure.*

Permabond cyanoacrylate adhesives are one part adhesives that cure by reacting with traces of moisture on the surface of the material being bonded. They cure in seconds at ambient temperatures and have been formulated to bond both flexible and rigid surfaces made from a wide range of plastics, rubbers or metals. They are also available in a range of viscosities to allow for easy dispensing in manual or automated processes.

	Product	Colour	Viscosity cP/mPa	Fixture Time (Sec)	Shear Strength Steel N/mm <sup>2</sup>	Shear Strength Aluminium N/mm <sup>2</sup>	Typical Applications.
Cyanocrylates	4C10	Cured adhesive is clear & colourless	40	10-15	21	7	Tube set bonding ●
	4C20		500	10	21	7	Bonding tips to swabs ●
	4C30		1500	10-15	21	7	Gap filling for custom tube sets ●
	4C40		2000	5-10	21	7	Rubber bumper bonding ●
	731		150	30	27	14	Equipment view panel bonding
	820		100	10-15	21	10	High temperature resistant bonding ●
	940		7	10-15	18	7	Low odour for manual application
	2011		Gel	5-10	22	10	Name plates to housings
	POP		Clear	0.6	For priming PE, PP, Silicone, PTFE before bonding with CA's ●		For use with cyanoacrylates only



## UV-Light Curable Adhesives: *Solvent free - Cure on demand - Flexible - Resilient*

Permabond UV-light curables do not dissolve, melt, or weaken the two components. They form strong chemical bonds between two substrates and provide a high strength alternative to other joining methods. They are used to obtain increased bond strength and performance and to reduce or eliminate the risk of stress cracks that can occur with solvent welding. UV-light curables are also used as an alternative to ultrasonic welding because they tolerate varying gaps, reducing reject rates.

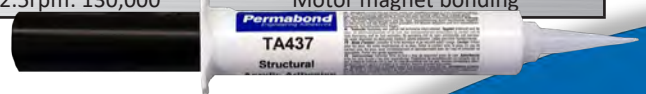
	Product	Colour	Viscosity cP/mPa	Flouresces	Tensile Strength psi (N/mm <sup>2</sup> )	Dielectric Strength (KV/mm)	Dielectric Constant 1MHz @25°C	Typical application
	4UV80	Cured adhesive is clear & colourless	150	Yes	1740 (12)	12	4	Needle bonding
	4UV80HV		2,300	Yes	1740 (12)	12	4	Needle bonding
	4UV80HH		10,000	Yes	1740 (12)	12	4	Needle bonding
	4UV82		250	No	1900 (13)	12	4	Plastic bonding



## Structural Adhesives: *High strength bonding - Replace welding - Seal joints*

Permabond structural adhesives include a full range of one and two component epoxies as well as a variety of toughened acrylics. These adhesives are relied upon for strong and durable bonds to metals, composites and other materials.

	Product	Colour	Description	Viscosity	Typical Application
Structural Adhesives	4ES70	Ivory	Single part epoxy	20,000	Needle bonding
	ET510	Amber	Two part epoxy	A) 14,000 - 28,000 B) 30,000 - 50,000	Metal equipment, housings & furniture
	TA437	Orange	Toughened Acrylic	20rpm: 40,000 2.5rpm: 130,000	Motor magnet bonding



● = ISO10993 Cytotoxicity certificate available

● = USP Class VI test certificate available

## Anaerobic Adhesives: Corrosion prevention - Joint sealing - Tamper proofing

Anaerobic adhesives and sealants are single part products that cure in the presence of metal and the absence of oxygen to bond or seal components. Products are available in varying strengths and viscosities, but all provide an inherent corrosion resistance and excellent resistance to chemicals. The full range includes products appropriate for potable water contact, gas contact and hydraulic systems. Our threadlockers are available for all threaded metal fasteners. Permabond retaining compounds are available for cylindrical, non-threaded assemblies and our gasketmakers replace pre-cut gaskets.



Product	Colour	Description	Approvals	Typical Application
A136	RED	Gasketmaker	WRAS	Corrosion prevention
A1042	BLUE	Removable threadlocker	WRAS	Locking fasteners
HH131	RED	Permanent threadlocker	N/A	Tamper proofing
MH052	YELLOW	Oxygen compatible pipe sealant	BAM to 145psi/ 60°C, WRAS, DVGW	Sealing connections
HM162	GREEN	Retaining compound	N/A	Retaining & sealing metal connections



## 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 9001:2015** certified production plant in Europe.

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