Permabond®
Adhesives for Electronics

ISO 9001:2008 Certified
"Our Science ... Your Success"

Permabond offers a wide range of different adhesive technologies for bonding electronic components. Whether you require a rapid cure in seconds or several hours to assemble parts, Permabond can help you find a bonding solution.

Permabond® Adhesive Typical Applications

Permabond offers a wide range of different adhesive technologies for bonding electronic components. Whether you require a rapid cure in seconds or several hours to assemble parts, Permabond can help you find a bonding solution.

Typical applications where Permabond adhesives can be used includes:

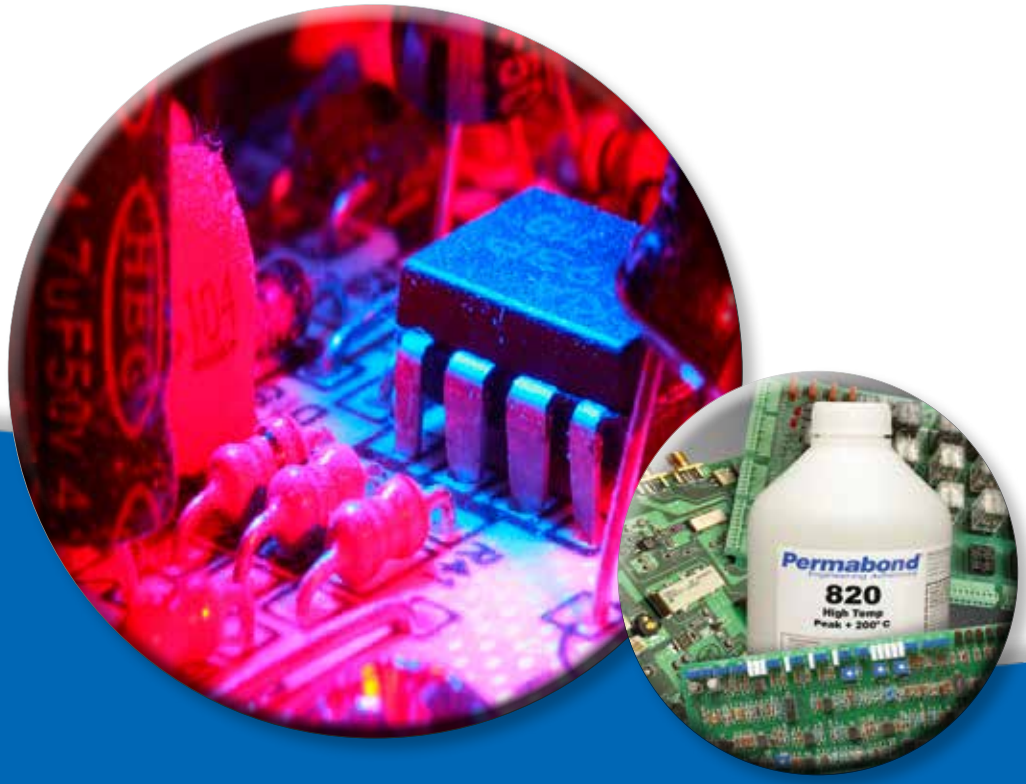
- Wire tacking
- Bonding heat sinks
- Bonding of surface mount devices to PCBs
- Potting and encapsulation of electronic components
- Component rigidising
- Conformal coating to protect electronic components / PCBs
- Applications within batteries and battery packs
- Strain protection for leads / plugs
- Torroid bonding
- Coil winding
- Magnet bonding & electric motor applications
- Bonding electronics housings and enclosures
- Bonding touch screens and keypads
- Sensor bonding / potting
- Electrical transformers

...and many more!

Ideal for bonding:

- ***ABS***
- ***Acetal***
- ***Acrylic***
- ***Aluminium***
- ***Carbon Fibre***
- ***Copper***
- ***Ferrite***
- ***FRP/GRP/Gelcoat***
- ***Glass***
- ***Laminate***
- ***Magnet***
- ***PCB***
- ***Phenolic***
- ***Polycarbonate***
- ***Polyethylene****
- ***Polypropylene****
- ***PVC***
- ***Silicon***
- ***Steel***
- ***Tungsten***
- ***Zinc***

+Many more materials
**Special grades only on untreated*



Permabond
Engineering Adhesives

Permabond Adhesives for Electronics

Here is a small selection of our most popular adhesive grades suitable for use in a range of electronic component bonding applications. If you can't see exactly what you require, please contact our technical advisors with information about your application and your particular requirements and we will make a recommendation. The Permabond team provides support through the design phase, sample trials and production line integration. Whether you require technical support, custom formulations or small batch production, please contact us.

Electronic Components Bonding Product Data

Technical Information	820	920	947	CSA-NF	ES566	ES578
Typical application	SMD Bonding, wire tacking	SMD Bonding, wire tacking, torroid bonding	Wire tacking, bonding housings	Wire tacking, bonding housings	Bonding components, component rigidising	Bonding heat sinks
Features	Single part, moisture cure cyanoacrylate adhesive with high temperature resistance	Single part, moisture cure cyanoacrylate adhesive with high temperature resistance	Single part, moisture cure cyanoacrylate adhesive. Low odour / non-bloom	Cyanoacrylate activa-tor. Non-flammable, low residue. Ideal for speeding up cure and for curing excess adhesive	Heat cure single part epoxy which cures at temperatures <100°C to help protect temperature-sensitive electronics	Heat cure single part epoxy with good thermal conductivity properties
Colour	Clear, colourless	Clear, colourless	Clear, colourless	Clear / colourless	Grey	
Viscosity (mPa.s = cP)	90-110	70-90	900-1,500	1	Thixotropic paste	Thixotropic paste
Maximum gap fill (mm) in	(0.15) 0.006	(0.15) 0.006	(0.25) 0.01	-	(2.0) 0.08	(5.0) 0.2
Handling time (steel)	10-15 sec.	15-20 sec.	10-15 sec.	-	90°C (175°F): 75 min. 100°C (210°F): 40 min. 120°C (250°F): 25 min. 150°C (300°F): 10 min.	130° C (266°F): 75 min. 150°C (300°F): 60 min. 170°C (338°F): 25 min.
Full strength (cured at 23°C)	24 hours	24 hours	24 hours	-		
Shear strength Steel (MPa) psi	(19-23) 2800-3300	(19-23) 2800-3300	(16-20) 2300-2900	-	5-10 (cured at 90°C) 18-22 (cured at >100°C	750-1500 (cured at 175°F) 2600-3200 (cured at >210°F)
Service temperature range (°C)°F	(-55 to +200) -65 to +390	(-55 to +250) -65 to +482*	(-55 to +80) -65 to +180	-	(-40 to +180) -40 to +356	(-40 to +180) -40 to +356
Dielectric strength kV/mm	25	-	25	-	-	40-45
Thermal conductivity W/(m.K)	0.1	0.1	0.1	-	-	1.3
Availability	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide

For full, up-to-date technical information, please refer to the TDS (Technical Data Sheet).
** Product cured at 150°C for 2 hours.*

Application: Coil Winding

Loudspeaker coil winding runs through epoxy "bath" and is subsequently coiled prior to the epoxy setting.

- Excellent optical clarity
- Low, penetrative viscosity for good coverage

Adhesive used: Permabond ET530

Application: Bonding torroids

Adhesive is applied for bonding copper wire to the ferrite core of a torroid.

- Improved durability
- Improved resistance against high levels of vibration & temperature

Adhesive used: Permabond 920

ET530	MT382	MT3826	PT326	TA4392	TA459	UV681	UV683
Potting and coating, coating copper wire coils	Potting and encapsulation	Bonding heat sinks	Potting, bonding components	Magnet bonding, bonding heat sinks	Magnet bonding	Tack-free clear coating - ideal for conformal coating	Tack-free doming viscosity
Low viscosity 2-part epoxy. Cures at room temperature	Low viscosity, self levelling, soft, slightly flexible modified 2-part epoxy	Modified flexible 2-part epoxy with good thermal conductivity properties	2-Part polyure-thane adhesive with high peel and impact strength	Structural acrylic resin + initiator 41 Rapid cure and good thermal conductivity	Structural acrylic with non-acidic formulation for sensitive electron-ics. Use with initia-tor 41 or 43	Single-part low-viscosity UV-curing resin	Single-part, high viscosity UV curing resin
Clear, colourless	Charcoal black	Cream	Grey	White	Blue	Clear, colourless	Clear, colourless
400-800	Mixed: 13,000-30,000	Thixotropic paste	Mixed: 3500-7000	200,000	20rpm: 20,000 2.5rpm: 80,000	80-120	1000-1600
-	(0.5) 0.02	(5.0) 0.2	(5.0) 0.2	(0.5) 0.02	(0.5) 0.02	-	-
8-12 hrs	105-120 min.	10-40 min.	60-90 min.	10-30 sec.	40-75 sec.	Normally seconds - depends on UV lamp intensity and output spectra, distance from substrate	
72 hrs	72 hrs	>72 hrs	4-5 days	24 hrs	24 hrs		
(8-12) 1200-1700	(4-7) 600-1000	Zinc (3-5) 400-600	(12-20) 1700-2900	(16-20) 2300-2900	(20-25) 2900-3600	-	-
(-40 to +100) -40 to +215	(-40 to +120) -40 to +250	(-40 to +120) -40 to +250	(-40 to +120) -40 to +250	(-55 to +165) -65 to +329	(-55 to +165) -65 to +329	(-55 to +120) -65 to +250	(-55 to +120) -65 to +250
450 V/mil	-	-	-	25-30	30-50	-	-
0.2	-	1.4-1.6	-	1.111	0.1	-	-
Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide

Application: Bonding SMDs

Soldering and fixing components to either side of a PCB can be very difficult - when you try to solder one side, the component drops off the other. Permabond adhesive can be used to secure components which may later need to go through a solder reflow process.

- High wet strength
- Good thermal conductivity
- Good electrical resistance

Adhesive used: Permabond ES578

Application: Wire Tacking

Permabond cyanoacrylates can be used for the instant tacking of wires inside electronic devices. Tacking wires keeps circuit boards neat and tidy and easier to handle in later stages of the assembly process. Excess adhesive can be cured instantly with Permabond CSA-NF (which minimises visible residue).

Wire on power tool PCB tacked in place to help ease of component assembly

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"Our Science ... Your Success"

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.
ISO 9001:2008

• **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.

This brochure contains information on our most popular products, if you don't see exactly what you need, or would like assistance in selecting the best product for your application, please contact us:

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- ***Asia + 86 21 5773 4913***
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- ***Deutschland 0800 101 3177***
- ***France 0805 111 388***
- ***US - 732-868-1372***

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Distributor Stamp