Permabond®
Engineering Adhesives

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

Adhesives for Electronic Components

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 include:

- 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

Ideal for bonding:

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

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

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	ES566	ES579	ET530
Typical application	SMD Bonding, wire tacking	SMD Bonding, wire tacking, torroid bonding	Wire tacking, bonding housings	Bonding components, component rigidising	Bonding heat sinks	Potting and coating, coating copper wire coils
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.	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. Electrically non-conductive.	Low viscosity 2-part epoxy. Cures at room temperature
Colour	Clear, colourless	Clear, colourless	Clear, colourless	Grey	Ivory	Clear, colourless
Viscosity (mPa.s)	90-110	70-90	900-1,500	Thixotropic paste	60,000-90,000	400-700
Maximum gap fill (mm)	0.15	0.15	0.25	2.0	2.0	-
Handling time (steel)	10-15 sec.	15-20 sec.	10-15 sec.	90°C: 75 min. 100°C: 40 min. 120°C: 25 min. 150°C: 10 min.	100°C: 240 min. 120°C: 60 min. 150°C: 45 min. 180°C: 20 min.	8-12 hrs.
Full strength (cured at 23°C)	24 hrs.	24 hrs.	24 hrs.			72 hrs.
Shear strength Steel (MPa)	19-23	19-23	16-20	5-10 (cured at 90°C) 18-22 (cured at >100°C)	27-41	10-12
Service temperature range (°C)	-55 to +200	-55 to +250*	-55 to +80	-40 to +180	-40 to +180	-40 to +100
Dielectric strength kV/mm	25	-	25	-	17.7	450 V/mil
Thermal conductivity W/(m.K)	0.1	0.1	0.1	-	1.3	0.2

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

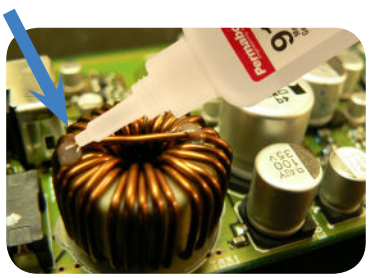
Adhesive used: Permabond ET530

Application: Bonding torroids

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

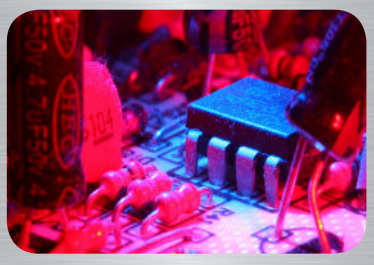
- Improved durability
- Improved resistance against high levels of vibration & temperature

Adhesive used: Permabond 920



ET5453	MT382	MT3826	PT326	TA4392	TA459	UV681	UV683
Electrically conductive - for joining and attaching components	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 clear coating - ideal for doming
2-part epoxy. Cures at room temperature. Resistivity <10 Ohms	Low viscosity, self levelling, soft, slightly flexible modified 2-part epoxy	Modified flexible 2-part hybrid with good thermal conductivity. Meets UL94 V-0.	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 electronics. Use with initiator 41 or 43	Single-part low-viscosity UV-curing resin	Single-part, high viscosity UV curing resin
Silver/copper	Charcoal black	Cream	Dark grey	White	Blue	Clear, colourless	Clear, colourless
Paste	Mixed: 13,000-30,000	Thixotropic paste	Mixed: 3500-7000	200,000 Thixotropic	20rpm: 20,000 2.5rpm: 80,000	80-120	1000-1600
2	0.5	5.0	5.0	0.5	0.5	-	-
2-3 hrs.	105-120 min.	2-3 hrs.	60-90 min.	10-30 sec.	40-75 sec.	Normally seconds - depends on UV lamp intensity and output spectra and distance from substrate	
48 hrs.	72 hrs.	>72 hrs.	4-5 days or 30 min. at 90°C	24 hrs.	24 hrs.		
>6	4-7	3-5	12-20	16-20	20-25	-	-
-40 to +80	-40 to +120	-40 to +120	-40 to +120	-55 to +165	-55 to +165	-55 to +120	-55 to +120
-	-	-	-	25-30	30-50	-	-
2.0	-	1.4-1.6	-	1.111	0.1	-	-

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.

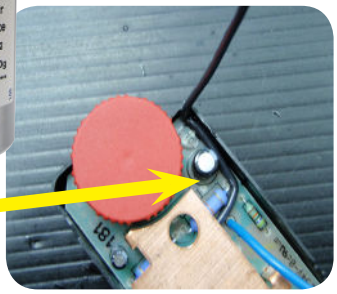
- Good thermal conductivity
- Good electrical resistance

Adhesive used: Permabond ES579

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).

Adhesive used: Permabond 947 and CSA-NF



Wire on power tool tacked to PCB for ease of component assembly

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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 9001:2008** 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.

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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Distributor Stamp