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
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

<table>
<thead>
<tr>
<th>Technical Information</th>
<th>820</th>
<th>920</th>
<th>947</th>
<th>ES566</th>
<th>ES579</th>
<th>ET530</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typical application</strong></td>
<td>SMD Bonding, wire tacking</td>
<td>SMD Bonding, wire tacking, torroid bonding</td>
<td>Wire tacking, bonding housings</td>
<td>Bonding components, component rigidising</td>
<td>Bonding heat sinks</td>
<td>Potting and coating, coating copper wire coils</td>
</tr>
<tr>
<td><strong>Features</strong></td>
<td>Single part, moisture cure cyanoacrylate adhesive with high temperature resistance</td>
<td>Single part, moisture cure cyanoacrylate adhesive with high temperature resistance</td>
<td>Single part, moisture cure cyanoacrylate adhesive. Low odour / non-bloom.</td>
<td>Heat cure single part epoxy which cures at temperatures &lt;100°C to help protect temperature-sensitive electronics</td>
<td>Heat cure single part epoxy with good thermal conductivity properties. Electrically non-conductive.</td>
<td>Low viscosity 2-part epoxy. Cures at room temperature</td>
</tr>
<tr>
<td><strong>Colour</strong></td>
<td>Clear, colourless</td>
<td>Clear, colourless</td>
<td>Clear, colourless</td>
<td>Grey</td>
<td>Ivory</td>
<td>Clear, colourless</td>
</tr>
<tr>
<td><strong>Viscosity (mPa.s)</strong></td>
<td>90-110</td>
<td>70-90</td>
<td>900-1,500</td>
<td>Thixotropic paste</td>
<td>60,000-90,000</td>
<td>400-700</td>
</tr>
<tr>
<td><strong>Maximum gap fill (mm)</strong></td>
<td>0.15</td>
<td>0.15</td>
<td>0.25</td>
<td>2.0</td>
<td>2.0</td>
<td>-</td>
</tr>
<tr>
<td><strong>Handling time (steel)</strong></td>
<td>10-15 sec.</td>
<td>15-20 sec.</td>
<td>10-15 sec.</td>
<td>90°C: 75 min. 100°C: 40 min. 120°C: 25 min. 150°C: 10 min.</td>
<td>100°C: 240 min. 120°C: 60 min. 150°C: 45 min. 180°C: 20 min.</td>
<td>8-12 hrs.</td>
</tr>
<tr>
<td><strong>Full strength</strong></td>
<td>24 hrs.</td>
<td>24 hrs.</td>
<td>24 hrs.</td>
<td>9-10 (cured at 90°C) 18-22 (cured at &gt;100°C)</td>
<td>27-41</td>
<td>10-12</td>
</tr>
<tr>
<td><strong>Shear strength Steel</strong></td>
<td>19-23</td>
<td>19-23</td>
<td>16-20</td>
<td>5-10 (cured at 90°C)</td>
<td>17.7</td>
<td>450 V/mil</td>
</tr>
<tr>
<td><strong>Service temperature range (°C)</strong></td>
<td>-55 to +200</td>
<td>-55 to +250*</td>
<td>-55 to +80</td>
<td>-40 to +180</td>
<td>-40 to +180</td>
<td>-40 to +100</td>
</tr>
<tr>
<td><strong>Dielectric strength kV/mm</strong></td>
<td>25</td>
<td>-</td>
<td>25</td>
<td>-</td>
<td>17.7</td>
<td>450 V/mil</td>
</tr>
<tr>
<td><strong>Thermal conductivity W/(m.K)</strong></td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>-</td>
<td>1.3</td>
<td>0.2</td>
</tr>
</tbody>
</table>

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
<table>
<thead>
<tr>
<th></th>
<th>ET5453</th>
<th>MT382</th>
<th>MT3826</th>
<th>PT326</th>
<th>TA4392</th>
<th>TA459</th>
<th>UV681</th>
<th>UV683</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrically conductive - for joining and encapsulation</td>
<td>Potting and encapsulation</td>
<td>Bonding heat sinks</td>
<td>Potting, bonding components</td>
<td>Magnet bonding, bonding heat sinks</td>
<td>Magnet bonding</td>
<td>Tack-free clear coating - ideal for conformal coating</td>
<td>Tack-free clear coating - ideal for doming</td>
<td></td>
</tr>
<tr>
<td>2-part epoxy</td>
<td>Low viscosity, self levelling, soft, slightly flexible modified 2-part epoxy</td>
<td>Modified flexible 2-part hybrid with good thermal conductivity. Meets UL94 V-0.</td>
<td>2-Part polyurethane adhesive with high peel and impact strength</td>
<td>Structural acrylic resin + initiator 41 Rapid cure and good thermal conductivity</td>
<td>Structural acrylic with non-acidic formulation for sensitive electronics. Use with initiator 41 or 43</td>
<td>Single-part low-viscosity UV-curing resin</td>
<td>Single-part, high viscosity UV curing resin</td>
<td></td>
</tr>
<tr>
<td>Silver/copper</td>
<td>Charcoal black</td>
<td>Cream</td>
<td>Dark grey</td>
<td>White</td>
<td>Blue</td>
<td>Clear, colourless</td>
<td>Clear, colourless</td>
<td></td>
</tr>
<tr>
<td>Paste</td>
<td>Mixed: 13,000-30,000</td>
<td>Thixotropic paste</td>
<td>Mixed: 3500-7000</td>
<td>200,000 Thixotropic</td>
<td>20rpm: 20,000 2.5rpm: 80,000</td>
<td>80-120</td>
<td>1000-1600</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0.5</td>
<td>5.0</td>
<td>5.0</td>
<td>0.5</td>
<td>0.5</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>2-3 hrs.</td>
<td>105-120 min.</td>
<td>2-3 hrs.</td>
<td>60-90 min.</td>
<td>10-30 sec.</td>
<td>40-75 sec.</td>
<td>Normally seconds - depends on UV lamp intensity and output spectra and distance from substrate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48 hrs.</td>
<td>72 hrs.</td>
<td>&gt;72 hrs.</td>
<td>4-5 days or 30 min. at 90°C</td>
<td>24 hrs.</td>
<td>24 hrs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;6</td>
<td>4-7</td>
<td>3-5</td>
<td>12-20</td>
<td>16-20</td>
<td>20-25</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>-40 to +80</td>
<td>-40 to +120</td>
<td>-40 to +120</td>
<td>-40 to +120</td>
<td>-55 to +165</td>
<td>-55 to +165</td>
<td>-55 to +120</td>
<td>-55 to +120</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>25-30</td>
<td>30-50</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td>-</td>
<td>1.4-1.6</td>
<td>-</td>
<td>1.111</td>
<td>0.1</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**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
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:

www.permabond.com
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• Asia + 86 21 5773 4913
• General Enquiries +44(0)1962 711661
• Deutschland 0800 101 3177
• France 0805 111 388
• US - 732-868-1372
info.europe@permabond.com
info.americas@permabond.com
info.asia@permabond.com

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