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

*Special grades only on untreated

+Many more materials
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

<table>
<thead>
<tr>
<th>Technical Information</th>
<th>820</th>
<th>920</th>
<th>947</th>
<th>CSA-NF</th>
<th>ES566</th>
<th>ES578</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical application</td>
<td>SMD Bonding, wire tacking</td>
<td>SMD Bonding, wire tacking, torroid bonding</td>
<td>Wire tacking, bonding housings</td>
<td>Wire tacking, bonding housings</td>
<td>Bonding components, component rigidising</td>
<td>Bonding heat sinks</td>
</tr>
<tr>
<td>Features</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>Cyanocrylate activator. Non-flammable, low residue. Ideal for speeding up cure and for curing excess adhesive</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</td>
</tr>
<tr>
<td>Colour</td>
<td>Clear, colourless</td>
<td>Clear, colourless</td>
<td>Clear, colourless</td>
<td>Clear / colourless</td>
<td>Grey</td>
<td></td>
</tr>
<tr>
<td>Viscosity (mPa.s = cP)</td>
<td>90-110</td>
<td>70-90</td>
<td>900-1500</td>
<td>Clear</td>
<td>Thixotropic paste</td>
<td>Thixotropic paste</td>
</tr>
<tr>
<td>Maximum gap fill (mm) in</td>
<td>(0.15) 0.006</td>
<td>(0.15) 0.006</td>
<td>(0.25) 0.01</td>
<td>-</td>
<td>(2.0) 0.08</td>
<td>(5.0) 0.2</td>
</tr>
<tr>
<td>Handling time (steel)</td>
<td>10-15 sec.</td>
<td>15-20 sec.</td>
<td>10-15 sec.</td>
<td>-</td>
<td>90°C (175°F): 75 min.</td>
<td>130°C (266°F): 75 min.</td>
</tr>
<tr>
<td>Full strength (cured at 23°C)</td>
<td>24 hours</td>
<td>24 hours</td>
<td>24 hours</td>
<td>-</td>
<td>100°C (210°F): 25 min.</td>
<td>150°C (300°F): 10 min.</td>
</tr>
<tr>
<td>Shear strength Steel (MPa) psi</td>
<td>(19-23) 2800-3300</td>
<td>(19-23) 2800-3300</td>
<td>(16-20) 2300-2900</td>
<td>-</td>
<td>5-10 (cured at 90°C) 18-22 (cured at &gt;100°C)</td>
<td>750-1500 (cured at 175°F) 2600-3200 (cured at &gt;210°F)</td>
</tr>
<tr>
<td>Service temperature range (°C)°F</td>
<td>(-55 to +200) -65 to +390*</td>
<td>(-55 to +250) -65 to +482*</td>
<td>(-55 to +80) -65 to +180</td>
<td>-</td>
<td>(-40 to +180) -40 to +356</td>
<td>(-40 to +180) -40 to +356</td>
</tr>
<tr>
<td>Dielectric strength kV/mm</td>
<td>25</td>
<td>-</td>
<td>25</td>
<td>-</td>
<td>-</td>
<td>40-45</td>
</tr>
<tr>
<td>Thermal conductivity W/(m.K)</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>-</td>
<td>-</td>
<td>1.3</td>
</tr>
<tr>
<td>Availability</td>
<td>Worldwide</td>
<td>Worldwide</td>
<td>Worldwide</td>
<td>Worldwide</td>
<td>Worldwide</td>
<td>Worldwide</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>ET530</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>Potting and coating, coating</td>
<td>Potting and coating</td>
<td>Bonding heat sinks</td>
<td>Potting, bonding components</td>
<td>Magnet bonding, bonding heat</td>
<td>Magnet bonding</td>
<td>Tack-free clear coating</td>
<td>Tack-free doming viscosity</td>
<td></td>
</tr>
<tr>
<td>copper wire coils</td>
<td>copper wire coils</td>
<td></td>
<td></td>
<td>sinks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low viscosity 2-part epoxy.</td>
<td>Low viscosity, self levelling,</td>
<td>Modified flexible 2-part epoxy</td>
<td>2-Part polyurethane adhesive</td>
<td>Structural acrylic resin +</td>
<td>Structural acrylic</td>
<td>Single-part low-viscosity UV-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cures at room temperature</td>
<td>soft, slightly flexible</td>
<td>with good thermal conductivity</td>
<td>with high peel and impact</td>
<td>initiator 41</td>
<td>with non-acidic formulation</td>
<td>curing resin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>modified 2-part epoxy</td>
<td>properties</td>
<td>strength</td>
<td>Rapid cure and good</td>
<td>for sensitive electronics. Use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>thermal conductivity</td>
<td>with initiator 41 or 43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clear, colourless</td>
<td>Charcoal black</td>
<td>Cream</td>
<td>Grey</td>
<td>White</td>
<td>Blue</td>
<td>Clear, colourless</td>
<td>Clear, colourless</td>
<td></td>
</tr>
<tr>
<td>400-800</td>
<td>Mixed: 13,000-30,000</td>
<td>Mixed: 3500-7000</td>
<td></td>
<td>200,000</td>
<td>20rpm: 20,000</td>
<td>80-120</td>
<td>1000-1600</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>(0.5)</td>
<td>(5.0)</td>
<td></td>
<td>(5.0)</td>
<td>(0.5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-12 hrs</td>
<td>105-120 min.</td>
<td>10-40 min.</td>
<td>60-90 min.</td>
<td>10-30 sec.</td>
<td>40-75 sec.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>72 hrs</td>
<td>72 hrs</td>
<td>&gt;72 hrs</td>
<td>4-5 days</td>
<td>24 hrs</td>
<td>24 hrs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8-12)</td>
<td>(4-7)</td>
<td>(5-7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200-1700</td>
<td>600-1000</td>
<td>400-600</td>
<td>1700-2900</td>
<td>2300-2900</td>
<td>2900-3600</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(-40 to +100)</td>
<td>(-40 to +120)</td>
<td>(-40 to +120)</td>
<td>(-40 to +120)</td>
<td>(-55 to +165)</td>
<td>(-55 to +120)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-40 to +215</td>
<td>-40 to +250</td>
<td>-40 to +250</td>
<td>-40 to +250</td>
<td>-65 to +329</td>
<td>-65 to +250</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>450 V/mil</td>
<td>-</td>
<td>-</td>
<td></td>
<td>25-30</td>
<td>30-50</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>0.2</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.

- 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.
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:

www.permabond.com

- **UK** - 0800 975 9800
- **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

The information given and the recommendations made herein are based on our experience and are believed to be accurate. No guarantee as to, or responsibility for, their accuracy can be given or accepted, however, and no statement herein is to be treated as a representation or warranty. In every case we urge and recommend that purchasers, before using any product, make their own tests to determine, to their own satisfaction, its suitability for their particular purposes under their own operating conditions. Always refer to current product technical datasheet for most recent and accurate technical information.

Ind_Composites_2015