



Permabond offers a wide range of different adhesive technologies for bonding electronic components.

Adhesives are used in electronics applications such as wire tacking, coil winding, magnet bonding, and much more. They help to provide structural integrity to electronic components while protecting against vibration, impact, and moisture. With electronic components getting ever smaller, adhesives also help to ensure a lightweight and aesthetically pleasing end product.

Permabond has many years of experience manufacturing electronics adhesives for a wide range of applications in the industry. See below for a list of typical applications our products can help with.

TYPICAL APPLICATIONS

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

IDEAL FOR BONDING:

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

*special grades only on untreated

...and many more!



Adhesives for Electronics

| Technical Information | 825 | 920 | 947 | CSA-NF | ES566 | ES578 | ES5691 | ET5441 | ET530 | MT382 | MT3836 | PT326 | TA4392 | TA4590 | UV681 | UV683 |
|----------------------------------|---|---|--|--|--|---|---|---|---|---|--|--|---|--|--|--|
| Typical application | SMD Bonding, wire tacking | SMD Bonding, wire tacking, toroid bonding | Wire tacking, bonding housings | Wire tacking, bonding housings | Bonding components, component rigidizing | Bonding heat sinks | Bonding components | Bonding heat sinks and metal components | 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 | Tack-free doming |
| Features | Single part, moisture cure cyanoacrylate adhesive. High temperature resistance. | Single part, moisture cure cyanoacrylate adhesive. High temperature resistance. | Single part, moisture cure cyanoacrylate adhesive. Low odor/non-bloom. | Cyanoacrylate activator. Nonflammable, low residue. Ideal for speeding up cure and for curing excess adhesive. | Single part, heat cure epoxy. Cures at temperatures <100°C. Helps protect temperature-sensitive electronics. | Single part, heat cure epoxy. Good thermal conductivity properties. | Single part, heat cure epoxy. Excellent adhesive strength. Resistance to vibration. Halogen-free formulation. | Two part epoxy. Excellent thermal conductivity and chemical resistance. High temperature resistance. Low CTE. | Two part epoxy. Low viscosity. Cures at room temperature. | Modified two part epoxy. Low viscosity. Self-leveling, soft, slightly flexible. | Modified two part silane polymer. Excellent thermal conductivity. UL94 V-0 fire retardant. | Two part polyurethane adhesive. High peel and impact strength. | Structural acrylic resin + initiator 41. Rapid cure, good thermal conductivity. | Structural acrylic resin + initiator 44. Non-acidic formulation for sensitive electronics. | Single part UV-curing resin. Low viscosity. Ideal for conformal coating. | Single part UV-curing resin. High viscosity. Ideal for doming. |
| Color | Clear, colorless | Clear, colorless | Clear, colorless | Clear, colorless | Grey | Black | White | Grey | Clear, colorless | Charcoal black | Cream | Grey | White | Blue | Clear, colorless | Clear, colorless |
| Viscosity (mPa.s = cP) | 100-150 | 70-90 | 900-1500 | 1 | Thixotropic paste | Thixotropic paste | 20 rpm: 200,000 2 rpm: 525,000 | Thixotropic paste | 550 | Mixed: 13,000-30,000 | Mixed: Paste | Mixed: 3500-7000 | 200,000 | 20rpm: 20,000 2.5rpm: 90,000 | 80-120 | 1000-1600 |
| 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 | (5.0) 0.2 | (2.0) 0.08 | - | (0.5) 0.02 | (5.0) 0.2 | (5.0) 0.2 | (0.5) 0.02 | (0.5) 0.02 | - | - |
| 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. | 130° C (266°F): 60 min. 150°C (300°F): 50 min. 160°C (320°F): 15 min. | 8 hrs | 8-12 hrs | 105-120 min. | 2-3 hrs | 60-90 min. | 10-30 sec. | 30-60 sec. | Normally seconds - depends on UV lamp intensity, output spectra, and distance from substrate | |
| Full strength (cured at 23°C) | 24 hrs | 24 hrs | 24 hrs | - | | | | 7 days | 72 hrs | 72 hrs | >72 hrs | 4-5 days | 24 hrs | 24 hrs | | |
| Shear strength Steel (MPa) psi | (15-20) 2175-2900 | (19-23) 2800-3300 | (16-20) 2300-2900 | - | (5-10) 750-1500 cured at 90°C (18-22) 2600-3200 cured at >100°C | (27-41) 4000-6000 | (27-41) 4000-6000 | (20-25) 2900-3600 | (10-12) 1450-1700 | (4-7) 600-1000 | (2-2.5) 290-360 Stainless Steel | (12-20) 1700-2900 | (16-20) 2300-2900 | (20-25) 2900-3600 | - | - |
| 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 | (-40 to +180) -40 to +356 | (-55 to +200) -65 to +390 | (-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 |
| Dielectric strength kV/mm | 25 | | 25 | - | - | 40-45 | 18 | 22 | 18 | - | 19 | - | 25-30 | 30-50 | - | - |
| Thermal conductivity W/(m.K) | 0.1 | 0.1 | 0.1 | - | 0.38 | 1.0 | 0.3 | 1.1 | 0.31 | - | 1.05 | - | 1.111 | 0.1 | - | - |

* Product cured at 150 °C for 2 hours

Application: Coil Winding

Loudspeaker coil winding runs through an epoxy "bath" and is coiled before the epoxy sets.

- ▶ Excellent optical clarity
- ▶ Low viscosity for good penetration and coverage

Adhesive used: Permabond ET530



Application: Bonding SMDs



Permabond adhesive is used to secure components that may later need to go through a solder reflow process.

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

Adhesive used: Permabond ES578

Application: Bonding Toroids

Adhesive is applied to bond copper wire to the ferrite core of a toroid.

- ▶ Improved durability
- ▶ Improved vibration and temperature resistance

Adhesive used: Permabond 920



Application: Wire Tacking

Permabond cyanoacrylates are used to tack wires inside electronic devices.

- ▶ Improved handling throughout assembly process
- ▶ Secure routing of surface wires
- ▶ Neat appearance

Adhesive used: Permabond 825



Permabond adhesives and sealants are available worldwide through authorized distributors.

Contact us for technical support
or a distributor in your area!



PERMABOND.COM

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