Permabond®
Single Part Epoxies

ISO 9001:2015 Certified
"Our Science ... Your Success"

Permabond single-part epoxy adhesives are suitable for bonding a wide variety of materials. They are available with a range of different viscosities and characteristics. Permabond epoxies have been developed to offer a high standard of performance for demanding applications.

Substrates
Permabond single-part epoxy adhesives will bond most engineering materials. They form excellent structural bonds to a wide variety of materials including metals, composites, ferrites and some plastics.

Durability
These adhesives offer excellent performance at high temperatures and harsh environmental conditions, having superb resistance to many aggressive chemicals.

Applications
Single-part epoxies are ideal for use in heavy wear-and-tear applications such as bonding tungsten carbide tools & machinery. They are ideal for replacing welding and brazing and can significantly reduce assembly production costs. For this reason their use is widespread in the heat exchanger bonding market for sealing heat exchanger tubes and end-plates.

Material selection
By replacing welding or brazing, the designer can have greater freedom of choice of manufacturing materials and can bond dissimilar substrates together. This can help reduce component cost and weight as well as improve performance.

Process
These adhesives are available in cartridge form or in bulk to dispense via automated dispensing equipment. They fully cure rapidly when exposed to heat via the use of an oven, induction coil, infra-red or hot air gun.

Joint Design
Joint design possibilities are greatly improved by the high shear and peel strength of joints bonded with these adhesives and by the increased stress distribution that they offer.

Benefits

- High peel strength increases design versatility
- No requirement for weighing or mixing material
- Durability increases material choices
- Rapid full cure increases production rates
- Solvent free improves workplace safety
- Low odour improves workplace environment
- Excellent high temperature resistance and can withstand harsh environmental conditions
- An effective alternative to welding or brazing

Permabond® Engineering Adhesives

Product Data

Permabond Single-Part Epoxy Adhesives Comparison Chart

This table represents a selection of the complete range of Permabond single-part epoxy adhesives. For more detailed technical information and product Material Safety Data Sheets, visit www.permabond.com. To discuss your specific application requirements, call the Permabond Helpline and our technical advisors will recommend the best adhesive for you.

Grade	Features	Colour	Viscosity (mPa.s)	Max. Gap Fill (mm)	Cure Schedule Options	Shear Strength Steel (MPa)	Service Temperature (°C)
ES550	Toughened, non-sagging at curing temperature, excellent environmental resistance, good thermal conductivity.	Silver-grey	1,000,000 to 2,000,000	5.0	130°C: 75 mins 150°C: 60 mins 170°C: 40 mins	27-41	-40 to +180
ES558	Toughened, free flowing at curing temperature, excellent environmental resistance, good thermal conductivity.	Silver-grey	100,000 - 300,000	0.5	130°C: 75 mins 150°C: 60 mins 170°C: 40 mins	27-41	-40 to +180
ES560	Free flowing for potting and encapsulation.	Transparent when cured. Black version available.	1000-3000	0.1	Potting: 100°C: 30 mins plus 120°C: 30 mins Bonding: 100°C: 60 mins or 120°C: 40 mins	14-20	-40 to +180
ES561	Self levelling.	Amber	8000-14000	0.2	120°C: 30 mins 150°C: 15 mins	15	-40 to +180
ES562	Self-levelling, free flowing at curing temperature.	White	15,000 - 30,000	0.25	130°C: 60 mins 150°C: 45 mins 160°C: 20 mins	20-35	-40 to +180
ES566	Lower temperature curing grade, ideal for bonding difficult plastics.	Grey	20rpm: 60,000-120,000 2rpm: 150,000-300,000	2	90°C: 75 mins 100°C: 40 mins 120°C: 25 mins 150°C: 10 mins	5-10 (cured at 90°C) 18-22 (cured at >100°C	-40 to +180
ES568	Rapid curing, general purpose with good adhesion to a variety of surfaces.	Ivory	20rpm: 40,000-65,000 2rpm: 45,000-75,000	0.5	135°C: 35 mins 150°C: 20 mins 170°C: 10 mins	20-25	-40 to +180
ES569	High strength bonding, non-sagging at curing temperature.	Black	250,000 to 500,000	5.0	130°C: 75 mins 150°C: 60 mins 170°C: 40 mins	27-41	-40 to +180
ES578	Good thermal conductivity, excellent electrical insulation.	Black	600,000 - 800,000	5.0	130°C: 75 mins 150°C: 60 mins 170°C: 25 mins	27-41	-40 to +180
ES579	Good thermal conductivity, excellent electrical insulation. High temperature resistance. Cures at low temperature.	Ivory	60,000-90,000	2.0	100°C: 240 mins 120°C: 60 mins 150°C: 45 mins 180°C: 20 mins	27-41	-40 to +180
ES5504	Exceptionally high temperature resistance.	Grey	Paste	2.0	150°C for 60 mins plus 200°C for 60 mins	18-22 (aluminium)	-40 to +275 (continuous) +300 (peak)
ES5681	Composites bonding grade.	Black	40,000-60,000	0.5	135°C: 35 mins 150°C: 20 mins 160°C: 15 mins	30-35	-40 to +180
ES5691	UV-Fluorescing for high speed production lines. High wet-strength, non-stringing formulation ideal for bonding electrical components.	White	20rpm: 80,000-150,000 2rpm: 350,000-700,000	5.0	130°C: 90 mins 150°C: 70 mins 160°C: 15 mins	27-41	-40 to +180
ES5741	Ideal for bonding PBT and other difficult plastics. Rapid low temperature cure.	Orange	20rpm: 20,000-40,000 2rpm: 50,000-100,000	0.5	90°C: 60 mins 100°C: 45 mins 120°C: 30 mins 150°C: 10 mins	12-15 (aluminium)	-40 to +180

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