

Permabond ES558 is a single-part epoxy paste which flows like solder when heated during curing. The adhesive is toughened for maximum impact resistance, along with excellent peel and shear strength. ES558 is ideal for bonding a wide range of materials including metals, ferrites, ceramics and composites.

Physical Properties

Chemical Type	Epoxy
Colour	Silver-grey
Viscosity	100,000 - 300,000 mPa.s
Maximum Gap Fill	0.5mm
Density	1.5
Cure Time*	120°C: 60 minutes 150°C: 45 minutes 180°C: 20 minutes 200°C: 15 minutes

**Actual cure times will depend on the time it takes for the adhesive to reach this temperature - for example, large assemblies or a crowded oven will require longer to reach full cure. Alternative, quicker methods of curing include induction, hotplates, infrared lamps and hot-air guns .*

Typical Performance

Shear Strength	ASTM D-1002	27-41 MPa (steel) 17-31 MPa (aluminium) 14-41 MPa (zinc)
Coefficient of Thermal Expansion		45 x 10 ⁻⁶ mm/mm/°C
Shore D Hardness		80
Service Temperature*		-40 to +180°C

**Higher temperatures may be endured for short periods providing the parts are not unduly stressed.*

Surface Preparation

Surfaces should be clean, dry and grease-free before applying the adhesive. Permabond Cleaner A is recommended for the degreasing of most surfaces. Some metals such as aluminium, copper and its alloys will benefit from light abrasion with emery cloth (or similar), to remove the oxide layer.

Adhesive Application

- The adhesive should be dispensed from the cartridge via the nozzle supplied (this can be cut to give the appropriate sized bead to cover the bond area).
- Apply the adhesive to one surface and avoid entrapping air.
- Assemble parts applying sufficient pressure to ensure the adhesive spreads to cover the entire bond area.
- Use a jig / clamp to prevent parts moving during cure.
- It is advisable not to disturb the joint until the adhesive is fully cured.

Storage and Handling

Storage Temperature	2 to 7°C
Shelf Life Stored in original unopened containers	6 months

Users are reminded that all materials, whether innocuous or not, should be handled in accordance with the principles of good industrial hygiene. Full information can be obtained from the Material Safety Data Sheet.

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