

Features & Benefits

- Excellent adhesive strength
- Excellent resistance to vibration
- Easy to use – no mixing required
- High shear and peel strength
- Good impact strength
- High temperature resistance
- Good resistance to chemicals

Description

PERMABOND ES550 is a single-part epoxy paste which is slump-resistant (does not flow) during cure. The adhesive is toughened for maximum impact resistance, along with excellent peel and shear strength. ES550 is ideal for bonding a wide range of materials including metals, ferrites, ceramics and composites.

Physical Properties of Uncured Adhesive

Chemical composition	Epoxy Resin
Appearance	Silver-grey
Viscosity @ 25°C	1,000,000 to 2,000,000 mPa.s (cP)
Specific gravity	1.5

Typical Curing Properties

Flow at high temperature	No flow
Maximum gap fill	3 mm 0.12 in
Cure speed (oven) *	130° C (266°F): 45 minutes 150° C (300°F): 30 minutes
Cure speed (induction)	<3 minutes

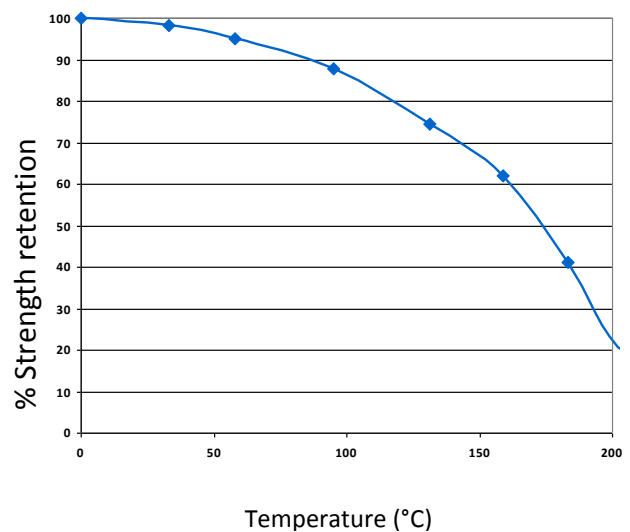
*Actual cure times will depend on the time it takes for the adhesive to reach this temperature - for example, large assemblies or a crowded oven will require longer to reach full cure. Alternative, quicker methods of curing include induction, hotplates, infrared lamps and hot-air guns.

Typical Performance of Cured Adhesive

Shear strength* ASTM D-1002	Steel 27 – 41 N/mm ² (4000 – 6000 psi) Aluminium 17 - 31 N/mm ² (2500 – 4500 psi) Zinc 14 - 27 N/mm ² (2000 – 4000 psi)
Shear strength steel to ferrite	>14 N/mm ² (>2000 psi) Substrate failure
Impact Strength	20-30 KJ/m ²
Hardness	80 Shore D
Coefficient of thermal expansion	45 x 10 ⁻⁶ mm/mm/°C
Thermal conductivity	0.55 W/(m.K)

*Strength results will vary depending on the level of surface preparation and gap.

Temperature Resistance

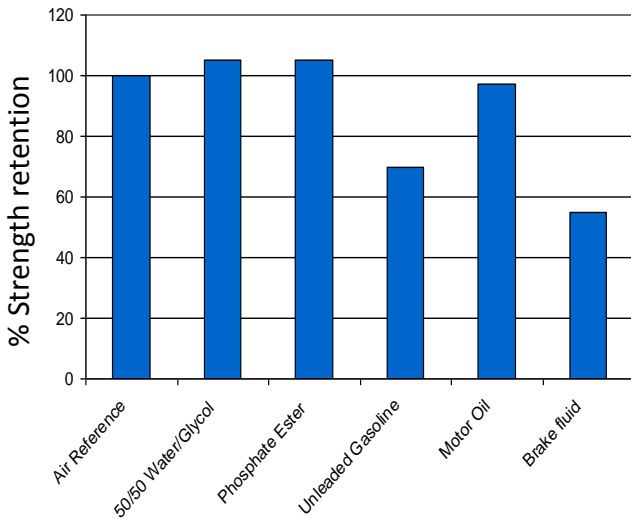


ES550 can withstand higher temperatures for brief periods (such as for paint baking and wave soldering processes) providing the joint is not unduly stressed. The minimum temperature the cured adhesive can be exposed to is -40°C (-40°F) depending on the materials being bonded.

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Chemical Resistance



Specimens were immersed for 30 days at 85°C and tested at room temperature.

Additional Information

This product is not recommended for use in contact with strong oxidizing materials.

Information regarding the safe handling of this material may be obtained from the material safety data sheet (MSDS).

Users are reminded that all materials, whether innocuous or not, should be handled in accordance with the principles of good industrial hygiene.

Storage & Handling

Storage Temperature	2 to 7°C (35 to 45°F)
Shelf Life Stored in original unopened containers	12 months

Surface Preparation

Surfaces should be clean, dry and grease-free before applying the adhesive. Use a suitable solvent (such as acetone or isopropanol) for the degreasing of 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.

Directions for Use

- 1) 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).
- 2) Apply the adhesive to one surface and avoid entrapping air.
- 3) Assemble parts applying sufficient pressure to ensure the adhesive spreads to cover the entire bond area.
- 4) Use a jig / clamp to prevent parts moving during cure.
- 5) It is advisable not to disturb the joint until the adhesive is fully cured.
- 6) Cure with heat – see page one for cure schedule.

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Contact Permabond:

Europe: Tel. +44 (0)1962 711661
 UK Helpline: 0800 975 9800
 Deutschland: 0800 10 13 177
 France: 0805 11 13 88
 info.europe@permabond.com

US: Tel. +1 732-868-1372
 Helpline: 800-640-7599
 info.americas@permabond.com
 Asia: Tel. +86 21 5773 4913
 info.asia@permabond.com

www.permabond.com

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