





Two Part Epoxy

Permabond®
Engineering Adhesives

Features & Benefits

-  Adhesion to a wide variety of substrates
-  Full cure at room temperature
-  Easy to apply
-  Fast setting

Description

PERMABOND® ET500 is a two-part fast-setting epoxy adhesive which bonds to a wide variety of substrates such as wood, metal, ceramics and some plastics and composites. It cures rapidly at room temperature to give handling strength in approximately 5 minutes. This product is ideal for general purpose bonding. It is typically used for small component assembly and is suitable for applications that require a clear bond line.

Physical Properties of Uncured Adhesive

	ET500A	ET500B
Chemical composition	Epoxy Resin	Amine Hardener
Appearance	Colourless	Colourless
Viscosity @ 25°C	12,000-18,000 mPa.s (cP)	15,000-30,000 mPa.s (cP)
Specific gravity	1.2	1.1

Typical Curing Properties

Mix ratio by volume	1:1
Maximum gap fill	2 mm <i>0.08 in</i>
Usable / pot life @23°C	3-4 mins
Handling time @23°C	5-8 mins
Working strength @23°C	30-60 mins
Full cure @23°C	24 hours

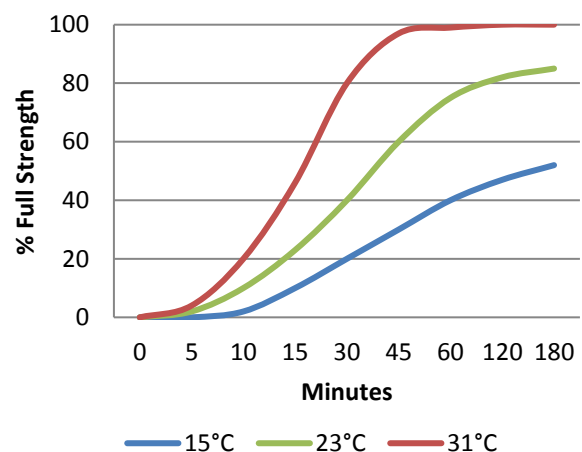


Typical Performance of Cured Adhesive

Shear strength (mild steel)* (ISO4587)	12-18 N/mm ² (1700 - 2600 psi)
Peel strength (aluminium) (ISO4578)	5-20 N/25mm (1-4 PIW)
Hardness (ISO868)	70-80 Shore D
Elongation at break (ISO37)	<5%
Glass transition temperature Tg	40-50°C (104-122°F)
Dielectric strength	15-25 kV/mm
Thermal conductivity	0.22 W/(m.K)

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

Strength Development

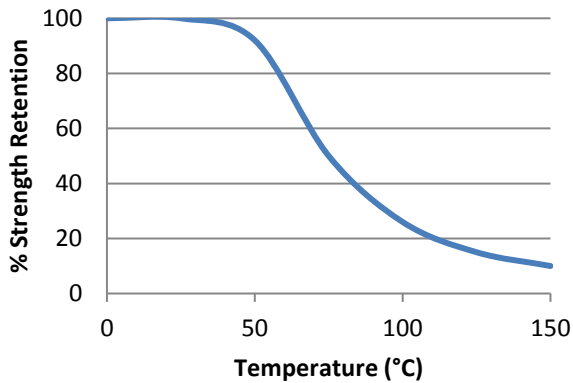


Graph shows typical strength development of bonded components. An increase of 8°C in temperature will halve the cure time. Lower temperatures will result in a slower cure time.

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Hot Strength



"Hot strength" shear strength tests performed on mild steel. Fully cured specimens conditioned to pull temperature for 30 minutes before testing at temperature.

ET500 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.

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 safety data sheet.

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

This Technical Datasheet (TDS) offers guideline information and does not constitute a specification.

Storage & Handling

Storage Temperature	5 to 25°C (41 to 77°F)
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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. Dual cartridges:
 - a) Insert the cartridge into the application gun and guide the plunger into the cartridge.
 - b) Remove the cartridge cap and dispense material until both sides are flowing.
 - c) Attach the static mixer to the end of the cartridge and begin dispensing the material.
2. Apply material to one of the substrates.
3. Join the parts. Parts must be joined within 3-4 minutes of mixing the two epoxy components.
4. Large quantities and/or higher temperature will decrease the usable life or pot life.
5. Apply pressure to the assembly by clamping for 8 minutes or until handling strength is obtained.
6. Full cure will be obtained after 24 hours at 25°C (77°F). Heat can be used to accelerate the curing process.

NB. Exercise caution when mixing large quantities due to exothermic reaction.

Video Links

Surface preparation:

<https://youtu.be/8CMOMP7hXjU>



Two-part epoxy directions for use:

<https://youtu.be/GRX1RyknYqc>



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