

### Features & Benefits

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

### Description

**PERMABOND DOUBLE/BUBBLE<sup>®</sup>** 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 and 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

	Resin	Hardener
Chemical composition	Epoxy Resin	Amine Hardener
Appearance	Slightly amber	Slightly amber
Viscosity @ 25°C	55,000 mPa.s (cP)	10,000 mPa.s (cP)
Specific gravity	1.2	1.1

### Typical Curing Properties

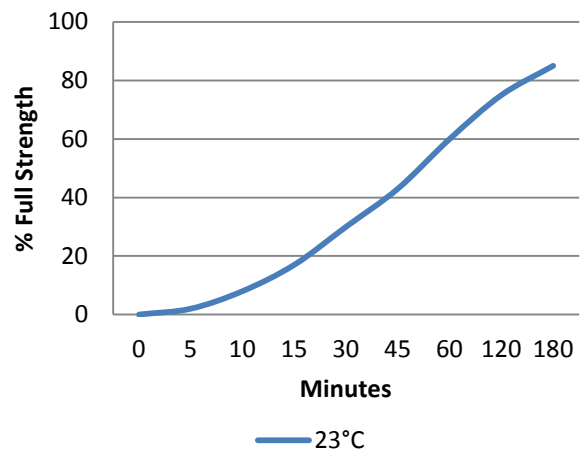
Mix ratio by volume	1:1
Maximum gap fill	2 mm <b>0.08 in</b>
Usable / pot life @23°C	3-4 mins
Handling time @23°C	15-30 mins
Working strength @23°C	30-60 mins
Full cure @23°C	24 hours

### Typical Performance of Cured Adhesive

Shear strength (mild steel)* (ISO4587)	12-18 N/mm <sup>2</sup> <b>(1700 - 2600 psi)</b>
Peel strength (aluminium) (ISO4578)	5-20 N/25mm <b>(1-4 PIW)</b>
Hardness (ISO868)	70-80 Shore D
Elongation at break (ISO37)	<5%
Glass transition temperature Tg	40-50°C <b>(104-122°F)</b>
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

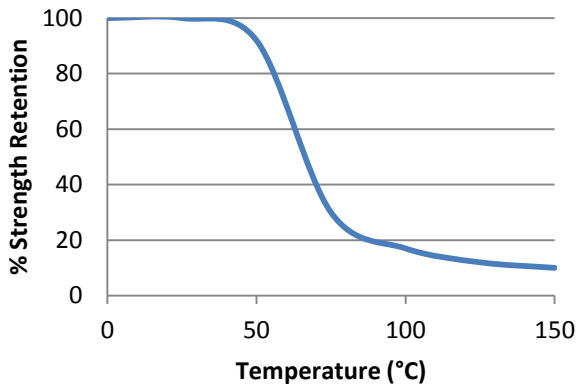


Graph shows typical strength development of bonded components. An increase of temperature may result in a faster cure; lower temperatures may give a slightly slower cure.

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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.

Double/Bubble 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.

## 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. Cut sachet and dispense contents from both bubbles onto mixing pallet.
2. Mix thoroughly with stirrer provided.
3. Apply material to one of the substrates.
4. Join the parts. Parts must be joined within 4-6 minutes of mixing the two epoxy components.
5. Apply pressure to the assembly by clamping for 5 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.

## Storage & Handling

Storage Temperature	5 to 25°C (41 to 77°F)
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