

Features & Benefits

-  Easy to apply
-  High shear and peel strength
-  Long open time
-  High temperature resistance

Description

PERMABOND® ET5422 is a thixotropic two-part adhesive with excellent resistance to impact and vibration. The controlled flow properties as well as its ease of mixing and application, enables the adhesive to be used where gap filling is required. Permabond® ET5422 has been found to provide exceptional performance even at elevated temperatures. Permabond® ET5422 has been specifically formulated for use in applications requiring toughness and high strength.

Physical Properties of Uncured Adhesive

| | ET5422 A-side | ET5422 B-side |
|----------------------|---------------------------------------|---------------------------------------|
| Chemical composition | Epoxy Resin | Modified Polyamide |
| Appearance | Off White | Blue |
| Viscosity @ 25°C | 20rpm: 105,000 mPa.s (CP) Thixotropic | 20rpm: 100,000 mPa.s (CP) Thixotropic |
| Specific gravity | 1.14 | 1.00 |

Typical Curing Properties

| | |
|-------------------------|-----------------------------------|
| Mix ratio | 2:1 by volume 100:44 by weight |
| Maximum gap fill | 5 mm 0.2 in |
| Usable / pot life @23°C | 10g: 3 hours 200g: 1 hour |
| Handling Time | 23°C: 16 hours |
| Working Strength | 23°C: 24 hours |
| Full cure | 23°C: 5 days 82°C: 1 hour |

For improved thermal performance, post-cure the adhesive for 60 minutes at 80°C.

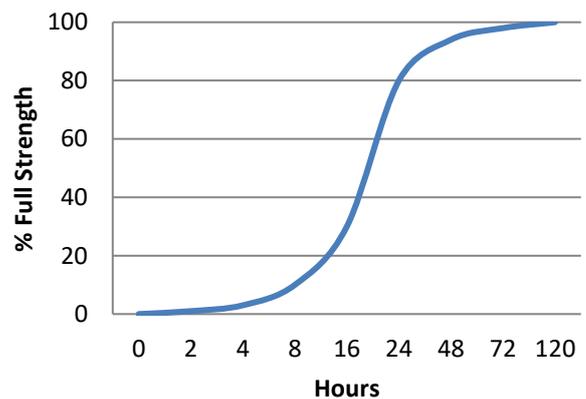
Typical Performance of Cured Adhesive

| | |
|-------------------------------------|--|
| Shear strength* (ISO4587) | Aluminium: 30-40 N/mm ² (4350-5800psi) Mild Steel: 30-38 N/mm ² (4350-5510psi) Stainless Steel: 20-26 N/mm ² (2900-3770psi) Hot Dip Galv: 18-24 N/mm ² (2610-3480psi) Carbon Fibre: >22 N/mm ² (>3190psi) SF** Epoxy GFRP: >20 N/mm ² (>2900psi) SF** Polyester GRP: >10 N/mm ² (>1450psi) SF** |
| Peel strength (aluminium) (ISO4578) | Cured 1hr @ 60°C: 270 N/25mm (59 PIW) Cured 5 days @ 23°C: 320 N/25mm (70 PIW) |
| Tg (DSC) 5d @ 23°C | 60°C (140°F) |
| Tg (DSC) 3d @ 23°C + 60min @ 80°C | 115°C (239°F) |
| Impact strength (ASTM D-950) | 20-30 KJ/m ² |
| Hardness (ISO868) | >80 Shore D |

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

**SF Denotes substrate failure (results depend on the quality of the substrates)

Strength Development

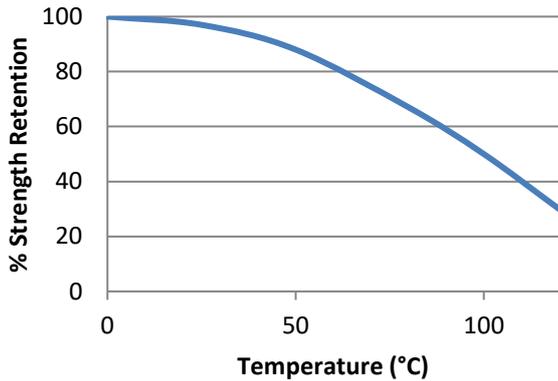


Graph shows typical strength development of bonded components. An increase of 8°C in temperature will halve the cure time. Lower temperatures will result in a slower cure time.

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Hot Strength



"Hot strength" shear strength. Fully cured specimens conditioned to pull temperature for 30 minutes before testing at temperature.

For improved thermal performance, post-cure the adhesive for 60 minutes at 80°C. ET5422 can withstand higher temperatures for brief periods (such as for paint baking and wave soldering processes) providing the joint is not unduly stressed.

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) |
|---------------------|------------------------|

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 the usable pot life 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 until handling strength is obtained.
6. Full cure will be obtained after 5 days at 23°C (74°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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Permabond ET5422

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