

## Features & Benefits

- Adhesion to a wide variety of substrates
- Full cure at room temperature
- Easy to apply
- Self-levelling
- Ideal for electronic potting & encapsulation applications

## Description

**PERMABOND® MT382** two-part, modified epoxy adhesive designed for sealing/bonding and potting applications. It has excellent adhesion to Nylon, ABS, Polycarbonate and other plastics as well as a variety of different metals. The product can be cured in different mix ratios depending on the flexibility required in the final cured product. MT382 is self-levelling.

## Physical Properties of Uncured Adhesive

|                      | MT382A                     | MT382B                   |
|----------------------|----------------------------|--------------------------|
| Chemical composition | Epoxy Resin                | Polyamine based Hardener |
| Appearance           | Black                      | Yellow                   |
| Mixed appearance     | Charcoal black             |                          |
| Viscosity @ 25°C     | 20,000 – 45,000 mPa.s (cP) | 200-400 mPa.s (cP)       |
| Specific gravity     | 1.3                        | 1.0                      |

## Typical Curing Properties

|                                  |                                   |
|----------------------------------|-----------------------------------|
| Mix ratio                        | 2:1 by volume<br>130:50 by weight |
| Maximum gap fill                 | 0.5 mm <b>0.02 in</b>             |
| Usable / pot life @25°C          | 20-50 mins                        |
| Handling time to 0.1 N/mm² @25°C | 105-120 mins                      |
| Full cure @25°C                  | ≥72 hours                         |

## Electrical Properties\*

|                                         |                                                                                    |
|-----------------------------------------|------------------------------------------------------------------------------------|
| Linear Coefficient of Thermal Expansion | 112 x 10 <sup>-6</sup> m/m C (below Tg)<br>170 x 10 <sup>-6</sup> m/m C (above Tg) |
| Dielectric Constant                     | 6                                                                                  |
| Dielectric Strength                     | 20 - 30 kV/ mm                                                                     |
| Volume Resistivity                      | 1 - 3 x 10 <sup>11</sup> Ohm-cm                                                    |

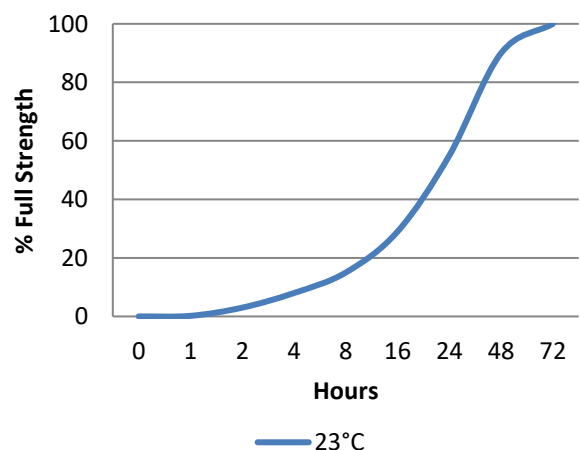
\*Asterisk denotes values considered typical to associated resin systems or extrapolated from other test results.

## Typical Performance of Cured Adhesive

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Shear strength ISO4587              | Mild steel: 4-7 N/mm² ( <b>600 - 1000psi</b> )<br>Aluminium: 6-8 N/mm² ( <b>900-1200psi</b> )<br>ABS: 4-6 N/mm² ( <b>600-900psi</b> )<br>Acrylic: 2-5 N/mm² ( <b>300-700psi</b> )<br>Nylon: 2-4 N/mm² ( <b>300-600psi</b> )<br>Polycarbonate: 4-6 N/mm² ( <b>600-900psi</b> )<br>PVC: 3-5 N/mm² ( <b>400-700psi</b> )<br>FRP Glass Epoxy: 5-7 N/mm² ( <b>700-1000psi</b> )<br>FRP Glass Polyester: 5-7 N/mm² ( <b>700-1000psi</b> )<br>Carbon Fibre: 6-8 N/mm² ( <b>600-1200psi</b> ) |
| Hardness (ISO868)                   | 55-85 Shore A<br>20-30 Shore D                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Elongation at break (ISO37)         | 150 -200%                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Peel strength (aluminium) (ISO4578) | 140-160 N/25mm ( <b>31-36 PIW</b> )                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Thermal conductivity                | 0.47 W/(m.K)                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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

## Strength Development

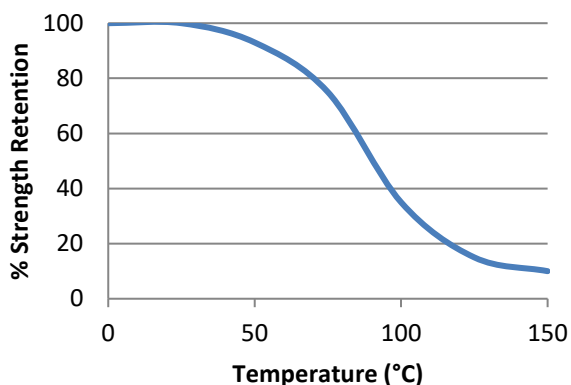


Graph shows typical strength development of bonded components at 23°C. Curing at higher or lower temperatures may affect cure speed.

The information given and the recommendations made herein are based on our research and are believed to be accurate but no guarantee of their accuracy is made. In every case we urge and recommend that purchasers before using any product in full-scale production make their own tests to determine to their own satisfaction whether the product is of acceptable quality and is suitable for their particular purpose under their own operating conditions. THE PRODUCTS DISCLOSED HEREIN ARE SOLD WITHOUT ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED.

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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.

MT382 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.**

## 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. Measure volumetrically 2 parts resin to 1 part hardener. Mix thoroughly taking care not to entrap air. Adhesive can be applied and mixed by automated dispensing equipment. If using cartridges, put cartridge in dispensing gun and affix static mixing nozzle.
2. Apply material. If potting; take care to fill component and not entrap air.
3. If bonding a joint, assemble the parts. Parts must be joined within 20-50 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 105-120 minutes or until handling strength is obtained.
6. Full cure will be obtained after a **minimum of 72** 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>



## Storage & Handling

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

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