

### Features & Benefits

- Ideal for high speed production lines
- Fast cure at room temperature
- Compatible with external mix equipment
- High shear and peel strength
- Excellent impact strength
- Good chemical resistance
- Non-corrosive formulation

### Description

**PERMABOND® TA4592** is a two component structural acrylic adhesive ideal for bonding magnets and ferrites for electric motors on fast-moving production lines.

**Permabond® TA4592** provides high strength while maintaining excellent flexibility, resulting in tough, durable bonds with outstanding impact and peel resistance.

### Physical Properties of Uncured Adhesive

|                             | TA4592 A                                      | TA4592B                                     |
|-----------------------------|---|---|
| Chemical composition        | Urethane methacrylate                         | Urethane methacrylate                       |
| Appearance                  | Blue  | Yellow-green                                |
| Viscosity @ 25°C mPa.s (cP) | 20rpm: 10,000-15,000<br>2.5rpm: 40,000-60,000 | 20rpm: 5,000-6,000<br>2.5rpm: 12,000-15,000 |
| Density                     | 1.1   | 1.1   |

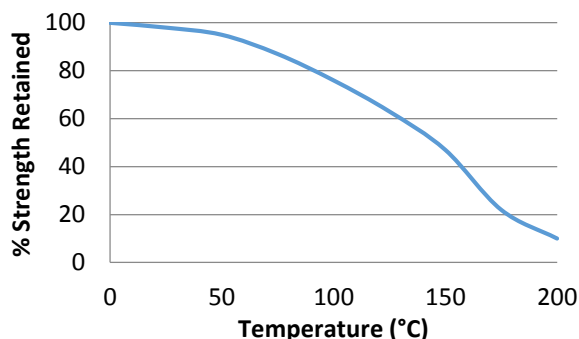
### Typical Curing Properties

|                     |               |
|---------------------|---------------|
| Ratio of use        | 1:1           |
| Maximum gap fill    | 1 mm (0.04")  |
| Gel time (1g+1g)    | <30 seconds   |
| Fixture time (zinc) | 10-30 seconds |
| Full cure           | 24 hours      |

### Typical Performance of Cured Adhesive

|   |  |
|---|--|
| Shear strength (mild steel)                   | 20-25 N/mm <sup>2</sup><br>(2900-3600 psi)   |
| Shear strength (zinc)                         | 15-20 N/mm <sup>2</sup><br>(2200-3600 psi)   |
| Shear strength (steel to ferrite)             | After 3 minutes:<br>4 N/mm <sup>2</sup> (600 psi)<br>After 24 hours:<br>>14 N/mm <sup>2</sup> (>2000 psi)<br>(substrate failure) |
| Tensile strength (ASTM D2095)                 | 25N/mm <sup>2</sup> (3600 psi)   |
| Impact strength (ASTM D-950)                  | 10-20 KJ/m <sup>2</sup>  |
| Coefficient of thermal expansion (ASTM D-696) | 80 x 10 <sup>-6</sup> 1/K  |
| Thermal conductivity (ASTM C-177)             | 0.1 W/(m.K)  |

### 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.

TA4592 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 -55°C (-65°F) depending on the materials being bonded.

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, EXPRESS OR IMPLIED.

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## 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 (SDS).

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. Permabond Cleaner A (or a suitable solvent) is recommended for the degreasing of most 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) Surfaces must be clean, dry and grease-free prior to bonding.
- 2) Apply TA4592A to one surface and TA4592B to the other.
- 3) Alternatively, dispense 'bead-on-bead' (one bead on top of the other) and then assemble parts.
- 4) Applying adhesive side by side is not advisable as this may not achieve adequate mixing.
- 5) Adhesive is fully compatible with automatic dispensing external mix equipment.
- 6) Maintain pressure until handling strength is achieved. The time required will vary according to the joint design and surfaces being bonded.
- 7) Allow 24 hours for adhesive to fully cure. Accelerated cure times may be achieved by heating.

### Directions for external mix:

- 1) Normally material is dispensed through an external mix dispensing system.
- 2) This system consists of two dispense tips that are closely positioned approximately 1.6 mm apart such that when product is dispensed, the two components mix in the air as the adhesive falls on the part.
- 3) Minimum height of the dispense tips above the part is 15 cm, with best results achieved when a height of 25 cm is used.
- 4) Optimal dispense angle (from horizontal) of dispense value is 60°.
- 5) Static mix tips are not needed to adequately mix this class of material.
- 6) Joining the substrates should be made as soon as possible.
- 7) Larger quantities and/or higher temperatures will reduce the working time.
- 8) Join the adhesive coated surfaces and allow to cure.

## Storage & Handling

|                     |                    |
|---------------------|--------------------|
| Storage Temperature | 2-7°C (35 to 45°F) |
|---------------------|--------------------|

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