PERMABOND® TA452
Toughened Acrylic Adhesive
Provisional Technical Datasheet

Features & Benefits

- Excellent adhesion to metals
- Fast cure at room temperature
- Easy to dispense
- High shear and peel strength
- Low odour
- Low viscosity
- Non-flammable

Description

PERMABOND® TA452 is a low-odour 2-part, 1:1 toughened acrylic adhesive. It can be used to bond a wide variety of materials including metals, plastics, GRP, ceramics, wood and other substrates. It is convenient to use in an easy-to-dispense cartridge with mixing nozzle or can be applied bead-on-bead* without static mixer.

Physical Properties of Uncured Adhesive

<table>
<thead>
<tr>
<th></th>
<th>TA452 A</th>
<th>TA452 B</th>
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</thead>
<tbody>
<tr>
<td>Chemical composition</td>
<td>Urethane methacrylate</td>
<td>Urethane methacrylate</td>
</tr>
<tr>
<td>Colour</td>
<td>Red</td>
<td>Green</td>
</tr>
<tr>
<td>Mixed colour</td>
<td>Brownish Purple</td>
<td></td>
</tr>
<tr>
<td>Viscosity @ 25°C (cP)</td>
<td>3,000-6,000</td>
<td>3,000-6,000</td>
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<tr>
<td>Specific gravity</td>
<td>1.0</td>
<td>1.0</td>
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Typical Curing Properties

| Ratio of use          | 1:1                          |
| Maximum gap fill      | 0.5 mm (0.02 in) with nozzle | 0.2 mm (0.008 in) bead on bead |
| Nozzle life @23°C     | 2-3 minutes                  |
| Fixture / handling time (0.3 N/mm² shear strength is achieved) @23°C | 6-9 minutes |
| Tack free time**      | <12 hours                    |
| Full cure @23°C       | 24 hours                     |

*If applying bead-on-bead, fixture time and strength performance may be variable depending on the application.

**To achieve a tack-free finish, a static mixing nozzle should be used.

Typical Performance of Cured Adhesive

- Steel: 20-24 N/mm² (2900-3500 psi)
- Aluminium: 18-22 N/mm² (2600-3200 psi)
- Stainless Steel: 20-24 N/mm² (2900-3500 psi)
- Zinc: 18-22 N/mm² (2600-3200 psi)

*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. An increase of 8°C in temperature will halve the cure time. Lower temperatures will result in a slower cure time.

Hot Strength

"Hot strength" shear strength tests performed on mild steel. Product fully cured at room temperature and conditioned to pull temperature for 30 minutes before testing.

TA452 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 AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED.

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**Additional Information**

This product is not recommended for use in contact with strong oxidizing materials. This product may affect some thermoplastics and users must check compatibility of the product with such substrates. 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. Permabond Cleaner A 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.
2) Apply a thin bead of adhesive pre-mixed through a static mixer nozzle.
3) Assemble components and clamp.
4) Maintain pressure until handling strength is achieved. The time required will vary according to the joint design and surfaces being bonded.
5) Allow 24 hours for adhesive to fully cure.

**Storage & Handling**

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

**Other Products Available**

- **Anaerobics**
  - Thread lockers
  - Thread sealants
  - Gasket makers
  - Sealants / retainers

- **Cyanacrylates**
  - Instant adhesives
  - For rapid bonding of metals, plastics, rubber and many other materials

- **Epoxies**
  - Two-part room temperature cure adhesives
  - Single-part heat cure adhesives
  - Modified Technology (MT) flexible grades available

- **MS-Polymers**
  - Single-part, moisture-curing, flexible sealants

- **Polyurethanes**
  - Two-part room temperature curing adhesives

- **Toughened Acrylics**
  - Rapid curing, high strength structural adhesives

- **UV Light Cured Adhesives**
  - Glass / plastic bonding
  - Optically clear
  - Non-yellowing

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