

Features & Benefits

- Adhesion to a wide variety of substrates
- Fast cure at room temperature
- High shear and peel strength
- Good impact strength
- Good chemical resistance
- Rapid strength development

Description

PERMABOND® TA4200 is a 2-part, 1:1 toughened acrylic adhesive. Its toughening makes it ideal for bonding dissimilar materials where differential thermal expansion and contraction could be an issue. It cures rapidly at room temperature and has good gap filling properties. It is ideal for use on a variety of metals and gives particularly high bond strength on aluminium surfaces.

Physical Properties of Uncured Adhesive

| | TA4200 A | TA4200 B |
|----------------------|--------------------------|--------------------------|
| Chemical composition | Methyl methacrylate | Methyl methacrylate |
| Colour | Cream | Cream |
| Mixed colour | Cream | |
| Viscosity @ 25°C | 40,000-50,000 mPa.s (cP) | 40,000-50,000 mPa.s (cP) |
| Specific gravity | 1.0 | 1.0 |

Typical Curing Properties

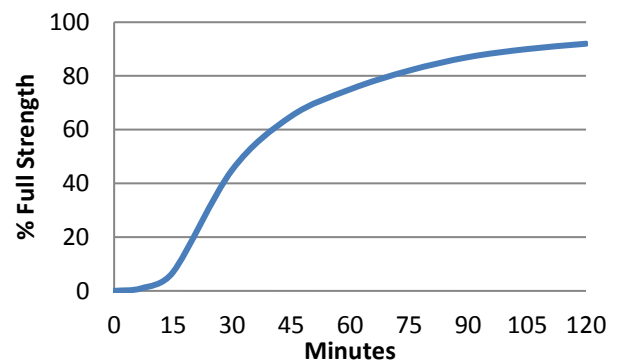
| | |
|--|----------------|
| Ratio of use | 1 : 1 |
| Maximum gap fill | 4 mm (0.16 in) |
| Pot life (10g+10g) @23°C | 7-10 minutes |
| Fixture / handling time (0.3 N/mm ² shear strength is achieved) @23°C | 15-20 minutes |
| Working strength @23°C | 25-35 minutes |
| Full cure @23°C | 24 hours |

Typical Performance of Cured Adhesive

| | |
|---|---|
| Shear strength (ISO4587)* | Steel: 23-25 N/mm ² (3300-3600 psi) Aluminium (gritblasted): 28-30 N/mm ² (4100-4400 psi) Aluminium (as received): 3-4 N/mm ² (435-580 psi) Carbon fibre: 9-14 N/mm ² (1300-2000 psi) PMMA: 4-5 N/mm ² (580-725 psi) ABS: 2-4 N/mm ² (290-580 psi) PC: 3-4 N/mm ² (435-580 psi) Epoxy FRP: 8-10 N/mm ² (1160-1450 psi) PVC: 1-3 N/mm ² (145-435 psi) Polyester GRP: 3-5 N/mm ² (435-725 psi) Hot dip galv steel: 0.5-3 N/mm ² (73-435 psi) |
| Peel strength (ISO 4578) | 100-200 N/25mm |
| Hardness (ISO868) | 75-80 Shore D |
| Coefficient of thermal expansion (ASTM D-696) | 80 x 10 ⁻⁶ 1/K |
| Thermal conductivity (ASTM C-177) | 0.1 W/(m.K) |
| Dielectric constant (ASTM D-150) | 4.6 MHz |
| Dielectric strength (ASTM D-149) | 30-50 kV/mm |
| Volume resistivity (ASTM D-257) | 2 x 10 ¹³ Ohm.cm |

*Strength results will vary depending on the level of surface preparation and gap. If using a cleaning solvent, allow 3-4 minutes to fully evaporate before applying adhesive.

Strength Development

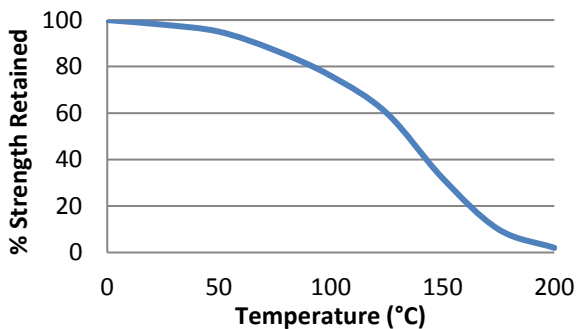


Graph shows typical strength development of bonded components at 23°C. Curing at higher or lower temperatures may affect cure speed.

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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.

TA4200 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. 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 (SDS).

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

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 prior to bonding. If using a cleaning solvent, allow 3-4 minutes to fully evaporate before applying adhesive.
- 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.

Video Links

Surface preparation:

<https://youtu.be/8CMOMP7hXjU>



Structural acrylic directions for use:

<https://youtu.be/xrDNwj2sdkM>



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