PERMABOND® TA4200

Toughened Acrylic Adhesive

Provisional Technical Datasheet

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

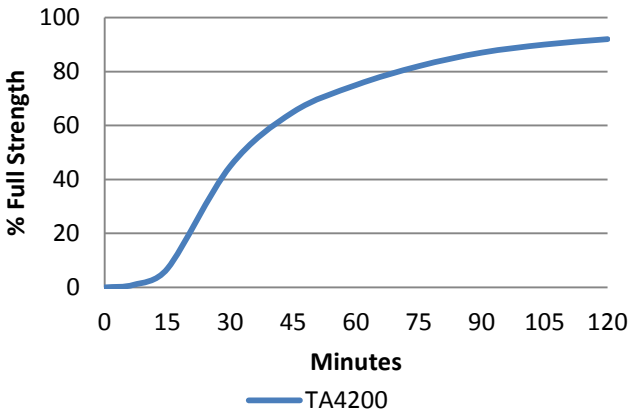
Typical Curing Properties

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/mm² 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

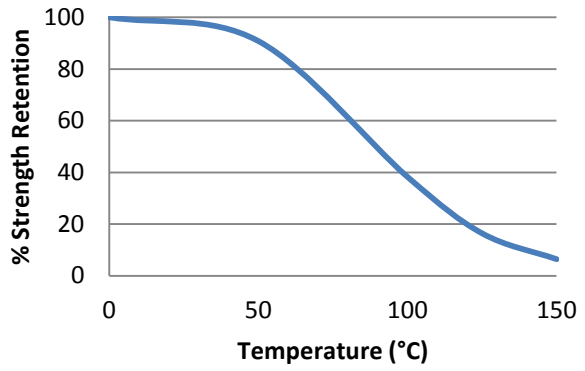
Shear strength (ISO4587)	Steel: 23-25 N/mm² *(3300-3600 psi)* Aluminium: 28-30 N/mm² *(4100-4400 psi)*
Peel strength (ISO 4578)	100-200 N/25mm
Hardness (ISO868)	75-80 Shore D
Coefficient of thermal expansion (ASTM D-696)	80 x 10^{-6} 1/K
Thermal conductivity (ASTM C-177)	0.1 W/(m.K)
Dielectric constant (ASTM D-150)	4.6 MHz
Dielectric strength (ASTM D-149)	30-50 kVmm
Volume resistivity (ASTM D-257)	2 x 10^{13} Ohm.cm

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. 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 material safety data sheet (MSDS).

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 prior to bonding.
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	2 to 7°C *(35 to 45°F)*

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