PERMABOND® TA4310

Toughened Acrylic Adhesive

Technical Datasheet

Features & Benefits

- Adhesion to a wide variety of substrates
- Fast cure at room temperature
- Easy to apply through static mixer nozzle
- High shear and peel strength
- Good impact strength
- Good chemical resistance

Description

PERMABOND® TA4310 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 is easy to use with a delayed initiation, allowing accurate alignment of components. The strength develops quickly allowing clamps to be removed and a quick turnaround time when used in a production situation.

Physical Properties of Uncured Adhesive

	TA4310 A	**TA4310B**
Chemical composition	Methyl methacrylate	Methyl methacrylate
Appearance	Off-white	Brown
Viscosity @ 25°C	Thixotropic paste	Thixotropic paste
Density	1.05	1.01

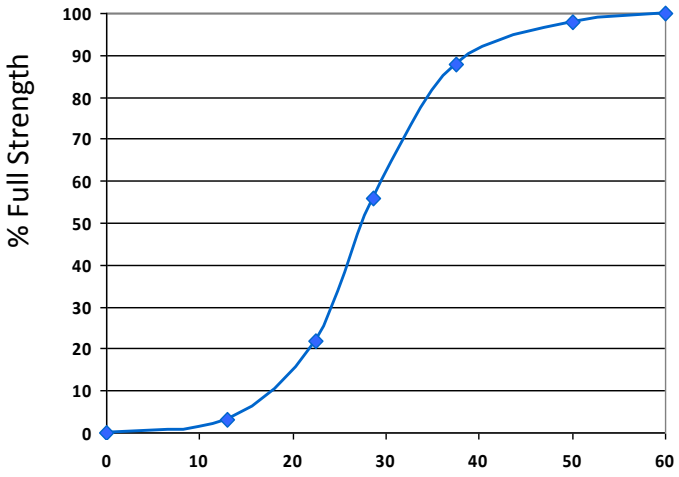
Typical Curing Properties

Ratio of use	1 : 1
Maximum gap fill	2 mm ***(0.08 in)***
Handling time	10 - 15 minutes
Working strength	25 - 30 minutes
Full cure	24 hours

Typical Performance of Cured Adhesive

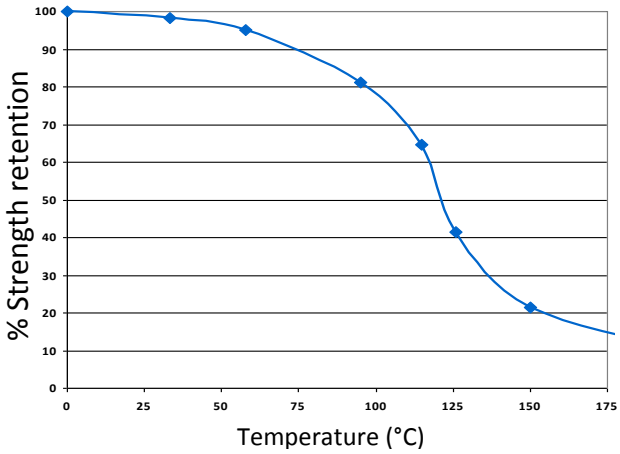
Shear strength (mild steel)	24-26 N/mm² ***(3500-3800 psi)***
Peel strength (ISO 4578)	45-90 N/25mm ***(10-20 PIW)***
Tensile strength (DIN53288)	28 N/mm² ***(4000 psi)***
Coefficient of thermal expansion (ASTM D-696)	80 x 10^{-6} 1/K
Thermal conductivity (ASTM C-177)	0.1 W/(m.K)
Dielectric constant (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.

Temperature Resistance



TA4310 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.

Adhesion to Various Substrates

ABS	9.1 MPa (substrate failure)
Aluminium	9.4 MPa
Galvanised steel	21 MPa
GRP	5.9 MPa
High impact polystyrene	4.4 MPa
Perspex	5 MPa (substrate failure)
Polycarbonate	7.2 MPa (substrate failure)
Steel	26 MPa
UPVC	6.1 MPa (substrate failure)
Zintec	21 MPa

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)***
Shelf Life Stored in original unopened containers	12 months

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