

Permabond TA4302 is a 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 or it can be used bead on bead without a mixing nozzle.

Physical Properties

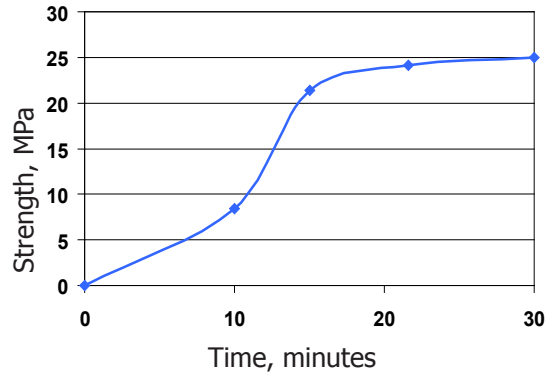
Chemical type	Methacrylic		
	Resin	Hardener	Mixed
Colour	Pink	Green	Grey
Viscosity, mPa.s	4500	4500	4500
Density	1.05	0.98	1.15
Ratio of use	1.1 by volume		

Typical Performance

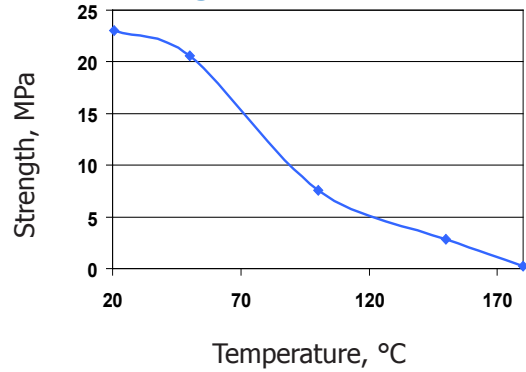
Gap fill		Up to 0.5mm
Handling strength		3-5 minutes
Working strength		15-30 minutes
Full strength	DIN 53283	24 hours
Shear strength	ASTM D-1002	25 MPa (steel)
Tensile strength	DIN 53288	30 MPa
Coefficient of thermal expansion	ASTM D-696	$80 \times 10^{-6} 1/K$
Thermal conductivity	ASTM C-177	0.1 W/m ² K
Dielectric constant	ASTM D-150	4.6 Mhz
Dielectric strength	ASTM D-149	30-50 KVmm
Volume resistivity	ASTM D-257	$2 \times 10^{13} \text{ Ohm.cm}$
Service temperature*		-40 to +120°C

*Higher temperatures may be endured for short periods, providing the parts are not unduly stressed.

Strength Development



Hot strength



Shear Strengths

Steel	25 MPa
Stainless steel	20 MPa
Aluminium (abraded)	18 MPa
Aluminium (as received)	10 MPa
Galvanised steel	14 MPa
Zintec	13 MPa
ABS	8.3 MPa (substrate failure)
GRP (gelcoat)	3.7 MPa
GRP (raw)	5.5 MPa (substrate failure)
High impact polystyrene	2.8 MPa
Polycarbonate	7 MPa (substrate failure)
Perspex	4.3 MPa (substrate failure)
UPVC	6.1 MPa (substrate failure)

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.

Adhesive Application

- Surfaces must be clean, dry and grease-free prior to bonding.
- Apply a thin bead of adhesive pre-mixed through a static mixer nozzle. If no mixing nozzle is being used on the cartridge make sure one component is extruded on top of each other (not side by side).
- Alternatively apply a thin layer of resin on one component and hardener on the other.
- Assemble components and clamp.
- Maintain pressure until handling strength is achieved. The time required will vary according to the joint design and surfaces being bonded.
- Allow 24 hours for adhesive to fully cure. Accelerated cure times may be achieved by heating.

Storage and Handling

Storage Temperature	5 to 25°C
Shelf Life Stored in original unopened containers	6 months

Users are reminded that all materials, whether innocuous or not, should be handled in accordance with the principles of good industrial hygiene. Full information can be obtained from the Material Safety Data Sheet.

Other Products Available

Anaerobics

- Toughened
- Gas & water approved
- High temperature resistance
- Flexible

Cyanoacrylates

- Low bloom / low odour
- Flexible
- High temperature resistance

Epoxies

- Fast cure
- Toughened
- Flexible grades

Toughened Acrylics

- Rapid cure
- Low odour

UV Light Cured

- Glass / plastic bonding
- Optically clear
- Non-yellowing

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