








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

	TA452 A side	TA452 B side
Chemical composition	Urethane methacrylate	Urethane methacrylate
Colour	Red	Green
Mixed colour	Brownish Purple	
Viscosity @ 25°C	4,000 mPa.s (cP)	6,000 mPa.s (cP)
Specific gravity	1.0	1.0

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/mm ² 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.

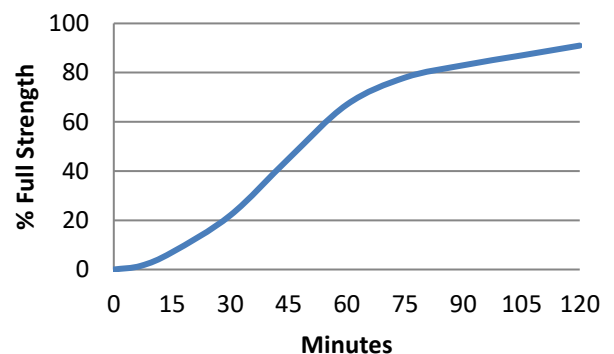
Typical Performance of Cured Adhesive

Shear strength * ISO4587	Mild Steel: 28-32 N/mm ² (4060-4640 psi)
	Aluminium: 18-22 N/mm ² (2610-3190 psi)
	Stainless Steel: 28-32 N/mm ² (4060-4640 psi)
	Zinc: 18-22 N/mm ² (2600-3200 psi)
	FRP Glass/Polyester: 4-6 N/mm ² (580-870 psi)
	FRP Glass/Epoxy: 10-13 N/mm ² (1450-1885 psi)
	Carbon Fibre: 10-13 N/mm ² (1450-1885 psi)
	PVC: >4 N/mm ² SF** (>580 psi)
	PMMA: >4 N/mm ² SF** (>580 psi)
	Polycarbonate: 2-4 N/mm ² (290-580 psi)
	ABS: >5 N/mm ² SF** (>725 psi)
Polyamides (Glass filled): 5-7 N/mm ² (725-1015 psi)	

*Strength results will vary depending on the level of surface preparation and gap.

**SF Denotes substrate failure

Strength Development

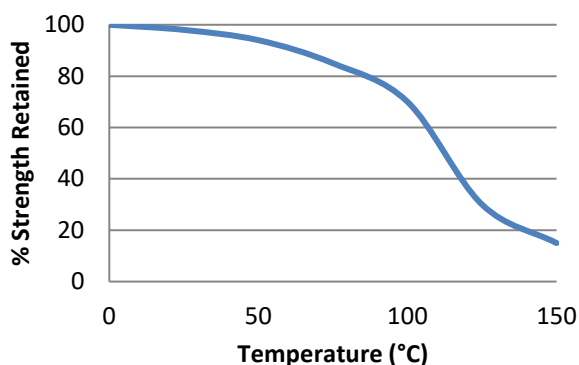


Graph shows typical strength development of bonded components at 23°C. Curing at higher or lower temperatures may affect cure speed.

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Hot Strength



"Hot strength" shear strength tests performed on mild steel. 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.

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.

This Technical Datasheet (TDS) offers guideline information and does not constitute a specification.



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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. 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) Alternatively apply a thin layer of resin on one component and hardener on the other.
- 4) Assemble components and clamp.
- 5) Maintain pressure until handling strength is achieved. The time required will vary according to the joint design and surfaces being bonded.
- 6) Allow 24 hours for adhesive to fully cure. Accelerated cure times may be achieved by heating.

Video Links

Surface preparation:

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



Structural acrylic directions for use:

<https://youtu.be/edvBe4iYNCY>



Storage & Handling

Storage Temperature

5 to 25°C (41 to 77°F)

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• General Enquiries: +44 (0)1962 711661

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• Asia: + 86 21 5773 4913

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