

Features & Benefits

- Adhesion to a wide variety of substrates
- Full cure at room temperature
- Bonds polyolefins
- No primer required
- Good impact strength
- Good chemical resistance

Description

PERMABOND® TA4605 is a 2-part, 1:1 toughened acrylic adhesive. It has been developed to bond low surface energy plastics such as polypropylene and polyethylene – with no primer or surface treatment required. It can also be used to bond a wide variety of other materials such as metals and composite materials and is ideal for bonding dissimilar surfaces.

Physical Properties of Uncured Adhesive

	TA4605 A	TA4605 B
Chemical composition	Methacrylate	Methacrylate
Colour	Off-white	Almost colourless
Mixed colour	Off-white	
Viscosity @ 25°C	150,000-400,000 mPa.s (cP) Thixo paste	20,000-30,000 mPa.s (cP)
Specific gravity	1.0	1.0

Typical Curing Properties

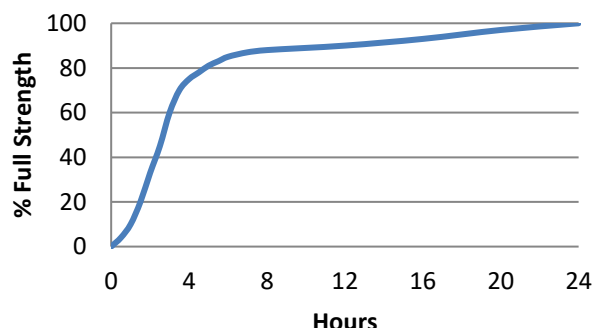
Ratio of use	1 : 1
Maximum gap fill (NB: Contains microparticles to control gap)	1 mm (0.04 in)
Pot life (2g+2g) @23°C	2-4 minutes
Fixture time (0.1 N/mm ² shear strength is achieved) @23°C	5-10 minutes
Handling time (0.3 N/mm ² shear strength is achieved) @23°C	20-25 minutes
Working strength @23°C	2-4 hours
Full cure @23°C	24 hours

Typical Performance of Cured Adhesive

Shear strength (ISO4587)	Polypropylene: >8 N/mm ² (>1200 psi)*
	Polyethylene: >7 N/mm ² (>1000 psi)*
	HDPE: 15 N/mm ² (2175 psi)
	Aluminium / PE: 6 N/mm ² (870 psi)
	PTFE: 1.5 N/mm ² (220 psi)
	ABS: >4 N/mm ² (>580 psi)*
	Polycarbonate: >5 N/mm ² (>725 psi)*
	PVC: >5 N/mm ² (>725 psi)*
	EPDM: >3.5 N/mm ² (>500 psi)*
	PA6: 5 N/mm ² (725 psi)

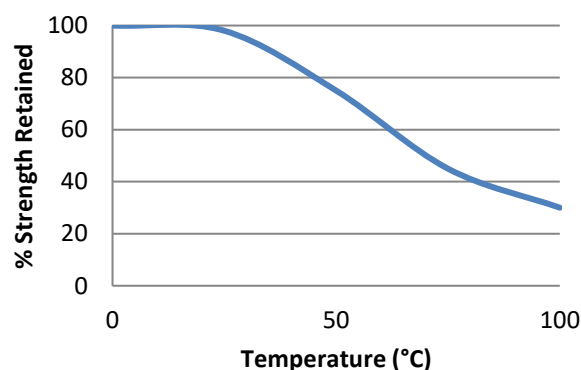
*Substrate failure was observed.

Strength Development



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

Hot Strength



Fully cured lap shear specimens conditioned to pull temperature for 30 minutes before testing at temperature.

TA4605 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 depending on the materials being bonded.

The information given and the recommendations made herein are based on our research and are believed to be accurate but no guarantee of their accuracy is made. In every case we urge and recommend that purchasers before using any product in full-scale production make their own tests to determine to their own satisfaction whether the product is of acceptable quality and is suitable for their particular purpose under their own operating conditions. THE PRODUCTS DISCLOSED HEREIN ARE SOLD WITHOUT ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED.

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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.

Surface Preparation

Surfaces should be clean, dry and grease-free before applying the adhesive. Polyolefin surfaces may have traces of mold release agent present – wipe with isopropanol (IPA) solvent and allow to fully evaporate before bonding. If bonding to metal: 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.

NB: Adhesive outside of a closed joint (i.e. excess material) will cure more slowly and may be soft due to air contact. Adhesive inside the joint will cure solid.

Video Links

Surface preparation:

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

Structural acrylic directions for use:

<https://youtu.be/YVeKBCVhYo>



Storage & Handling

Storage Temperature	Cartridges: 5 to 25°C (41 to 77°F) Bulk: 2 to 7°C (35 to 45°F)
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This product may separate slightly – in this instance, invert container to re-disperse.

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