PERMABOND® TA4630

Toughened Acrylic Adhesive

Provisional Technical Datasheet

Features & Benefits

- No odour*
- Adhesion to a wide variety of substrates
- Full cure at room temperature
- Bonds polyolefins
- No primer required

Description

PERMABOND® TA4630 is a 2-part, 1:1 no odour* 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 composites and other plastics and is ideal for bonding dissimilar surfaces. TA4630 contains microbeads - controlling the bondline thickness for optimum performance. It has been specially formulated to have no odour, improving worker comfort.

**no perceptible odour detected by testing panel members*

Physical Properties of Uncured Adhesive

	TA4630 A	**TA4630 B**
Chemical composition	Methacrylate	Methacrylate
Colour	Black	Transparent
Viscosity @ 25°C	200,000-500,000 mPa.s *(cP)* Thixo paste	10,000-25,000 mPa.s *(cP)*

Typical Curing Properties

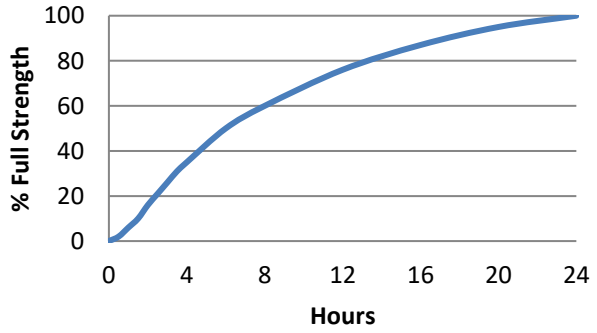
Ratio of use	1 : 1
Maximum gap fill (NB: Contains microparticles to control gap)	1 mm *(0.04 in)*
Pot life (2g+2g) @23°C	4-6 minutes
Fixture time *(0.1 N/mm² shear strength is achieved)* @23°C	8-12 minutes
Handling time *(0.3 N/mm² shear strength is achieved)* @23°C	40-50 minutes
Working strength @23°C	6-8 hours
Full cure @23°C	24 hours

Typical Performance of Cured Adhesive

Shear strength (ISO4587)	Polypropylene: >8 N/mm² *(>1160 psi)** Polyethylene: >7 N/mm² *(>1015 psi)** Mild Steel: 12 N/mm² *(1740 psi)* Mild Steel to PP: 7 N/mm² *(1015 psi)* Mild Steel to HDPE: 7 N/mm² *(1015 psi)* Stainless Steel: 4 N/mm² *(580 psi)* Stainless Steel to PP: 4 N/mm² *(580 psi)* Stainless Steel to HDPE: 4 N/mm² *(580 psi)* Aluminium to PP: 6 N/mm² *(870 psi)* Aluminium to HDPE: 6 N/mm² *(870 psi)* Carbon Fibre: 14 N/mm² *(2030 psi)* Epoxy FRP: 13 N/mm² *(1885 psi)* Polyester GRP: 10 N/mm² *(1450 psi)* Acetal: 4 N/mm² *(580 psi)* PBT: 8 N/mm² *(1160 psi)* PET-G: >5 N/mm² *(725 psi)** PET-P: 5 N/mm² *(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.

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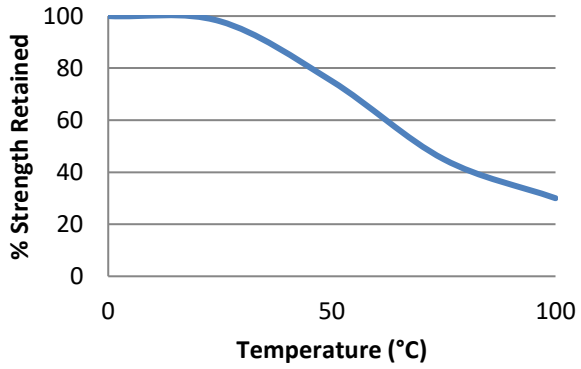
Hot Strength



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

TA4630 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.

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.

Storage & Handling

Storage Temperature	5 to 25°C ***(41 to 77°F)***

This product may separate slightly – in this instance, invert container to re-disperse.

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 feel 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/YVeKBCVVhYo

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