

### 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® TA4611** 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 expensive 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. This product is similar to TA4610 but does not contain micro beads making it suitable for joints with smaller gaps.

### Physical Properties of Uncured Adhesive

|                      | TA4611 A                  | TA4611 B                 |
|----------------------|---------------------------|--------------------------|
| Chemical composition | Methacrylate              | Methacrylate             |
| Colour               | Translucent               | Transparent              |
| Mixed colour         | Transparent – Pale Yellow |                          |
| Viscosity @ 25°C     | 20,000-30,000 mPa.s (cP)  | 10,000-15,000 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) |
| Pot life (2g+2g) @23°C   | 4-6 minutes      |
| Fixture time (0.1 N/mm <sup>2</sup> shear strength is achieved) @23°C  | 10-16 minutes    |
| Handling time (0.3 N/mm <sup>2</sup> shear strength is achieved) @23°C | 40-50 minutes    |
| Working strength @23°C   | 6-8 hours        |
| Full cure @23°C  | 24-36 hours      |

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.

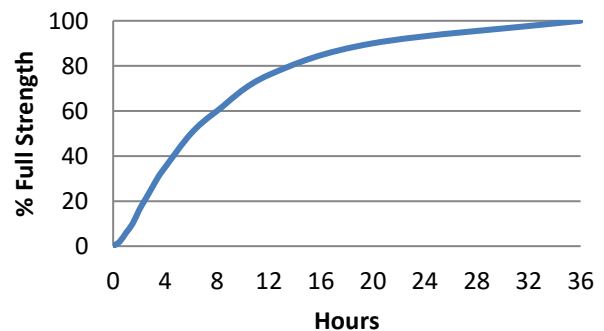
No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the non-existence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of this patent. We also expect purchasers to use our products in accordance with the guiding principles of the Chemical Manufacturers Association's Responsible Care® program.

### Typical Performance of Cured Adhesive

|  |  |
|--|--|
| Shear strength (ISO4587)                       | Polypropylene: >8 N/mm <sup>2</sup> (>1160 psi)*       |
|  | Polyethylene: >7 N/mm <sup>2</sup> (>1015 psi)*        |
|  | HDPE: 8 N/mm <sup>2</sup> (1160 psi)                   |
|  | PTFE: >2 N/mm <sup>2</sup> (>290 psi)*                 |
|  | Mild Steel: 11 N/mm <sup>2</sup> (1595 psi)            |
|  | Mild Steel to PTFE: >2 N/mm <sup>2</sup> (>290 psi)*   |
|  | Mild Steel to PP: 8 N/mm <sup>2</sup> (1160 psi)       |
|  | Mild Steel to HDPE: 8 N/mm <sup>2</sup> (1160 psi)     |
|  | Stainless Steel: 9 N/mm <sup>2</sup> (1305 psi)        |
|  | Stainless Steel to PP: 8 N/mm <sup>2</sup> (1160 psi)  |
|  | Stainless Steel to HDPE: 6 N/mm <sup>2</sup> (870 psi) |
|  | Aluminium to PP: 8 N/mm <sup>2</sup> (1160 psi)        |
|  | Aluminium to HDPE: 8 N/mm <sup>2</sup> (1160 psi)      |
| Carbon Fibre: 14 N/mm <sup>2</sup> (2030 psi)  |  |
| Epoxy FRP: 13 N/mm <sup>2</sup> (1885 psi)     |  |
| Polyester GRP: 10 N/mm <sup>2</sup> (1450 psi) |  |

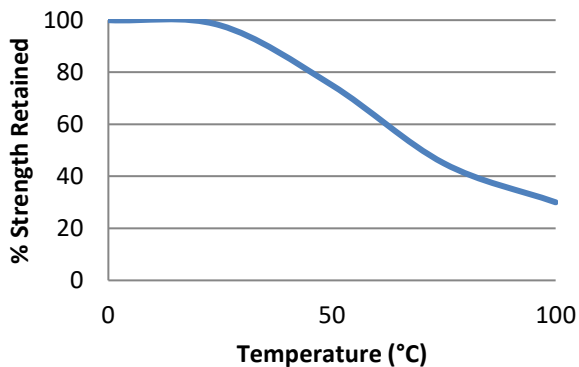
\*Substrate failure was observed.

### 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.

TA4611 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 | Cartridges: 5 to 25°C (41 to 77°F)<br>Bulk: 2 to 7°C (35 to 45°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 24-36 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>



[www.permabond.com](http://www.permabond.com)

- UK: 0800 975 9800
- General Enquiries: +44 (0)1962 711661
- US: 732-868-1372
- Asia: + 86 21 5773 4913

[info.europe@permabond.com](mailto:info.europe@permabond.com)

[info.americas@permabond.com](mailto:info.americas@permabond.com)

[info.asia@permabond.com](mailto:info.asia@permabond.com)

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.

No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the non-existence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of this patent. We also expect purchasers to use our products in accordance with the guiding principles of the Chemical Manufacturers Association's Responsible Care® program.