PERMABOND® TA4207

Toughened Acrylic Adhesive

Provisional Technical Datasheet

Features & Benefits

- Adhesion to a wide variety of substrates
- Fast cure at room temperature
- High shear and peel strength
- Good impact strength
- Good chemical & environmental resistance
- Bonds well to unprepared aluminium

Description

PERMABOND® TA4207 is a 2-part, 1:1 toughened acrylic adhesive. It can be used to bond a wide variety of materials including metals, plastics, composites, ceramics, wood and other substrates. The adhesive can provide excellent shear strength on many substrates with little surface preparation.

Physical Properties of Uncured Adhesive

	TA4207 A	**TA4207 B**
Chemical composition	Methyl methacrylate	Methyl methacrylate
Colour	Straw	Yellow
Mixed colour	Straw	
Viscosity @ 25°C	3000 - 9000 mPa.s *(cP)*	1000 – 2000 mPa.s *(cP)*
Specific gravity	1.05	1.0

Typical Curing Properties

Ratio of use	1 : 1
Maximum gap fill	0.5 mm *(0.02 in)*
Fixture time @23°C	8 -10 minutes
Handling time *(0.3 N/mm² shear strength is achieved)* @23°C	12-15 minutes
Working strength @23°C	25 - 30 minutes
Full cure @23°C	1 hour

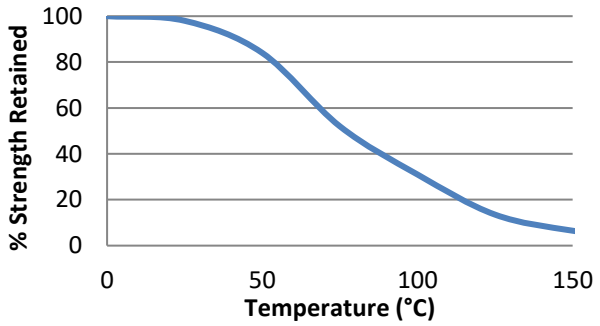
Typical Performance of Cured Adhesive

Shear strength* (ISO4587)	PMMA: >4 N/mm² *(>580 psi)* SF* Aluminium: >25 N/mm² *(>3600 psi)* Steel: >26 N/mm² *(>3800 psi)* Carbon fibre: >16 N/mm² *(>2300 psi)* Tin: >5 N/mm² *(>725 psi)* SF* PC: >4 N/mm² *(>580 psi)* SF* Epoxy FRP: >7 N/mm² *(>1000 psi)* SF* PVC: >3 N/mm² *(>435 psi)* SF* Hot dip galv steel: >19 N/mm² *(>2800 psi)* Electro-plated zinc: >19 N/mm² *(>2800 psi)* Stainless steel: >32 N/mm² *(>4600 psi)*

**Strength results will vary depending on the level of surface preparation and gap. If using a cleaning solvent, allow 3-4 minutes to fully evaporate before applying adhesive. Figures above were on degreased-only substrates.*

SF* = Substrate failure

Hot Strength



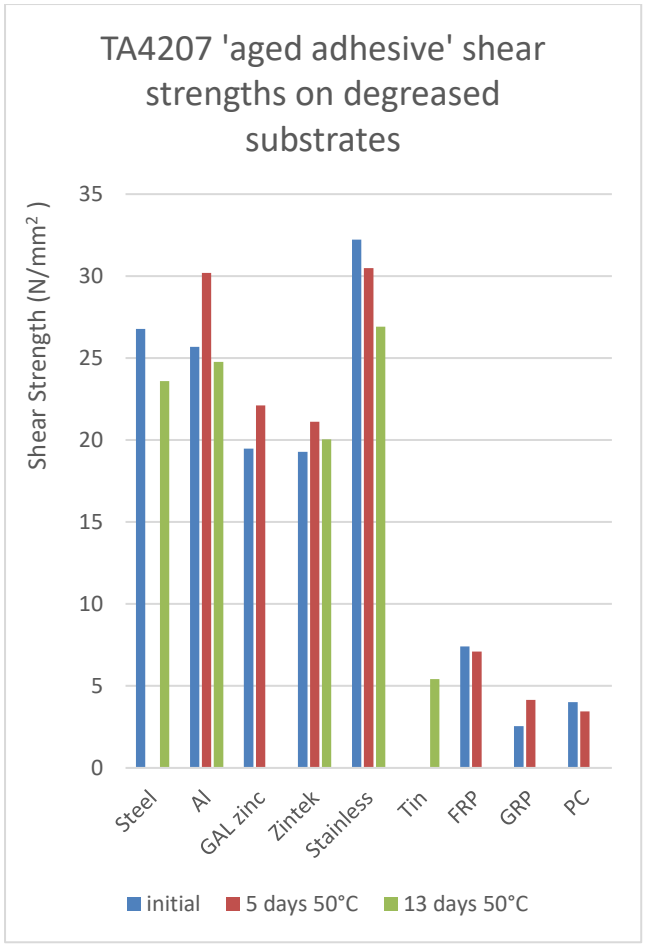
"Hot strength" shear strength tests performed on mild steel. Fully cured specimens conditioned to pull temperature for 30 minutes before testing at temperature.

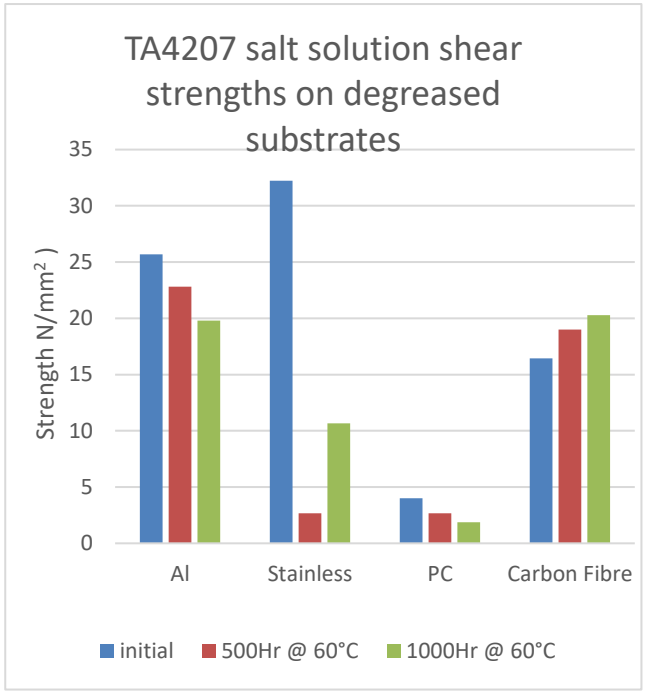
TA4207 can withstand higher temperatures for brief periods (such as for paint baking and wave soldering processes) providing the joint is not unduly stressed. The minimum temperature the cured adhesive can be exposed to is -40°C (-40°F) depending on the materials being bonded.

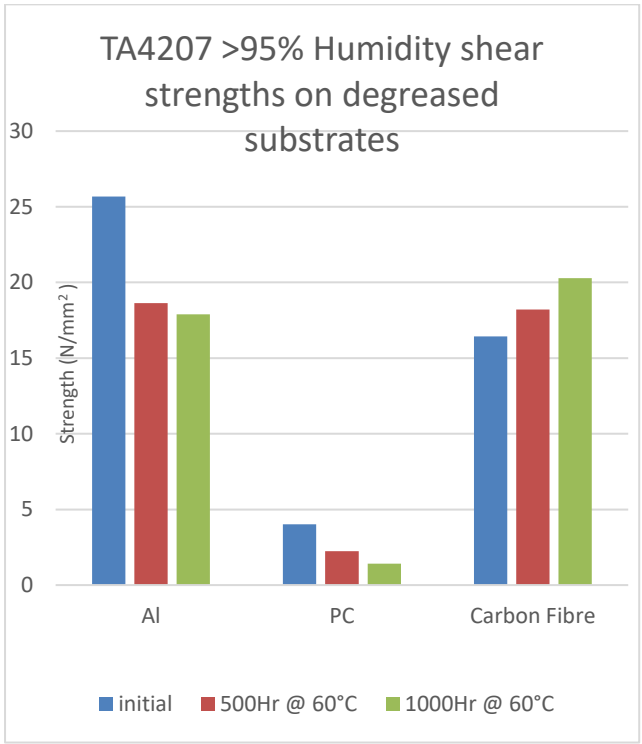
	24Hr Shear Strength	1000Hr @60°C
Stainless Steel (Acetone degreased)	>32 MPa	>31MPa
Aluminium (Acetone degreased)	>25 MPa	>29MPa
Carbon Fibre (IPA degreased)	>16 MPa	>16MPa
PC (IPA degreased)	>4MPa (Substrate failure	>3 MPa

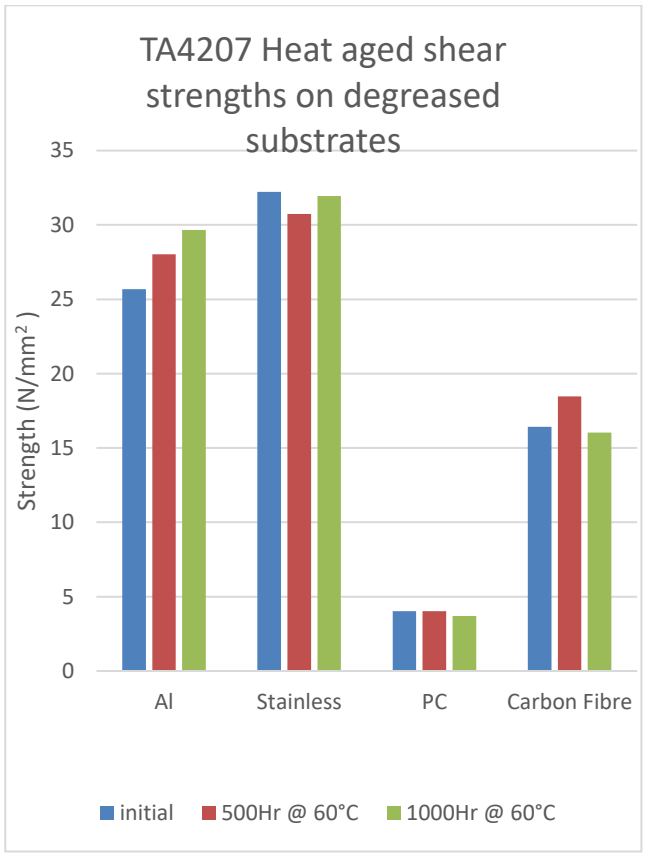
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Additional Information

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.

Storage & Handling

Storage Temperature	2 to 7°C *(35 to 45°F)*

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

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