

Features & Benefits

- Adhesion to a wide variety of substrates
- Fast cure at room temperature
- High shear and peel strength
- Good impact strength
- Good chemical resistance

Description

PERMABOND TA4820 is a 2-part, 1:1 toughened methacrylate adhesive designed for bonding thermoplastics, thermosets, metals and composites. TA4820 has excellent adhesion to as received metal surfaces forming high strength bonds without surface preparation. It provides excellent durability and resistance to many common industrial solvents, fuels as well as environmental conditions. It cures rapidly at room temperature and has very good thixotropic properties allowing for easy dispensing through static mixers while maintaining good gap filling and non-sag properties. The long fixture time allows for accurate alignment of large components.

Physical Properties of Uncured Adhesive

	TA4820 A	TA4820 B
Chemical composition	Methyl methacrylate	Methyl methacrylate
Appearance	Off-white	Amber
Viscosity @ 25°C, cP	40,000 – 60,000	40,000 – 60,000
Density, g/cm ³	0.97	0.96

Typical Curing Properties

Mixed viscosity @ 25°C, cP	90,000 – 100,000
Mix Ratio	1 : 1
Maximum gap fill, mm (in.)	2 (0.079)
Working time, minutes	15 – 18
Fixture time, minutes	30 – 35
Full cure, hours	24

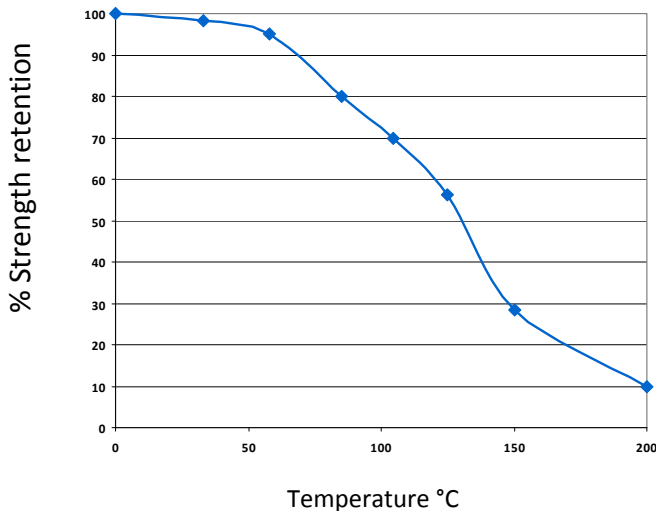
Typical Performance of Cured Adhesive

Shear strength (steel), psi (ASTM D 1002)	3,500 – 4,500
Shear strength (Al), psi (ASTM D 1002)	3,000 – 4,000
Shear strength PPO to HIPS, psi	Substrate failure
Shear strength (PVC to PVC), psi	Substrate failure
Shear strength (SMC to SMC), psi	Substrate failure
Shear strength (Fiber glass to fiber glass), psi	>1,700
Tensile strength, psi (DIN53283)	4,200
Peel Strength, pli	15 – 20
% elongation	15 – 20
Coefficient of thermal expansion (ASTM D 696)	80 x 10 ⁻⁶ 1/K
Thermal conductivity, W/m.K (ASTM C 177)	0.1
Dielectric constant, 10 MHz (ASTM D 150)	4.6
Dielectric strength, Kv/mm (ASTM D 149)	30-50
Volume resistivity, Ω.cm (ASTM D 257)	2 x 10 ¹³

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Temperature Resistance



TA4820 can withstand higher temperatures for brief periods (such as for paint baking and wave soldering processes) providing the joint is not unduly stressed.

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 material safety data sheet (MSDS).

Users are reminded that all materials, whether innocuous or not, should be handled in accordance with the principles of good industrial hygiene.

Surface Preparation

Surfaces should be clean, dry and grease-free before applying the adhesive. Some metals such as aluminum, 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/ fixture time 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. Accelerated cure times may be achieved by heating.

Storage & Handling

Storage Temperature, °C (°F)	5 to 25 (41 to 77)
Shelf Life Stored in original unopened containers	6 months, 12 months if refrigerated at 2 – 7 °C (35 – 45°F)

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