PERMABOND® 820

Cyanoacrylate

Technical Datasheet

Features & Benefits

- High temperature resistance
- Rapid curing
- Ease of use – no mixing or heat cure
- 100% reactive, no solvents
- Cytotoxicity approved

Description

PERMABOND® 820 is a low viscosity modified ethyl cyanoacrylate suitable for applications where high temperature resistance is required. This material is fast setting and has good adhesion to rubber, metal and plastics.

Cyanoacrylate adhesives are single component adhesives that polymerize rapidly when pressed into a thin film between parts. The moisture adsorbed on the surface initiates the curing of the adhesive. Strong bonds are developed extremely fast and on a great variety of materials. These properties make **PERMABOND®** cyanoacrylates the ideal adhesives for high speed production lines.

Physical Properties of Uncured Adhesive

Chemical composition	Ethyl cyanoacrylate
Appearance	Colourless
Viscosity @ 25°C	90-110 mPa.s *(cP)*
Specific gravity	1.1

Typical Curing Properties

Maximum gap fill	0.15 mm *0.006 in*
Fixture / handling time* *(0.3 N/mm² shear strength is achieved)*	10-15 seconds (Steel) 10-15 seconds (Buna N Rubber) 10-15 seconds (Phenolic)
Full strength	24 hours

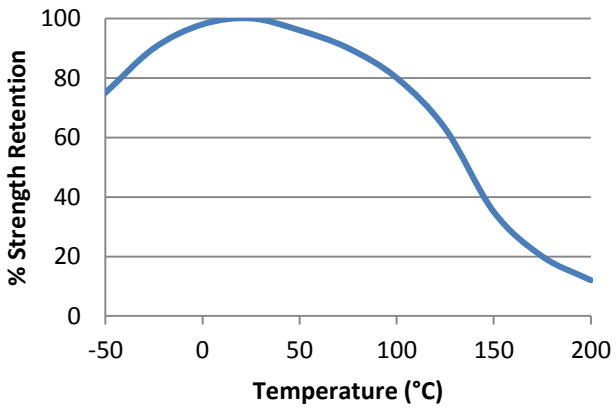
**Handling times can be affected by temperature, humidity and specific surfaces being bonded. Larger gaps or acidic surfaces will also reduce cure speed but this can be overcome by the use of Permabond C Surface Activator (CSA) or Permabond QFS 16.*

Typical Performance of Cured Adhesive

Shear strength* (ISO4587)	Steel 19-23 N/mm² *(2800-3300 psi)*
Coefficient of thermal expansion	90 x 10^{-6} mm/mm/°C
Coefficient of thermal conductivity	0.1 W/(m.K)
Hardness (ISO868)	85 Shore D
Dielectric Strength	25kV/mm

**Strength results will vary depending on the level of surface preparation and gap.*

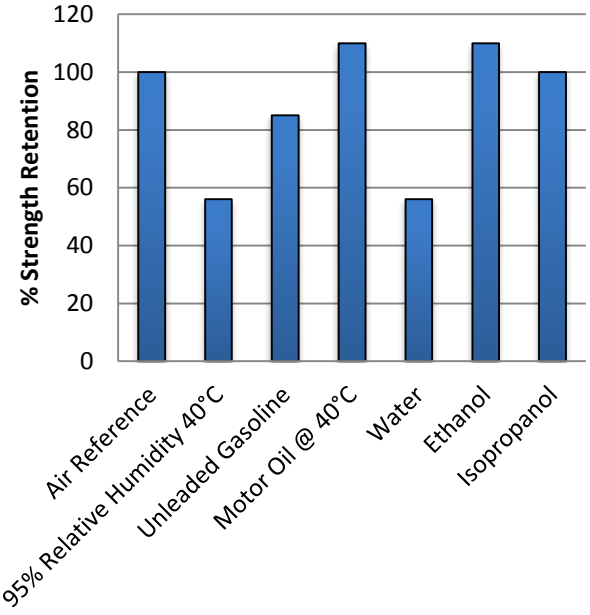
Hot Strength



"Hot strength" shear strength tests performed on mild steel. 24hr cure at room temperature and conditioned to pull temperature for 30 minutes before testing.

820 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 (-65°F) depending on the materials being bonded.

Chemical Resistance



Specimens were immersed for 1000 hours at 22°C (unless otherwise stated)

Directions for Use

1) Apply the adhesive sparingly to one surface.
2) Bring the components together quickly and correctly aligned.
3) Apply sufficient pressure to ensure the adhesive spreads into a thin film.
4) Do not disturb or re-align until sufficient strength is achieved, normally in a few seconds.
5) Any surplus adhesive can be removed with Permabond CA solvent, nitromethane or acetone.

NB:

For difficult or porous surfaces using a Permabond activator is recommended. If bonding polypropylene, polyethylene, PTFE or silicone, prime first with Permabond Polyolefin Primer (POP).

Storage & Handling

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

Allow adhesive to reach room temperature before opening bottle to prevent condensation inside the bottle which can reduce shelf life.

Additional Information

This product is not recommended for use in contact with strong oxidizing materials and polar solvents although will withstand a solvent wash without any bond strength deterioration. Users are reminded that all materials, whether innocuous or not, should be handled in accordance with the principles of good industrial hygiene. Full information can be obtained from the Safety Data Sheet.

Surface Preparation

Surfaces should be clean, dry and grease-free before applying the adhesive. Use a suitable solvent (such as acetone or isopropanol) for the degreasing of 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.

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