

# Cyanoacrylate

**Permabond®**  
Engineering Adhesives



## Features & Benefits

- 💧 Longer cure allows accurate alignment
- 💧 Toughened and flexible
- 💧 Ease of use – no mixing or heat cure
- 💧 Bonds most materials
- 💧 100% reactive, no solvents

## Description

**PERMABOND 731** is a toughened cyanoacrylate with very good impact and peel strength when compared to a conventional cyanoacrylate. It bonds rapidly at room temperature and its viscosity is stable over the shelf life of the product. This provides consistent performance. The product adheres to a variety of surfaces including steel, aluminum, galvanized steel, plastics and elastomers.

## Physical Properties of Uncured Adhesive

Chemical composition	Ethyl cyanoacrylate
Appearance	Colourless
Viscosity @ 25°C	100 - 200 mPa.s (cP)
Density	1.1

## Typical Curing Properties

Maximum gap fill	0.15 mm <b>0.006 in</b>
Cure speed*	30-50 seconds (Steel) 120-180 seconds (Aluminium) 15-20 seconds (Buna N Rubber) 30-45 seconds (ABS) 15-20 seconds (Neoprene)
Full strength	24 hours

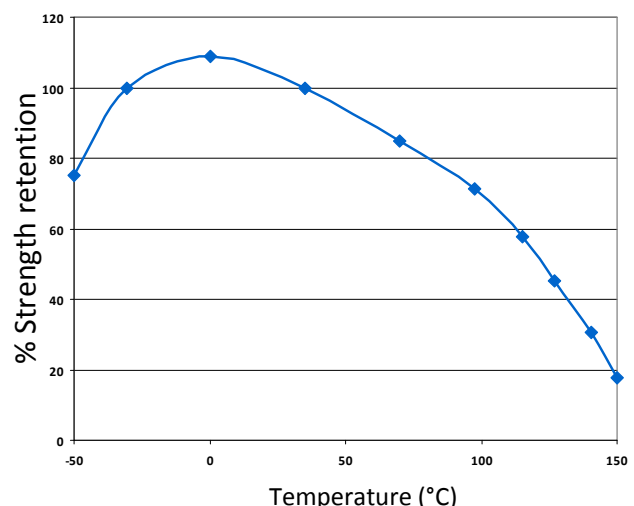
\*Handling times can be affected by temperature, humidity and specific surfaces being bonded. Larger gaps or acidic surfaces will also reduce cure speed but this can be overcome by the use of Permabond C Surface Activator (CSA) or Permabond QFS 16.

## Typical Performance of Cured Adhesive

Shear strength* ASTM D-1002	Steel	24-30 N/mm <sup>2</sup> <b>(3500-4400 psi)</b>
	Aluminium	13-15 N/mm <sup>2</sup> <b>(1900-2200 psi)</b>
	Zinc	10 N/mm <sup>2</sup> <b>(1450 psi)</b>
	PVC	5.5 N/mm <sup>2</sup> <b>(800psi)</b>
	Acrylic	4 N/mm <sup>2</sup> <b>(700 psi)</b>
Peel Strength (ASTM D-903)	40-60 N/25mm <b>(9-13 PIW)</b>	
Glass Transition	58°C <b>(140°F)</b>	
Coefficient of thermal expansion	90 x 10 <sup>-6</sup> mm/mm/°C	
Dielectric strength	10 Volts / mil	
Coefficient of thermal conductivity	0.1 W/(m.K)	

\*Strength results will vary depending on the level of surface preparation and gap.  
SF = Substrate failure

## Temperature Resistance

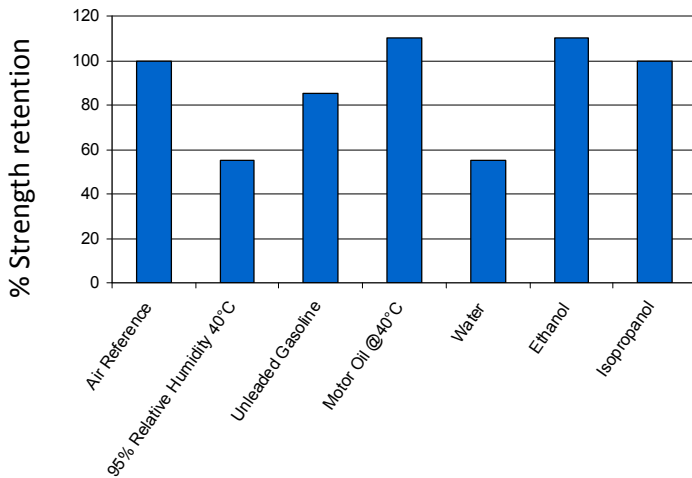


"Hot strength" shear strength tests performed on mild steel. 24hr cure at room temperature and conditioned to pull temperature for 30 minutes before testing.

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## Chemical Resistance



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

## 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 Material 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.

## Directions for Use

- 1) Apply the adhesive sparingly to one surface (usually 1 drop is sufficient).
- 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 curing is achieved, normally in a few seconds.
- 5) Any surplus adhesive can be removed with a suitable solvent.

### 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.

## Storage & Handling

Storage Temperature	2 to 7°C (35 to 45°F)
Shelf Life Stored in original unopened containers	6 months

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

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