

# Cyanoacrylate

**Permabond**  
Engineering Adhesives

## Features & Benefits

- 💧 Thixotropic
- 💧 Surface insensitive
- 💧 Fast cure
- 💧 Easy to apply and dispense
- 💧 High temperature resistance
- 💧 Maximum gap filling capability

## Description

**PERMABOND 2011** is a thixotropic, fast-setting cyanoacrylate particularly suitable for use on vertical and porous substrates. This material can be used on metals, plastics, elastomers, ceramics and wood. 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	Opaque
Viscosity @ 25°C	Gel
Specific Gravity	1.05

## Typical Curing Properties

Maximum gap fill	0.5 mm <b>0.02 in</b>
Cure speed*	5-10 seconds (Steel) 5-10 seconds (Buna N Rubber) 5-10 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.

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.

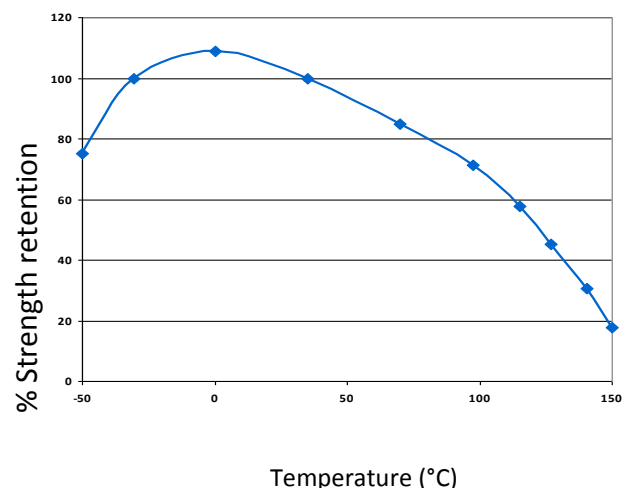


## Typical Performance of Cured Adhesive

Shear strength* ISO 4587	Steel	20-24 N/mm <sup>2</sup> ( <b>2900-3500 psi</b> )
	Aluminium	8-9 N/mm <sup>2</sup> ( <b>1200-1300 psi</b> )
	Zinc	10 N/mm <sup>2</sup> ( <b>1450 psi</b> )
	ABS	>6 N/mm <sup>2</sup> ( <b>900psi</b> ) SF
	PVC	>6 N/mm <sup>2</sup> ( <b>900psi</b> ) SF
	PC	>5 N/mm <sup>2</sup> ( <b>700 psi</b> ) SF
	Phenolic	14N/mm <sup>2</sup> ( <b>2000psi</b> )
Impact Strength (ASTM D-950)	6-14 kJ/m <sup>2</sup> ( <b>3-7 ft-lb/in<sup>2</sup></b> )	
Hardness	85 Shore D	
Coefficient of thermal expansion	90 x 10 <sup>-6</sup> mm/mm/°C	
Dielectric strength	10 mV/mm	
Coefficient of thermal conductivity	0.1 W/(m.K)	

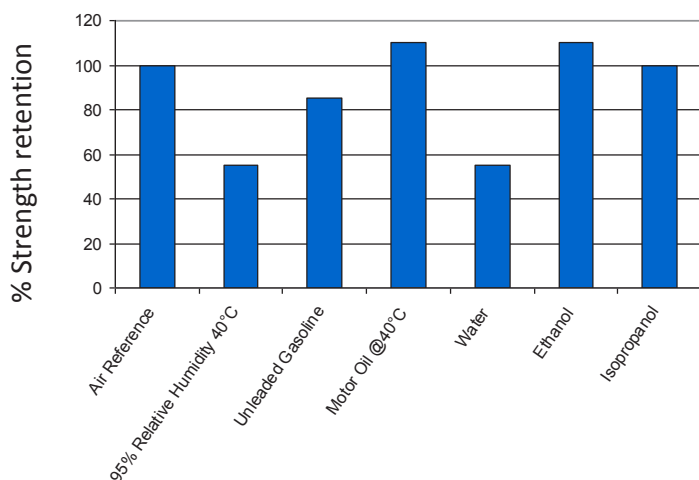
\*Strength results will vary depending on the level of surface preparation and gap.  
SF = Substrate failure

## 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.

## 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	12 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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