

PERMABOND® 2011

Cyanoacrylate
Technical Datasheet

Features & Benefits

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

Approved to CID A-A-3097 Type II Class 5 NSF Approved: Non-food Compound Category Code S4 Reg. No 155298.

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	Colourless
Viscosity @ 25°C	Gel
Specific gravity	1.1

Typical Curing Properties

Maximum gap fill	0.5 mm <i>0.02 in</i>
Fixture / handling time* (0.3 N/mm² shear strength is achieved)	5-10 seconds (Steel) 5-10 seconds (Buna N Rubber) 5-10 seconds (Phenolic)
Full strength	24 hours

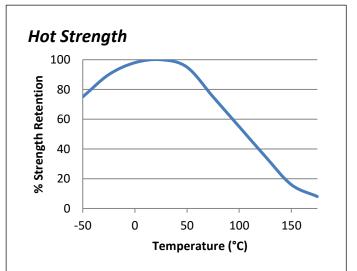
*Handling times can be affected by temperature, humidity and specific surfaces being bonded. Larger gaps or acidic surfaces will also reduce cure speed but this can be overcome by the use of Permabond C Surface Activator (CSA) or Permabond QFS 16.

Typical Performance of Cured Adhesive

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Shear strength* (ISO4587)	Steel 20-24 N/mm² (2900-3500 psi)	
	Aluminium 8-9 N/mm² (1200-1300 psi)	
	Zinc 10 N/mm² (1500 psi)	
	ABS >8 N/mm² (1200psi) SF**	
	PVC >10 N/mm² (1450psi) SF**	
	PC >6 N/mm² (900 psi) SF**	
	Phenolic 14 N/mm² (2000 psi)	
Impact strength	3-5 kJ/m² (1.4-2.4 ft-lb/in²)	
(ASTM D-950)		
Dielectric constant	2.5	
@10kHz		
Dielectric strength	25 kV/mm	
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Coefficient of thermal	90 x 10 ⁻⁶ mm/mm/°C	
expansion		
Coefficient of thermal	0.1 W/(m.K)	
conductivity		
Hardness (ISO868)	85 Shore D	
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^{*}Strength results will vary depending on the level of surface preparation and gap.

^{**}SF = Substrate failure



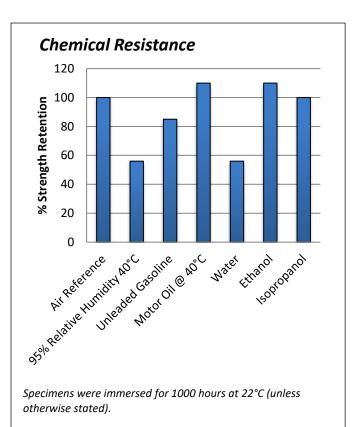
"Hot strength" shear strength tests performed on mild steel. 24hr cure at room temperature and conditioned to pull temperature for 30 minutes before testing.

2011 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.

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Permabond 2011 Global TDS Revision 10 09 November 2021 Page 1/2



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.

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

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.
- 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).

Video Links

Surface preparation: https://youtu.be/8CMOMP7hXjU



Cyanoacrylate directions for use: https://youtu.be/PiPzutdRmsk



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Permabond 2011 Global TDS Revision 10 09 November 2021 Page 2/2