PERMABOND® 101

Cyanoacrylate

Technical Datasheet

Features & Benefits

- Ultra-low viscosity
- Suitable for bonding pre-assembled parts
- Ideal for close-fitting plastic components

Approved to MIL-A-46050C Type II Class 1 (existing designs) & CID A-A-3097 Type II Class 1 (new designs)

Description

PERMABOND® 101 is a low viscosity product useful in wicking or penetrating applications or bonding closely fitting parts. It is fast setting and suitable for use on plastics, rubber and metals.

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	2-3 mPa.s *(cP)*
Specific gravity	1.1

Typical Curing Properties

Maximum gap fill	0.05 mm *0.002 in*
Fixture / handling time* *(0.3 N/mm² shear strength is achieved)*	3-5 seconds (Steel) 2-5 seconds (Buna N Rubber) 5-10 seconds (Phenolic)
Full strength	24 hours

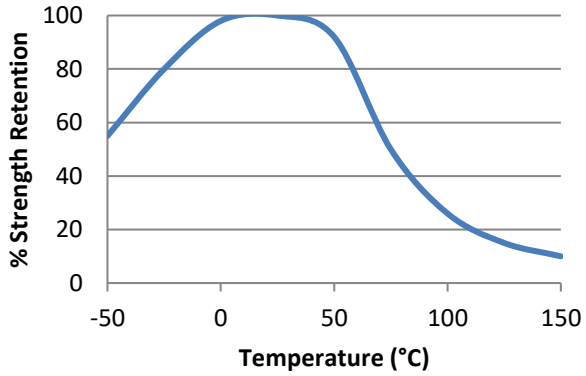
**Handling times can be affected by temperature, humidity and specific surfaces being bonded. Larger gaps or acidic surfaces will also reduce cure speed but this can be overcome by the use of Permabond C Surface Activator (CSA) or Permabond QFS 16.*

Typical Performance of Cured Adhesive

Shear strength* (ISO4587)	Steel 19-23 N/mm² *(2800-3300 psi)* Aluminium 7-9 N/mm² *(1000-1300 psi)* Zinc 8-10 N/mm² *(1200-1500 psi)* ABS >6 N/mm² *(900psi)* SF** PVC >6 N/mm² *(900psi)* SF** PC 6 N/mm² *(900 psi)* Phenolic 12-14N/mm² *(1700-2000 psi)*
Impact strength (ASTM D-950)	3-5 kJ/m² *(1.4-2.4 ft-lb/in²)*
Dielectric constant @10kHz	2.5
Dielectric strength	25 kV/mm
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

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

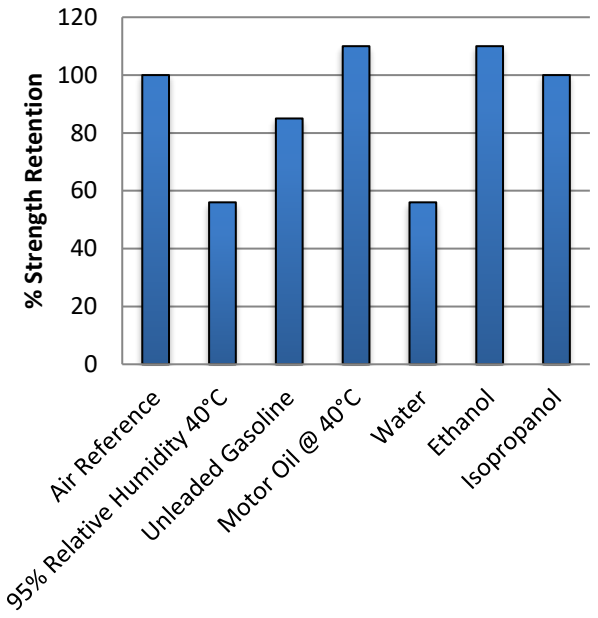
Hot Strength



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

101 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).

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)***

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

www.permabond.com

- ***UK: 0800 975 9800***
- ***General Enquiries: +44 (0)1962 711661***
- ***US: 732-868-1372***
- ***Asia: + 86 21 5773 4913***

info.europe@permabond.com

info.americas@permabond.com

info.asia@permabond.com