

Features & Benefits

- 💧 Fast-setting
- 💧 Ideal for bonding metals
- 💧 Rapid development of high strength
- 💧 Less aggressive to sensitive plastics

Approved to MIL-A-46050C Type 1 Class 3 (existing designs)

Description

PERMABOND® 170 is a methyl cyanoacrylate adhesive. It is a single part, high viscosity liquid that will cure rapidly at room temperature when pressed into a thin film between parts. Permabond 170 will cure to a fixture strength in 15 seconds on most surfaces and strength development is rapid. The adhesive was designed specifically for the bonding of metal surfaces and provides excellent bond strength to steel, aluminum and most metal surface. The methyl cyanoacrylate will also adhere well to a wide variety of other materials including most plastics and rubbers.

Permabond® 170 has been formulated to be less aggressive to sensitive plastic surfaces such as Styrofoam™, polycarbonate and ABS.

Physical Properties of Uncured Adhesive

Chemical composition	Methyl cyanoacrylate
Appearance	Colourless to slightly cloudy
Viscosity @ 25°C	1,500 mPa.s (cP)
Specific gravity	1.1

Typical Curing Properties

Maximum gap fill	0.38 mm 0.015 in
Fixture / handling time* (0.3 N/mm ² shear strength is achieved)	15 seconds (Steel) 15 seconds (Buna N Rubber) 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.

Styrofoam™ is a trademark of The Dow Chemical Company

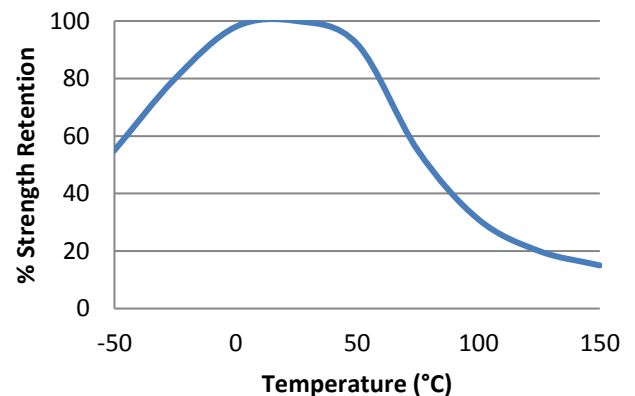
Typical Performance of Cured Adhesive

Shear strength* (ISO4587)	Steel	23-25 N/mm ² (3300-3600 psi)
	Aluminium	13-15 N/mm ² (1900-2200 psi)
	Brass	20-22 N/mm ² (2900-3200 psi)
	Stainless st.	20-22 N/mm ² (2900-3200 psi)
	ABS	>9 N/mm ² (>1300) SF**
	Acrylic	13-15 N/mm ² (1900-2200psi)
	Nitrile rubber	>4 N/mm ² (>550 psi) SF**
	Butyl rubber	>2 N/mm ² (>300 psi) SF**
	Phenolic	>10N/mm ² (>1400 psi) SF**
Impact strength (ASTM D-950)	3-5 kJ/m ² (1.4-2.4 ft-lb/in ²)	
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.

170 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.

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.

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

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.