

PERMABOND[®] 931

Methoxypropyl Cyanoacrylates



Ref #: 041509PB931

TYPICAL APPLICATIONS

Black or dark plastic and metal surface facia
Where ventilation is limited or difficult
Visible bondlines on appliances or cabinets
Nameplates

FEATURES & BENEFITS

- ◆ Low odor
- ◆ Eliminates whitening (frosting and fogging) of parts
- ◆ Excellent adhesion to a wide variety of surfaces
- ◆ Good flexibility and impact resistance

GENERAL DESCRIPTION

PERMABOND 931 is a low odor, non-fogging, non-frosting cyanoacrylate. The reduced odor improves worker comfort. Unsightly fogging adjacent to bondlines, common with other cyanoacrylate adhesives on hot and humid days, is eliminated. The elimination of fogging improves the production rate of acceptable parts as well as their appearance.

PHYSICAL PROPERTIES OF THE UNCURED ADHESIVE

Chemical Type	Methoxypropyl
Color	Colorless
Viscosity, cP @ 25°C	40
Specific Gravity	1.05
Flash point, °C (°F)	83 (181)
Shelf Life stored at 2°C – 7°C (35°F – 45°F), months	12
Maximum gap fill; in (mm)	0.004 (0.10)

Non-Warranty: 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.

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CURE RATE

The cure rates of cyanoacrylates are dependent on the substrate used, gap, and relative humidity. The table below shows the set time of various substrates. Cyanoacrylate adhesives have limited gap-filling capability. The speed of cure and the ultimate strength might decrease as the gap increases. The cure speed of cyanoacrylates will depend on the ambient relative humidity; the cure rate generally increases with increasing humidity. The cure rate of cyanoacrylates can be increased by applying activator **QFS16**. However, the application of the activator might decrease the ultimate strength of the bond.

SET TIME, SECONDS

Cure rate @ 25°C

Steel	8
Buna-N	5
Phenolic	10
Full Cure in hours	24

PERMABOND QFS accelerators can be used to increase the cure rate.

PERFORMANCE PROPERTIES OF THE CURED ADHESIVE

Soluble In	Nitroethane, Methyl Ethyl Ketone, Acetone
Lap Shear Strength at 25°C (77°F), psi (ASTM D-1002, 24 hours)	
Grit blasted Steel/Steel (psi)	2700
Aluminum/Aluminum	1000
Polystyrene/Polystyrene	200*
Acrylic/Acrylic	250*
ABS/ABS	100*
EPDM/EPDM	300*
PVC/PVC	600*
Operating Temperature, °C (°F)	-54 (-65) to 75 (167)

*Substrate Failure

CHEMICAL RESISTANCE

Cured **PERMABOND** adhesives have good resistance to many common solvents. However, the cured resistance is reduced as the polarity of the solvent increases. Non-polar solvents such as gasoline, motor oil, and dioctyl phthalate (**DOP**) have only a minimal effect but polar solvents cause severe bond deterioration. Alcohols will only deteriorate bonds over several months, but acetone is a good solvent for cyanoacrylate. Boiling water will destroy the bonds in less than 24 hours and this process is accelerated when the solution is alkaline. Amines tend to dissolve the bond rapidly. Most solvent washes will not affect the adhesive bonds due to the short exposure time.

THERMAL RESISTANCE

The cured cyanoacrylate is a thermoplastic material. Can safely be used at temperatures between -54°C (-65°F) and 75°C (167°F). Beyond this temperature, strength loss will occur. While the product may perform in certain situations, a general recommendation is not made for use above 75°C (167°F).

SURFACE PREPARATION

The surface should be free of gross contamination such as dirt, dust, grease or oil. An alcohol wipe is suitable for cleaning most surfaces. Acetone is recommended for epoxies, polyesters, phenolics, melamine, urea formaldehyde, nylon and polyurethane. Optimum strength is obtained by abrading the surface followed by a solvent wipe to remove any loose particles.

APPLICATION

1. For best results the surface should be properly cleaned.
2. Apply the adhesive sparingly to one surface.
3. Assemble the parts making sure that they are correctly aligned.
4. Apply sufficient pressure to ensure that the adhesive spreads into a thin film.
5. Do not move parts until fixture strength is achieved.
6. When bonding polyethylene, polypropylene, PTFE or silicone, we recommend priming the surfaces with Permabond Polyolefin Primer before using the adhesive.

STORAGE & HANDLING

Cyanoacrylate adhesives are subject to an aging process and have a limited shelf life. The shelf life is one year when stored in a refrigerator. It could be less when stored at ambient environment depending on conditions of temperature and humidity.

A note of caution: Before opening, the containers must be warmed to room temperature; otherwise water might condense into the bottle and cause hardening of the adhesive.

Avoid skin contact. Wear polyethylene gloves and safety glasses. Do not use rubber or cloth gloves. Cyanoacrylates can form strong bonds rapidly to skin. To break the bond, peel and flex the skin carefully. Immersion in soapy water aids in breaking the cyanoacrylate bond. Acetone or nail polish remover may also be used. **If cyanoacrylate should come in contact with the eyes, seek medical attention.**

Cyanoacrylate vapors are lachrymatory and can irritate eyes and mucous membranes. Use these materials with proper ventilation.

VAPOR CONTROL RECOMMENDATIONS

1. Use adequate ventilation. Remove adhesive vapors with suitable exhaust ducting. Since cyanoacrylate vapors are heavier than air, place exhaust intake below work area. Activated charcoal filters using an acidic charcoal have been found effective in removing vapors from effluent air.
2. Avoid use of excess adhesive. Excess adhesive outside of the bond area will increase the level of vapors. Automatic dispensing equipment will prevent excess adhesive.
3. Assemble parts as quickly as possible. Long open times will increase level of vapors.

CLEAN UP OF SPILLED LIQUID

When large quantities of cyanoacrylate adhesives are accidentally spilled, the area should be flooded with water that will cause the liquid cyanoacrylate to cure. The cured material can then be scraped from the surface. **NOTE:** The liquid adhesive should not be wiped up with rags or tissue. The fabric will cause polymerization and large quantities of adhesive will generate heat on cure, causing smoke and strong irritating vapors. **ALWAYS FLOOD WITH EXCESS WATER TO CLEAN UP SPILL CONDITIONS.**

For additional information consult the Material Safety Data Sheet (MSDS).

FOR INDUSTRIAL USE ONLY. KEEP OUT OF REACH OF CHILDREN.