PERMABOND® LH050 PURE

Anaerobic Threadsealant

Technical Datasheet

Features & Benefits

- Full cure seal to the burst rating of pipe
- Easy to use and apply
- Directional freedom
- NSF certified drinking water system component
- Does not contain solvents
- Excellent chemical and temperature resistance
- Cures at room temperature
- Will not shred, tear or cause blockages

Description

PERMABOND® LH050 PURE anaerobic pipe sealant is single component paste that cures only when in contact with metal parts and oxygen is excluded. The sealant fills up the entire space between male and female parts, instantly sealing the connection for water, hydraulic fluids, air, gases and chemicals. Once cured, the hardened anaerobic sealant typically exceeds the burst rating of the pipe and in addition it locks the pipes, plugs or fittings against vibration loosening. After cure, disassembly of fittings for maintenance is still possible using normal tools.

Permabond® LH050 PURE pipe sealant performs well on most metals, particularly steel and brass. It provides an excellent alternative to pipe dopes and pipe tapes for sealing pipe joints.

Another feature of **PERMABOND® LH050 PURE** is the ability to seal pipes that have not been fully seated. In piping systems, pipe joints must connect with other pipes and in the direction in which the joint must face may not allow the pipe to be fully seated. LH050 PURE will seal – even when the direction in which the pipe must face does not allow the complete seating of the threads. Anaerobic sealant will seal with simple hand assembly while still obtaining the seal of a fully torqued pipe joint.

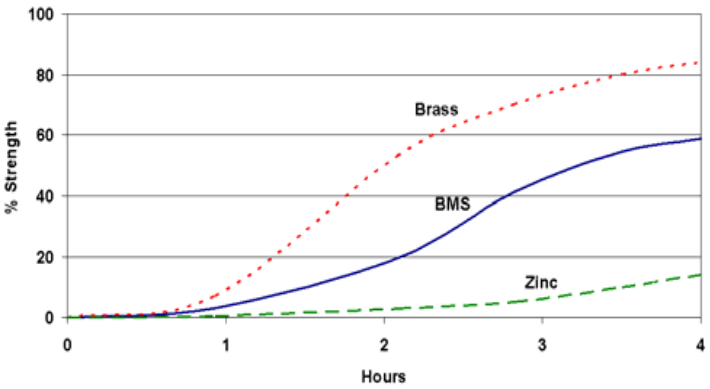
Physical Properties of Uncured Adhesive

Chemical Composition	Methacrylate esters
Appearance	White
Viscosity @ 25°C	250,000 mPa.s (cP)
Specific Gravity	1.2

Typical Curing Properties

Maximum gap fill	0.5 mm ***0.02 in***
Maximum thread size	M56 2"
Handling time	Can be adjusted for up to 6 hours after assembly
Full strength	24 hours

Strength Development

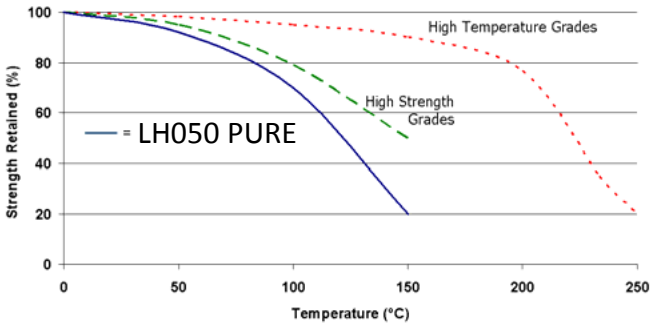


**Cure times are typical at 23°C. Copper and its alloys will follow the faster cure while oxidised or passivated surfaces like stainless steel will tend towards the slower curve. Lower temperatures or large gaps will tend to extend the cure time. To reduce the cure time the use of Permabond® A905, ASC10, or heat can be considered.*

Typical Performance of Cured Adhesive

Torque strength (M10 steel ISO10964)	Break 4 N·m ***35 in.lb*** Prevail 3 N·m ***25 in.lb***
Shear strength (steel collar & pin ISO10123)	7 MPa ***1000 psi***
Coefficient of thermal expansion	90 x 10^{-6} in/in/°C
Thermal Conductivity	0.19 W/mK
Dielectric strength	11 kV/mm
Electrical Resistance	$10^{17}\Omega$

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.

LH050 PURE 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

1000 Hour immersion	Temperature, °C (°F)	Pressure, psi	Results
50% Antifreeze / 50% water solution	126 (260)	60	No leak
Brake fluid	150 (300)	60	No leak
Differential lube	150 (300)	60	No leak
5W/30 Engine oil	150 (300)	60	No leak
Transmission fluid	150 (300)	60	No leak
Diesel fuel #2	25 (77)	60	No leak
ASTM fuel C	25 (77)	60	No leak
Water, steam	198 (390)	540	No leak
Air	150 (300)	60	No leak

This product is not recommended for use in contact with oxygen, oxygen rich systems and other strong oxidizing materials. This product may adversely affect some thermoplastics and users must check compatibility of the product with such substrates before using.

Surface Preparation

Though anaerobic adhesives and sealants will tolerate a slight degree of surface contamination, best results are obtained on clean, dry and grease free surfaces. The use of a suitable solvent-based cleaner (such as acetone or isopropanol) is recommended.
In general, roughened surfaces (~25µm) give higher bond strengths than polished or ground surfaces.

To reduce the curing time, especially on inactive surfaces (such as zinc, aluminium and stainless steel), the use of Permabond® A905 or ASC10 can be considered.

Directions for Use

1) Prevent the tip from touching metal surfaces during application.
2) Apply Permabond® LH050 PURE onto the leading 3-4 threads half way around the male pipe for pipes up to 1½ inches in diameter. For larger pipes, apply completely around the pipe.
3) Screw fittings together. Permabond pipe sealants will seal even when the direction the pipe must face does not allow the complete seating of the threads.
4) Visually inspect for a bead of pipe sealant around the entire pipe. If the sealant isn't visible around the circumference, repeat the steps above using more sealant.

Storage & Handling

Storage Temperature	Below 27°C ***(80°F)***
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.	

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