PERMABOND®
LH050 PURE™
NSF 61 Approved
Anaerobic Pipe Sealant

Ref. #: 011008PBLH050P

FEATURES & BENEFITS

- Instant seal
- Seal to burst rating of pipe after cure
- Directional freedom
- Simple one part system
- Superior environmental resistance
- NSF certified drinking water system component
- Ease of use and assembly
- No clogging or fouling of hydraulic systems
- Resistance to vibration loosening

GENERAL 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.

Another feature of **PERMABOND LH050 PURE** Pipe Sealant is the ability of the sealant to seal pipes that have not been fully seated. In piping systems, pipe joints must connect with other pipes, and the direction in which the joint must face may not allow the pipe to be fully seated. **PERMABOND LH050 PURE** Pipe Sealant 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.

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PERMABOND LH050 PURE Anaerobic Pipe Sealant conforms to all applicable requirements of the **ANSI/NSF Standard 61**, Drinking Water System Components - Health Effects, as certified by the **National Sanitation Foundation and the American National Standards Institute**. **Standard 61** was developed in conjunction with regulatory agencies, industry, water suppliers, consultants, and other users of the product covered in the standard. **Standard 61** establishes requirements for the control of potential adverse human health effects from products added to water indirectly via contact with treatment, storage, transmission, and distribution system components. The **NSF standards** are widely recognized by public health officials, and certified products have been tested and determined to cause no adverse health effects. **All PERMABOND PURE products have been certified by the NSF.**

PHYSICAL PROPERTIES OF THE UNCURED AHDESIVE

Properties	
Base Resin	Methylacrylate Esters
Solids, %	100
Color	White
Mean Viscosity, cP at 25°C (77°F)	250,000
Consistency	Paste
Specific Gravity	1.2
Flash Point, °C (°F)	90 (194)
Shelf Life stored at 27°C (80°F), months*	12
Filler Size, microns	10 ($1x10^{-6}$)
Odor	Low
Gap Filling, inches	0.020

*Package sizes greater than one liter, six months.

SPEED OF CURE

PERMABOND LH050 PURE Anaerobic Sealant performs best on clean steel but will do well on most metals, including aluminum, stainless steel, and brass. When used on passive materials, speed of cure is slowed somewhat and ultimate strength may also be reduced. Generally, when used on metals that induce a "fast cure", pipe joints will be able to be adjusted for approximately six hours after application. On metals that induce a "very fast cure," the working time will be less than six hours, and on materials that induce a "slow cure," the working time will be greater than six hours. The anaerobic sealant will fully cure in 24 hours on most materials.

BEHAVIOR ON DIFFERENT MATERIALS

Activity on Materials and Finishes

Super Active	Active	Inactive	Passive
brass	iron	anodized aluminum	ceramics
copper	steel	cadmium finishes	glass
magnesium	nickel	chrome finishes	plastics
	aluminum	stainless steel	paint finishes
		titanium	
		zinc	

EFFECT OF TEMPERATURE ON CURE SPEED

PERMABOND LH050 PURE is designed to cure at room temperature but can be accelerated by heat if a faster cure is needed. Heating the uncured sealant above 120°C (248°F) is not recommended (the anaerobic sealant once cured, has an upper temperature limit of 177°C (350°F)). For every 10°C rise in temperature, the rate of cure doubles. Conversely for every 10°C drop in temperature, the rate of cure is reduced by a factor of two.

PERFORMANCE PROPERTIES OF THE CURED ADHESIVE

Cured at 25°C for 24 hours	
Torque, ISO 10964	
Breakaway, lb·in (N·m)	
M10 steel nuts and bolts	35 (4)
Prevail, lb·in (N·m)	
M10 steel nuts and bolts	25 (3)
Compressive shear strength,ISO 10123 (Steel pin and collars)	1000 psi (7) N/mm^2

SEALABILITY

PERMABOND LH050 PURE will provide maximum sealing capability after full cure. Usually this is up to the burst rating of the pipe or fitting.

The degree of instant seal is a function of the on-torque of assembly and the type and grade of the fitting. For example: A 3/8 NPT pipe fitting will have an instant seal of less than 1,000 psi upon hand assembly, but when torqued to only 10 inch-lbs, the Instant Seal is raised to 3,000 psi.

HEAT RESISTANCE

Since **PERMABOND LH050 PURE** Anaerobic Sealant cures to a crosslinked, thermoset plastic, it exhibits excellent environmental and heat resistance. However, it is an organic material, so the extreme upper limit is approximately 177°C (350°F) for sealing purposes. Low temperatures do not markedly affect strength.

CHEMICAL RESISTANCE

The fully cured and cross-linked anaerobic sealant resists most chemicals well, even at elevated temperatures. Chemical washes of any kind will usually have no effect on the sealant because of the generally short duration of exposure. Anaerobic sealants are not recommended for use in the severe environment of pure oxygen and strong acids or alkalis.

MATERIAL COVERAGE

The number of fittings of various sizes that can be coated with one tube of **PERMABOND LH050** Pipe Sealant is shown below:

Coverage per Tube of Pipe Sealant

Fitting Size	No. Pieces/Tube 50 ml	No. Pieces/Tube 250 ml
1/8"	700	3450
1/4"	500	2600
3/8"	400	2100
1/2"	340	1700
3/4"	260	1300
1"	200	1000

APPLICATION & DISPENSING

1. For best results, clean all surfaces with a cleaning solvent and allow to dry.
2. If the substrates being used are inactive metals or the cure speed is too slow, then spray the parts with ASC10 and allow to dry.
3. Apply the sealant around leading threads of the male fitting. Force the material into all the voids. Adjust amount of sealant according to the size of the fitting.
4. Assemble and tighten the fittings until proper alignment is obtained. Visually check for a small bead of sealant around the entire circumference of the pipe.
5. A seal to moderate pressure is obtained immediately on properly tightened fittings. Allow the sealant to cure for at least 24hours to obtain

STORAGE & HANDLING

LH050 Pure pipe sealant should be stored in the original unopened container in a cool place away from sparks, flame, excessive heat and sunlight. Handling should be done using plastic gloves and proper eye protection. Skin contact should be avoided. If skin contact occurs, the affected area should be washed thoroughly with soap and water. Eye contact should be treated by thorough washing with water followed by medical attention. Adequate ventilation is necessary to prevent inhalation of vapors. Proper Personal Protective Equipment is always recommended when using chemicals. **For more information, consult the Material Safety Data Sheet.**

PERMABOND LH050 PURE Anaerobic Sealant has a shelf life of one year when stored at or below 27°C (80°F). Do not freeze. Product removed from original container might be contaminated during use. Do not return this material to the original container.

UNCURED (LIQUID PASTE) ANAEROBIC SEALANT

Anaerobic sealants contain reactive chemicals. These chemicals can cause skin irritation on individuals with sensitive skin. Good housekeeping to keep work areas and tools clean is usually sufficient to prevent irritation. Barrier creams and plastic gloves should be used to ensure worker protection against accidental or chronic exposure.

CURED (SOLID) ANAEROBIC SEALANT

The cured sealant is a hard inert plastic that is safe to handle. The curing reaction reacts all of the sealant (100%) into the solid plastic. No solvents or other substances are released upon cure as is the case with many other sealants. Once cured, **PERMABOND LH050 PURE** has been determined to cause no adverse health effects and is an NSF certified drinking water system component.

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