

# PERMABOND<sup>®</sup> LM012

Anaerobic Pipe Sealant

**Permabond**<sup>®</sup>  
Engineering Adhesives

Ref #: 061908PBLM012

## TYPICAL APPLICATIONS

### Typical Industries Served

Automotive  
Appliances  
Construction  
Fire Protection  
Plumbing  
Utilities

### General Pipe Maintenance

Replaces Dopes and Tapes

### General Assembly

Locks and Seals Pipe

## FEATURES & BENEFITS

- ◆ Lower Cost Per Application
- ◆ Full Cure Seal to the Burst Rating of Pipe
- ◆ Easy to Use & Apply
- ◆ Directional Freedom
- ◆ Low Shrinkage During Cure
- ◆ Uncured Material Fully Dissolves in Water
- ◆ Nonflammable
- ◆ Environmentally Friendly
- ◆ Superior Resistance to a Wide Range of Chemicals
- ◆ Will Not Tear, Shred, or Gall Fittings
- ◆ Full Cure at Room Temperature

## GENERAL DESCRIPTION

**PERMABOND LM012** is an unfilled, medium-high viscosity anaerobic adhesive. Although its instant seal capability is limited, seal after full cure is complete. Its major benefit as related to other pipe sealants is that it is an unfilled resin that is compatible with hydraulic fluids. If the adhesive is accidentally spilled into the hydraulic system, e.g., squeezed out of the joint, it will be dispersed in the fluid. It contains no particles that can clog or foul hydraulic screens and valves. Thus it is used in very sensitive high pressure hydraulic systems. **It meets MIL-S-22473E, grade HVV.**

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.

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<sup>®</sup> program.

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**PERMABOND** pipe sealant is an anaerobically curing sealant, when in contact with metal parts as in a threaded pipe joint. When applied, **PERMABOND** pipe sealant dispenses as smooth paste, filling the entire space between the threaded joints. The smooth paste cures to a solid plastic, completely sealing against hydraulic fluids, air, gases and chemicals. In addition, it locks the pipes, plugs or fittings against vibration loosening, tampering, and variable temperature effects. Unlike conventional tapes, pipe joints sealed with **PERMABOND** pipe sealant do not require “bottoming out” to achieve full sealing properties; using **PERMABOND** pipe sealant requires only a hand tightened assembly, providing the freedom to direct the elbow or fitting in any desired configuration.

**PHYSICAL PROPERTIES OF THE UNCURED ADHESIVE**

<u>Properties</u> Base Resin Solids, % Color Viscosity, cP, 25°C (77°F) Consistency Gap filling, in Specific Gravity Flash Point, °C (°F) Shelf Life stored at or below 27°C (80°F), months* Maximum Filler Size, μ Odor	Methacrylate Esters 100 Brown 2,000 Liquid 0.008 1.07 >93 (200) 12 No Filler Low
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\*Package size greater than one liter, six months.

**SPEED OF CURE**

Speed of Cure,* hours Fixture Strength Full Strength	1/2 24
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\*Measured on clean M10 steel nuts & bolts.

**BEHAVIOR ON DIFFERENT SUBSTRATES**

Activity of Materials and Finishes

Super Active	Active	Inactive	Passive
Brass Copper Magnesium	Iron Steel Nickel Aluminum	Anodized Aluminum Cadmium Finishes Chrome Finishes Passivated Metals Stainless Steel Titanium Zinc	Ceramics Glass Plastics Painted Finishes
Super Active Active Inactive Passive	Very Fast Cure Fast Cure Slow Cure No cure without PERMABOND's ASC10 Surface Conditioner		

## PERFORMANCE PROPERTIES OF THE CURED ADHESIVE

### SEALING PROPERTIES

**PERMABOND LM012** Pipe Sealant will provide maximum sealing capabilities after full cure. Typically, this is up to the burst rating of the pipe or fitting. **PERMABOND LM012** Pipe Sealant tested on a high pressure hydraulic fitting results in failure of the fitting itself at 40,000 psi.

Instant sealing property is a function of the on-torque assembly, type of fitting, and grade of fitting. The instant sealing properties of **PERMABOND LM012** Pipe Sealant are 500 psi when hand assembled and 3,000 psi when a 10 in-lb on-torque is applied.

Cured at 25°C for 24 hours	
Torque, ISO 10964	
Breakaway, lb-in (N·m)	
M10 steel nuts and bolts	25 (3)
Prevail, lb-in (N·m)	
M10 steel nuts and bolts	15 (2)
Compressive shear strength, ISO 10123 (Steel pin and collars)	750 psi (5) N/mm <sup>2</sup>

### THERMAL PROPERTIES

**PERMABOND LM012** Pipe Sealant resists temperatures up to 177°C (350°F) for sealing. At operating temperatures of up to 150°C (300°F), full locking strength is maintained.

### CHEMICAL RESISTANCE

**PERMABOND's LM012** Pipe Sealant was tested for resistance to fluids for 1,000 hours under the indicated temperature conditions:

1,000 Hours Soak	Temperature, °C (°F)	Pressure, psi	Results
Antifreeze, 50%/Water, 50%	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

## MATERIAL COVERAGE

The number of various sized fittings that may be coated with one 50 ml, and one 250 ml tube of **PERMABOND's LM012** Pipe Sealant are shown:

Fitting Size, inches	Volume, ml/100 Pieces	Usage, Pieces/50 ml	Usage, Pieces/250 ml
0.125	7.25	700	3450
0.25	9.66	500	2600
0.375	12.05	400	2100
0.5	14.05	340	1700
0.75	19.3	260	1300
1.0	24.2	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 maximum pressure and chemical resistance

**PERMABOND LM012** Pipe Sealant may be readily dispensed out of the tube, or brush-top bottle. When using the tube package size, the convenient flip-top may be used to spread the sealant directly on to the first two-three threads of the male-component fitting. For larger volumes, the brush-top applicator may be used to "paint" the adhesive on to the first two-three threads of the male-component fitting. Following sealant application, tightening the fittings by hand or using a wrench will complete assembly. Adjustments may be made up to 10 hours after assembly without affecting the performance properties of the cured seal.

## STORAGE & HANDLING

**PERMABOND LM012** 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 LM012** Pipe 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.

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