

PERMABOND® HH131

**High Strength, High Temperature Resistance
Anaerobic Threadlocker**

Permabond®
Engineering Adhesives

Ref.#: 012108PBHH131

TYPICAL APPLICATIONS

Typical Industries Served

Furniture
Automotive
Appliances
Construction
Equipment

General Maintenance and Assembly

Replaces Lockwashers
Seals Fasteners against Water and Chemicals

FEATURES & BENEFITS

- ◆ Very High Temperature Resistance (230°C)
- ◆ Non-drip, Thixotropic
- ◆ Resistance to Vibration Loosening
- ◆ Environmentally Friendly – 100% Solids
- ◆ Superior Environmental Resistance
- ◆ Excellent Chemical Resistance

GENERAL DESCRIPTION

PERMABOND® HH131 is a very high temperature resistant, high strength anaerobic threadlocker and sealant. This material cures in the absence of air between tight fitting metal parts. It is used for locking bolts, nuts and screws that require permanent assembly. This material is best suited for application requiring high temperature resistance. Its high viscosity allows for ease of use on coarse threaded fasteners. Cure is fast and reliable on steel, cadmium, zinc and other plated fasteners. Major use areas include machinery and equipment manufacturing. Additional uses include sealing pipe flanges and retaining worn bearings. The high viscosity and thixotropic effect allows gap filling up to 10 mil.

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® program.

PERMABOND

14 Robinson Street, Pottstown, PA 19464

20 World's Fair Drive, Somerset, NJ 08873

Application Assistance: 1-800-640-7599 Customer Service: 1-800-714-0170

Fax No.: 1-800-334-3219

<http://www.permabond.com>

PHYSICAL PROPERTIES OF THE UNCURED ADHESIVE

<u>Properties</u> Base Resin Solids, % Color Fluorescence Viscosity, cP, 25°C (77°F) Consistency Gap Filling, mm (in) Specific Gravity Flash Point, °C (°F) Shelf Life stored at or below 25°C (77°F), months*	Methacrylate 100 Opaque Red Under Blue Light 10,000 Thixotropic Liquid 0.305(0.012) 1.1 >100 (212) 12
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*Package sizes greater than one liter, six months.

CURING PROPERTIES

Cure Speed*	
Fixture time (min)	15
Full Cure (hours)	24

*Measured on M10 steel bolt and nut.

BEHAVIOR ON DIFFERENT SUBSTRATES

PERMABOND® HH131 Threadlocker performs best on clean steel but will perform satisfactorily on most metals including anodized aluminum, stainless steel, brass, oily and “as received” finishes, and plated fasteners. When used on “inactive and passive” materials, speed of cure is slowed and ultimate strength may be reduced. Generally, fixturing strength is achieved in approximately 15 minutes on active metals and 30 minutes on passive metals. Cure speed and strength development may be accelerated by heat (up to 121°C [250°F]). Conversely, when temperatures during cure are below 21°C (70°F), speed of cure will be reduced. Use of **PERMABOND® ASC10** Surface Conditioner will accelerate cure rates, but may affect ultimate strength with up to a 25% strength reduction. **PERMABOND® ASC10** Surface Conditioner may also be used for inducing cure on non-metals.

Activity of Materials and Finishes

Super	Active	Inactive	Passive Active
Brass Copper Magnesium	Iron Steel Nickel Aluminum	Anodized aluminum Cadmium finishes Chrome finishes Passivated metals Painted finishes Stainless steel Titanium Zinc	Ceramics Glass Plastics
Super Active Active Inactive Passive	Very fast cure Fast cure Slow cure No cure without PERMABOND® ASC10 Surface Conditioner		

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	240 (27)
Prevail, lb-in (N·m)	
M10 steel nuts and bolts	480 (54)
Compressive shear strength, ISO 10123 (Steel pin and collars)	2500 psi (17) N/mm ²

ELECTRICAL PROPERTIES

Dielectric Strength, MV/m	11
Electrical Resistance, Ωm	10 ¹⁷

THERMAL PROPERTIES

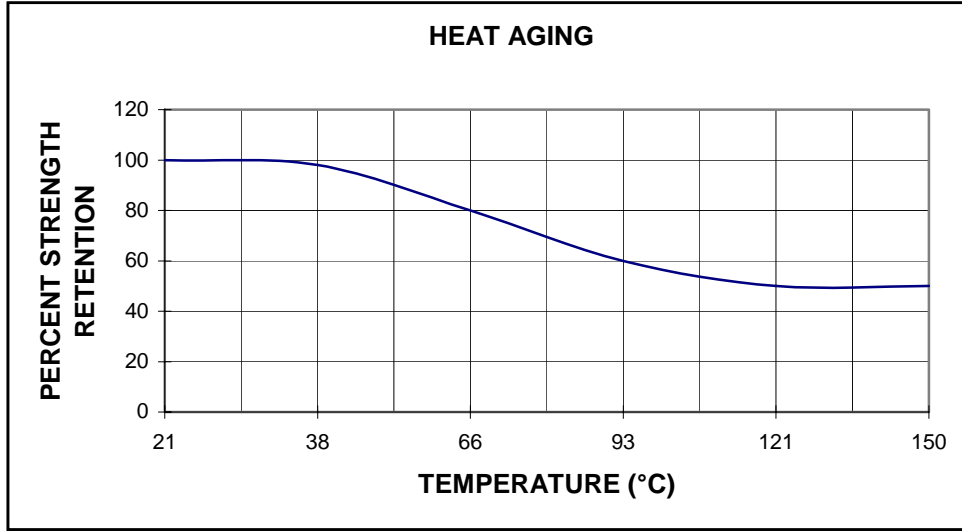
Thermal Conductivity, W/mK	0.19
Thermal Expansion Coefficient, in/in/°C	90 x 10 ⁻⁶

HEAT RESISTANCE

PERMABOND® HH131 Threadlocker cures to a crosslinked, thermoset plastic with excellent resistance to environmental conditions and high temperatures. The maximum temperature recommended for use is 230°C (446°F).

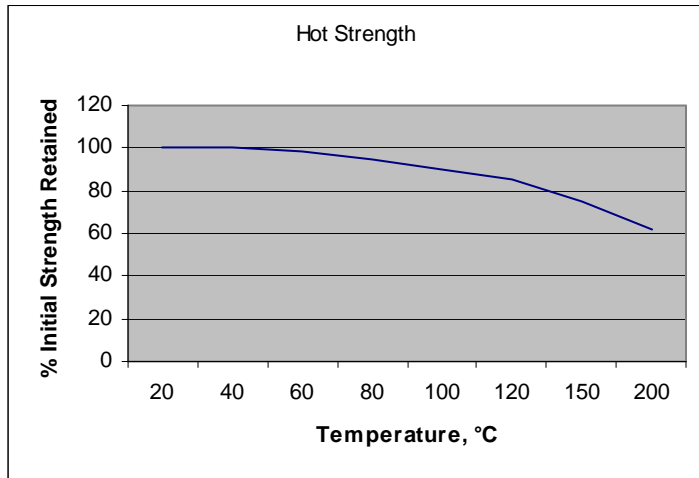
HEAT AGING

The strength retention of **PERMABOND® HH131** Threadlocker measured at room temperature after 1000 hours aging at elevated temperatures is shown:



HOT STRENGTH

The strength retention of **PERMABOND® HH131** Threadlocker measured at elevated temperatures following 2 hours aging is shown:



CHEMICAL RESISTANCE

When fully cured and crosslinked, **PERMABOND® HH131** Threadlocker resists most chemicals, even at elevated temperatures. Chemical washes of any kind will have no effect on the adhesive as they are of short duration. **PERMABOND® HH131** Threadlocker is not recommended for use in the severe environment of pure oxygen, or extremely strong acids and alkalis.

340 Hour Immersion	Temperature, °C (°F)	Initial Strength Retained, %
Water	75 (168)	100
Butyl alcohol	75 (168)	100
Toluene	75 (168)	99
Motor oil	75 (168)	99
Hydrocarbon test fluid	75 (168)	100
JP4-jet fuel	75 (168)	93
JP5-jet fuel	75 (168)	100
Ethylene glycol	75 (168)	99

For additional chemicals, consult the **PERMABOND®** Bulletin: "**PERMABOND®** Anaerobic Adhesives and Sealants Chemical Compatibility List."

VIBRATION RESISTANCE

The primary use of **PERMABOND® HH131** Threadlocker is to prevent loosening of fasteners under vibration, in addition to providing a controlled off-torque. **PERMABOND's HH131** Threadlocker exceeds the performance of lockwashers, springwashers, nylon patches, and other mechanical vibration-resistant locking systems.

VISCOSITY & GAP FILLING PROPERTIES

PERMABOND® HH131 Threadlocker is a high viscosity adhesive, and allows filling of larger gaps such as coarse threaded fasteners.

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 **Permabond ASC10** and allow to dry.
3. Prevent the tip from touching metal surfaces during application.
4. When working with thru holes, dispense a bead of material across the contact length of the threads.
5. When working with blind holes, apply several drops down the threads to the bottom of the hole.
6. Assemble and torque the parts as necessary.

PERMABOND® HH131 Threadlocker may be readily dispensed from the bottle directly onto the parts. However, application via automated dispensing equipment is feasible.

STORAGE & HANDLING:

PERMABOND® HH131 Threadlocker 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® HH131 Threadlocker has a shelf life of one year when stored at or below 25°C (77°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.