

Features & Benefits

- 💧 Prevents vibration loosening
- 💧 Controlled off-torque
- 💧 Full cure at room temperature
- 💧 Low strength for easy disassembly
- 💧 Lubricates threads for easier assembly
- 💧 Provides corrosion protection
- 💧 Superior environmental resistance
- 💧 Environmentally friendly – 100% solids

Description

Permabond® LM113 Threadlocker is a medium viscosity product for locking small threaded fasteners, such as screws and bolts or hydraulic fittings that might require disassembly. Due to its thixotropic viscosity, the liquid viscosity will not run away from the area of application. PERMABOND's LM113 Threadlocker cures reliably and fast on steel, cadmium, zinc and other plated fasteners.

Mil -S-46163A Type II Grade N

Each lot of LM113 is tested to the lot requirements of these specifications.

ASTM D5363 AN 0311 Group 03 Class 1 Grade 1

Each lot of LM113 is tested to the general requirements defined in paragraphs 5.1.1 and 5.1.2 and the detail requirements defined in section 5.2

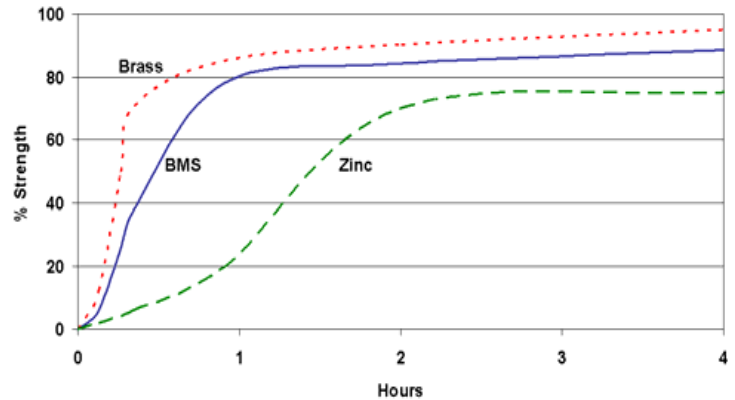
Physical Properties of Uncured Adhesive

Chemical Composition	Methacrylate esters
Appearance	Purple
Viscosity @ 25°C	1200 mPa.s (cP)
Specific Gravity	1.09

Typical Curing Properties

Maximum gap fill	0.15 mm 0.006 in
Maximum thread size	M20 ¾"
Handling time* (steel)	15 minutes
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.

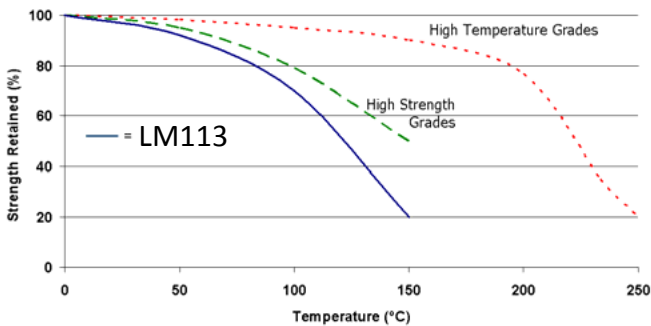
Typical Performance of Cured Adhesive

Torque strength (M10 steel ISO10964)	Break 9 N·m 80 in.lb Prevail 5 N·m 40 in.lb
Shear strength (steel collar & pin ISO10123)	5 MPa 750 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 Ω

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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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.

LM113 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

340 Hour immersion	Temperature, °C (°F)	% 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

This product is not recommended for use in contact with oxygen, oxygen rich systems and other strong oxidizing materials.

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) When working with through holes, dispense a bead of material across the contact length of the threads.
- 3) When working with blind holes, apply several drops down the threads to the bottom of the hole.
- 4) Assemble and torque the parts as necessary.
- 5) Replace lid to bottle to avoid contamination of remaining liquid adhesive.

Storage & Handling

Storage Temperature	5 to 25°C (41 to 77°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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