PERMABOND® HM128

Anaerobic Threadlocker

Technical Datasheet

Features & Benefits

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

Description

PERMABOND® HM128 Threadlocker is a high strength adhesive for permanent assembly. It is typically used for preventing vibration loosening of bolts, studs and cap screws. Full cure to a cross-linked plastic is achieved reliably and fast on steel and all common bolt platings. Additional application areas include machinery, equipment, and electric motor manufacturers. PERMABOND® HM128 Threadlocker replaces lock washers.

MIL-S-46163A Type I Grade K
Each lot of HM128 is tested to the lot requirements of these specifications.
ASTM D5363 AN 0221 Group 02 Class 2 Grade 1
Each lot of HM128 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

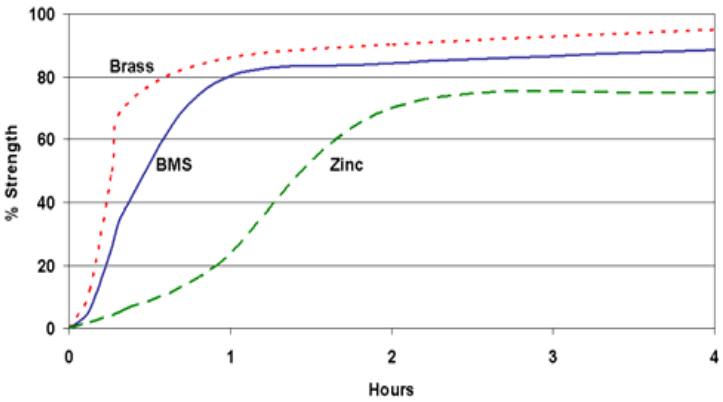
Physical Properties of Uncured Adhesive

Chemical Composition	Methacrylate esters
Appearance	Red
Viscosity @ 25°C	500 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

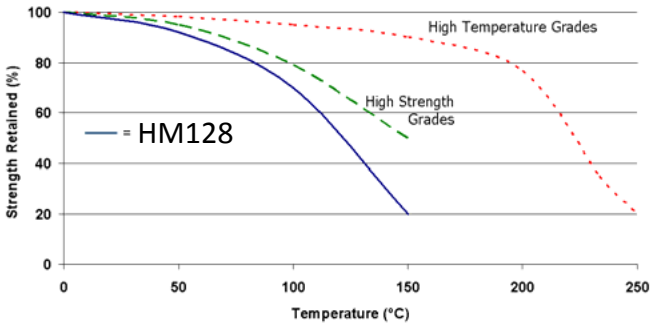


**Cure times are typical at 23°C. Copper and its alloys will follow the faster cure while oxidised or passivated surfaces like stainless steel will tend towards the slower curve. Lower temperatures or large gaps will tend to extend the cure time. To reduce the cure time the use of Permabond® A905, ASC10,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

Typical Performance of Cured Adhesive

Torque strength (M10 steel ISO10964)	Break 31 N·m ***275 in.lb*** Prevail 40 N·m ***350 in.lb***
Shear strength (steel collar & pin ISO10123)	17 MPa ***2500 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.

HM128 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)	98
Butyl alcohol	75 (168)	94
Toluene	75 (168)	98
Motor oil	75 (168)	100
Hydrocarbon test fluid	75 (168)	96
JP4-Jet fuel	75 (168)	100
JP5-Jet fuel	75 (168)	90
Ethylene glycol	75 (168)	96

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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