

Technical data sheet



Product: MH052

Manufacturer: PERMABOND ENGINEERING ADHESIVES

Product group: KLEBSTOFF

Article group: ANAEROB

Download: 04.05.2024

PERMABOND® MH052

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Features & Benefits

- Excellent chemical resistance
- Pressure seal to burst rating of pipe
- No loose particles to clog valves
- Approved for use with gaseous oxygen
- WRAS listed for contact with wholesome (potable) water
- DVGW & BAM approval

Description

Permabond® MH052 is ideal for the sealing of threaded joints. It is approved for use with natural gas and LPG for working pressure up to 20 bar (290 psi) and also for gaseous oxygen up to 10 bar (145 psi) and 60°C (140°F). MH052 seals against gas, water, LPG, hydrocarbons, oils and other chemicals and will seal to the burst rating of the pipe. Unlike PTFE tape or hemp, Permabond MH052 will not shred or dry out, so it will provide a durable seal, helping to extend the life of the components.

Physical Properties of Uncured Adhesive

Chemical composition	Acrylic
Appearance	Yellow
Viscosity @ 25°C	2rpm: 65,000 mPa.s (cP) 20rpm: 25,000 mPa.s (cP)
Specific Gravity	1.1
UV fluorescence	Yes

Typical Curing Properties

Maximum gap fill	0.5 mm 0.02 in
Maximum thread size	M56 2 in
Time taken to reach handling strength (M10 steel) @23°C	15 minutes*
Time taken to reach working strength (M10 steel) @23°C	1-3 hours
Full strength (M10 steel) @23°C	24 hours

*Handling time at 23°C / 73°F. Copper and its alloys will make the adhesive cure more quickly, while oxidised or passivated surfaces (like stainless steel) will reduce cure speed. To reduce curing time, use Permabond activator A905 or ASC10 alternatively, increasing the curing temperature will reduce curing time.

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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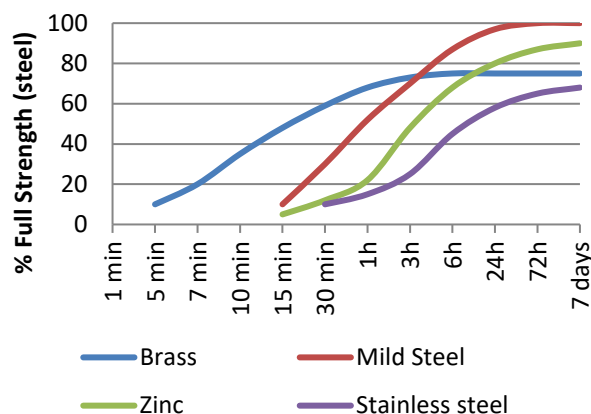
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Strength Development

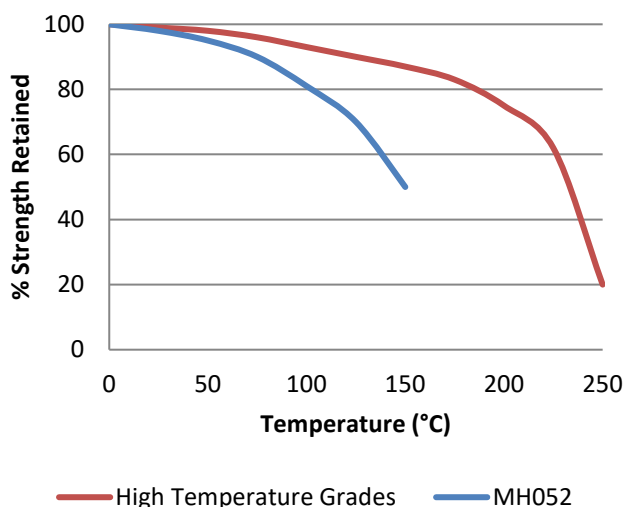


*Cure times are typical at 23°C. Copper and its alloys will follow the faster cure while oxidised or passivated surfaces like stainless steel will tend towards the slower curve. Lower temperatures or large gaps will tend to extend the cure time. To reduce the cure time the use of Permabond A905, ASC10,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

Typical Performance of Cured Adhesive

Torque strength (M10 steel ISO10964)	Break 20 N·m 180 in.lb Prevail 11 N·m 100 in.lb
Shear strength (steel collar & pin ISO10123)	10 MPa 1450 psi
Coefficient of thermal expansion	90 x 10 ⁻⁶ mm/mm/°C
Dielectric strength	11 kV/mm
Thermal conductivity	0.19 W/(m.K)

Hot Strength



"Hot strength" Breakaway strength on M10 Zinc plated bolts according to ISO 10964. Cured at 23°C for 24 hours then conditioned for 30 minutes at testing temperature.

MH052 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

Immersion (1000 hours)	Temperature (°C)	Strength Retention (%)
Engine Oil	125	100
Water/Glycol	75	90
Unleaded Petrol	23	100
Brake Fluid	23	95
99% IMS	23	95
Acetone	23	65

Except under the conditions stated on the description section, this product is not recommended for use in contact with oxygen, oxygen rich systems and other strong oxidizing materials. This product may adversely affect some thermoplastics and users must check compatibility of the product with such substrates before using.

Surface Preparation

Best results are obtained on bare metal surfaces. Remove paint, hemp fibres, PTFE tape or any other surface contamination from the bond area that could inhibit the cure. The use of a suitable solvent-based cleaner (such as acetone or isopropanol) is recommended to remove oil, grease, and other contaminants. Allow the solvent to evaporate before applying the adhesive.

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) Apply a continuous bead around the circumference of the male thread (normally 1-2 threads back from the leading edge).
- 2) For taper/parallel threads ensure adhesive is positioned where the threads will engage fully. Gaps and cure times may be greater than expected with this joint configuration.
- 3) Ensure sufficient adhesive is applied to give a complete seal.
- 4) Tighten the components with suitable tools. Do not adjust. Allow the product to fully cure before using the part (lower temperatures or large gaps will extend the cure time).

NB: Adhesive outside of a closed joint (i.e., excess material) will remain uncured due to air contact. Adhesive inside the joint will cure solid. Ensure the adhesive viscosity is suitable for your thread size.

Video Link

Threadsealant directions for use:
<https://youtu.be/6Db9pLS7WCA>



Storage & Handling

Storage Temperature	5 to 25°C (41 to 77°F)
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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 Safety Data Sheet.

This Technical Datasheet (TDS) offers guideline information and does not constitute a specification.

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