

## Features & Benefits

- High strength
- Excellent chemical resistance
- KTW-DVGW approval for potable water
- Single-part, easy to use
- Helps lubricate threads for easy assembly
- High temperature resistance
- WRAS listed for contact with wholesome (potable) water

## Description

**Permabond® HM146** is a high strength anaerobic adhesive suitable for locking and sealing threaded pipe connections. It is suitable for the permanent sealing of threaded pipe joints for water and gas pipework systems.

## Physical Properties of Uncured Adhesive

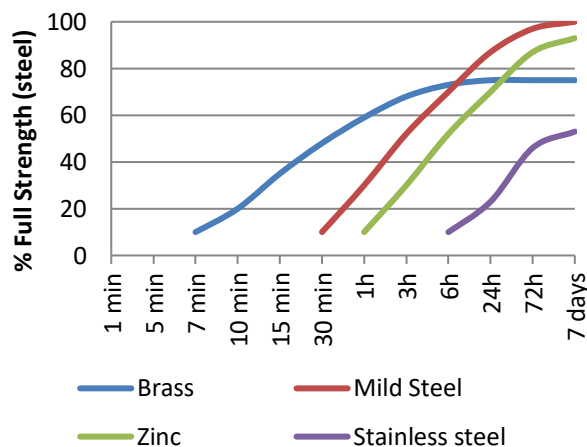
Chemical composition	Acrylic
Appearance	Green
Viscosity @ 25°C	2,200-4,000 mPa.s (cP)
Specific Gravity	1.1
UV fluorescence	Yes

## Typical Curing Properties

Maximum gap fill	0.3 mm <b>0.01 in</b>
Maximum thread size	M56 <b>2 in</b>
Time taken to reach handling strength (M10 steel) @23°C	20-40 minutes*
Time taken to reach working strength (M10 steel) @23°C	6-12 hours
Full strength (M10 steel) @23°C	24-36 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.

## 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.

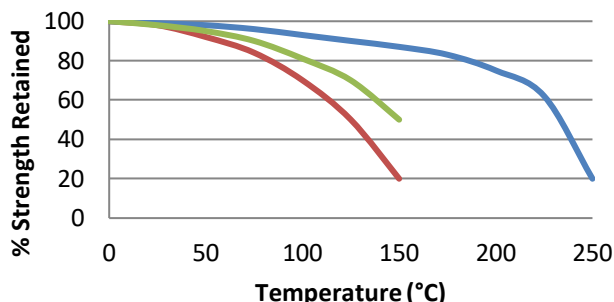
## Typical Performance of Cured Adhesive

Torque strength (M10 steel ISO10964)	Break 25-36 N·m <b>220-315 in.lb</b> Prevail 40-55 N·m <b>350-480 in.lb</b>
Shear strength (steel collar & pin ISO10123)	15-25 MPa <b>2200-3600 psi</b>
Coefficient of thermal expansion	90 x 10 <sup>-6</sup> mm/mm/°C
Dielectric strength	11 kV/mm
Thermal conductivity	0.19 W/(m.K)

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## Hot strength



— Dismantleable Grades  
— HM146  
— High Strength Grades

*"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.*

HM146 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.

## Surface Preparation

Though the anaerobic adhesives 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) Apply a continuous bead circumferentially 1-2 threads from the leading edge.
- 2) Ensure sufficient is applied to give a complete seal.
- 3) For taper/parallel threads ensure adhesive is positioned where the threads will engage fully. Gaps, and therefore cure times, may be greater than expected with this joint configuration.
- 4) Tighten with normal tools.

## Video Link

Threadsealant directions for use:

<https://youtu.be/6Db9pLS7WCA>



## Chemical Resistance

Immersion (1000 hours)	Temperature (°C)	Strength Retention (%)
Engine Oil	125	100
Water/Glycol	75	93
Leaded Petrol	23	100
Unleaded Petrol	23	100
Diesel	23	98
Brake Fluid	23	95
99% IMS	23	95
Acetone	23	60

*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.*

## 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 Safety Data Sheet.

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

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