PERMABOND HM146

Anaerobic Threadsealant

Provisional Technical Datasheet

Features & Benefits

- German gas approval
- German potable water approval
- Excellent chemical resistance
- High strength

Description

Permabond HM146 is a high strength anaerobic adhesive suitable for locking and sealing threaded pipe connections. It has DIN-DVGW approval for threaded gas connections and KTW-DVGW approval for contact with potable water.

Physical Properties of Uncured Adhesive

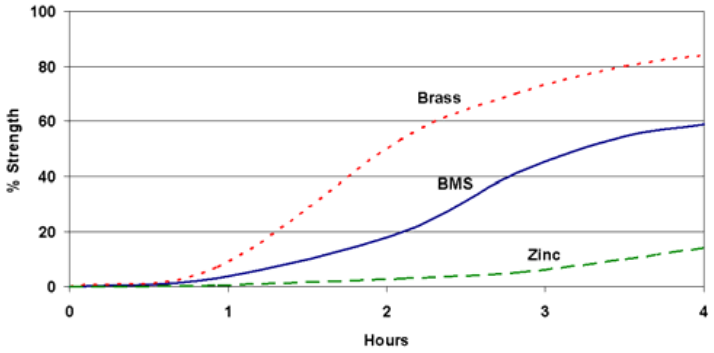
Chemical composition	Acrylic
Appearance	Green
Viscosity @ 25°C	2000-4000mPa.s (cP)
Density	1.05
UV fluorescence	Yes

Typical Curing Properties

Maximum gap fill Maximum thread size	0.3 mm ***0.01 in*** M56 ***2 in***
Handling strength (steel)*	20 - 40 minutes
Working strength	6 - 12 hours
Full strength	24 – 36 hours

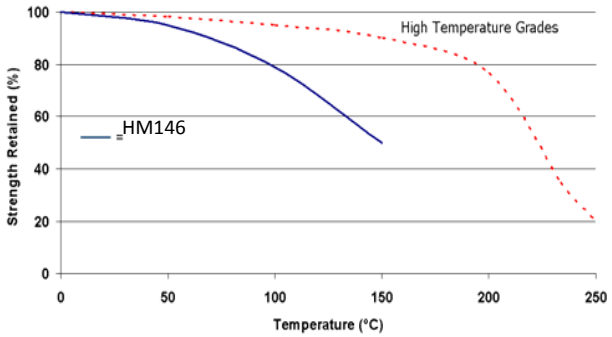
**Handling time at 23°C / 73°F. Copper and its alloys will make the adhesive cure more quickly, while oxidised or passivated surfaces (like stainless steel) will reduce cure speed. To reduce curing time, use Permabond activator A905 or ASC10. Alternatively, increasing the curing temperature will reduce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

Strength Development



Torque strength (M10 Zn plated ISO10964)	Break 25-36 Nm ***220-315 in.lb*** Prevail 40-55 Nm ***350-480 in.lb***
Shear strength (steel collar & pin)	15-25 MPa ***2200-3600 psi***
Coefficient of thermal expansion	90 x 10^{-6} mm/mm/°C
Dielectric strength	11 kV/mm
Thermal conductivity	0.19 W/(m.K)

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.

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.

Chemical Resistance

Immersion (1,000 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 steam, strong oxidizing materials and polar solvents although will withstand a solvent wash without any bond strength deterioration.

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.

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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