PERMABOND® HM135

Anaerobic Retainer

Technical Datasheet

Features & Benefits

- Very high strength
- Rapid cure
- Suitable for use with non-ferrous metals
- High temperature resistance
- Excellent chemical resistance
- WRAS listed for contact with wholesome (potable) water

Description

Permabond® HM135 is a fast curing, medium viscosity anaerobic adhesive for locking and sealing threads and retaining cylindrical components. It gives maximum torque strength on brass or plated brass components and provides excellent temperature and chemical resistance.

Physical Properties of Uncured Adhesive

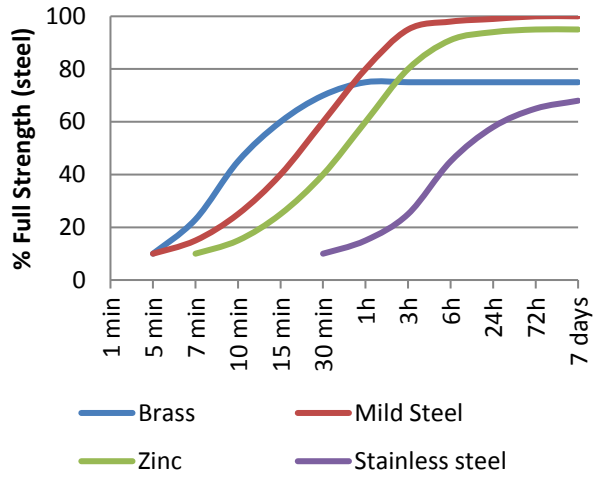
Chemical composition	Acrylic
Appearance	Green
Viscosity @ 25°C	700 mPa.s *(cP)*
Specific Gravity	1.1
UV fluorescence	No

Typical Curing Properties

Maximum gap fill Maximum thread size	0.2 mm *0.008"* M25 *¾"*
Time taken to reach handling strength (M10 steel) @23°C	5-10 minutes*
Time taken to reach working strength (M10 steel) @23°C	2 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.*

Strength Development



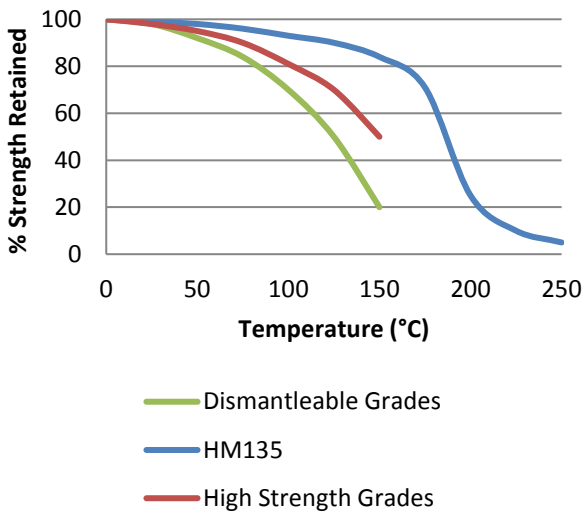
**Cure times are typical at 23°C. Copper and its alloys will follow the faster cure while oxidised or passivated surfaces like stainless steel will tend towards the slower curve. Lower temperatures or large gaps will tend to extend the cure time. To reduce the cure time the use of Permabond A905, ASC10,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

Typical Performance of Cured Adhesive

Torque strength (M10 steel ISO10964)	Break 31 N·m *280 in.lb* Prevail 50 N·m *450 in.lb*
Shear strength (steel collar & pin ISO10123)	30 MPa *4400 psi*
Coefficient of thermal expansion	90 x 10^{-6} mm/mm/°C
Dielectric strength	11 kV/mm
Thermal conductivity	0.19 W/(m.K)

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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.

HM135 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 circumferential bead; preferentially to the female component. Assemble with a twisting action.
2) For larger components use thixotropic products to prevent run off.
3) Take care to ensure adhesive does not enter ball races or other mechanisms.

Video Link

Retaining compound directions for use:
https://youtu.be/MUODE5ZfrZ8

Chemical Resistance

Immersion (1000 hours)	Temperature (°C)	Strength Retention (%)
Engine Oil	125	100
Water/Glycol	75	80
Unleaded Petrol	23	95
Brake Fluid	23	100
99% IMS	23	75
Acetone	23	95

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.

www.permabond.com
- ***UK: 0800 975 9800***
- ***General Enquiries: +44 (0)1962 711661***
- ***US: 732-868-1372***
- ***Asia: + 86 21 5773 4913***

info.europe@permabond.com
info.americas@permabond.com
info.asia@permabond.com

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