PERMABOND® HM165

Anaerobic Retainer

Technical Datasheet

Features & Benefits

- Very high strength
- Easy to apply
- Improved fatigue life
- Excellent chemical resistance
- High temperature resistance

Description

Permabond® HM165 is a high viscosity anaerobic retaining compound that cures when confined between metal parts to form a tough bond. It is best suited for cylindrical parts and where high temperature resistance is required. The high viscosity and thixotropic effect of the material allows for larger tolerances.

Physical Properties of Uncured Adhesive

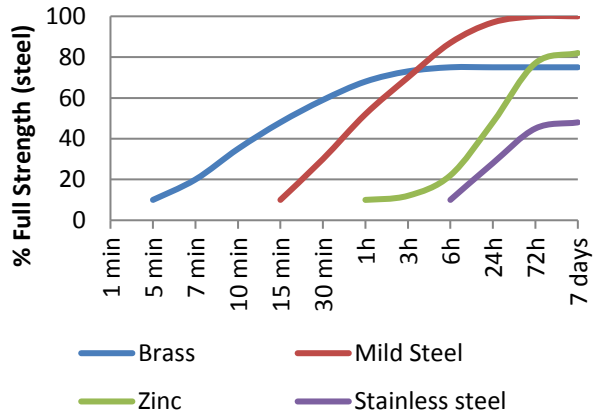
Chemical composition	Acrylic
Appearance	Green
Viscosity @ 25°C	2 rpm: 25,000 mPa.s *(cP)* 20 rpm: 10,000 mPa.s *(cP)*
Specific Gravity	1.1
UV fluorescence	Yes

Typical Curing Properties

Maximum gap fill	0.3 mm *0.01 in*
Time taken to reach handling strength (M10 steel) @23°C	15-20 minutes*
Time taken to reach working strength (M10 steel) @23°C	3-6 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

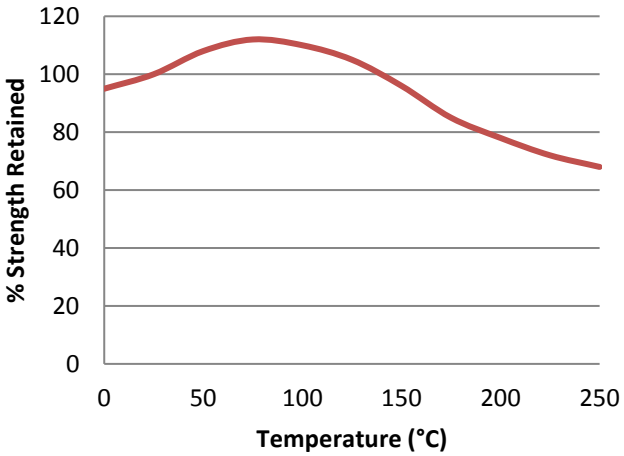


**Cure times are typical at 23°C. Copper and its alloys will follow the faster cure while oxidised or passivated surfaces like stainless steel will tend towards the slower curve. Lower temperatures or large gaps will tend to extend the cure time. To reduce the cure time the use of Permabond A905, ASC10,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

Typical Performance of Cured Adhesive

Torque strength (M10 steel plated ISO10964)	Break 35 N·m *310 in.lb* Prevail 50 N·m *450 in.lb*
Shear strength (steel collar & pin ISO10123)	20 MPa *2900 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" Shear strength on steel collar and pins according to ISO 10123. Cured at 23°C for 7 days then conditioned for 1 hour at testing temperature.

HM165 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	85	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.

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