HERNON®
High Performance Adhesives and Sealants
ISO 9001 Registered

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Technical Data Sheet
Cylinlock® 826

Product Description

Hernon® Cylinlock® 826 is a single component high temperature anaerobic resin used for bonding rigid assemblies of all types. It also can be used effectively to increase the strength of most mechanical assemblies. Curing occurs when adhesive is confined between mating surfaces. The cured adhesive is a thermoset plastic suitable for exposure to most solvents.

Typical Applications

- Retains keys and splines. eliminates backlash in worn assemblies.
- Retains bearings in place, prevnting spin out.
- Retains rotor to shafts in fractional and subfractional horsepower motors.
- Retains bushing and sleeves in housings and on shafts.
- Auguments press fits.
- Restores the fit to worn assemblies or out of tolerance parts.

PRODUCT BENEFITS

- Allow the use of slip fits instead of press and interference fits.
- Restores the fit to worn or out of tolerance assemblies.
- Easily joins dissimilar materials.
- Eliminates resizing of bushings due to close-in from pressing.
- Eliminates set screws.
- Prevents fretting and corrosion from occurring by strengthening and completely sealing assemblies.
- Increases the strength of interference fits and mechanical assemblies.

Performance Testing

Each batch of **Cylinlock® 826** is tested to the lot requirements of MIL-R-46082B (Type II), and to the detail requirements of ASTM D5363 (AN0412).

Typical Properties (Uncured)

Property	Value
Chemical Type	Methacrylate ester
Appearance	Green fluorescent liquid
Specific Gravity	1.09
Viscosity @ 25ºC, cP	500 to 700
Flash Point	See MSDS

Typical Properties (Cured)

Property	Value
Coefficient of thermal expansion, ASTM D696, K^{-1}	0.1
Coefficient of thermal conductivity, ASTM C177, W / m°K	0.1
Temperature range, ºC, (ºF)	-55 to 204(-65 to 400)
Max.diametral clearance, mm (in.)	0.18 (0.007)

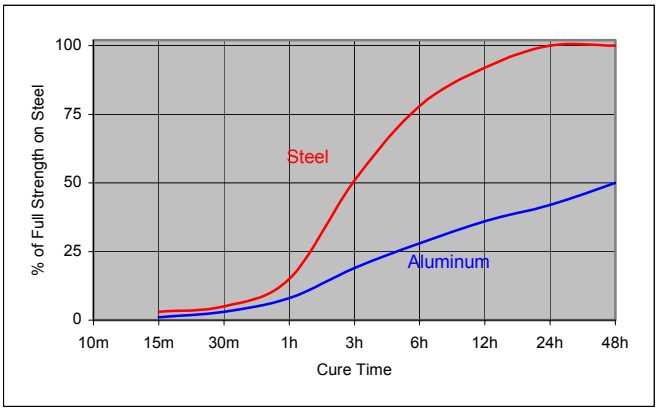
Curing Specifications

Curing occurs when the resin is confined between metallic surfaces. The metal acts as a catalyst for the curing process. On nonmetallic surfaces the use of **Hernon® EF® Primer 49 or 50** or heat is necessary to effect a cure. Hot air oven heat or induction heat will fully cure these compounds.

Typical Curing Performance

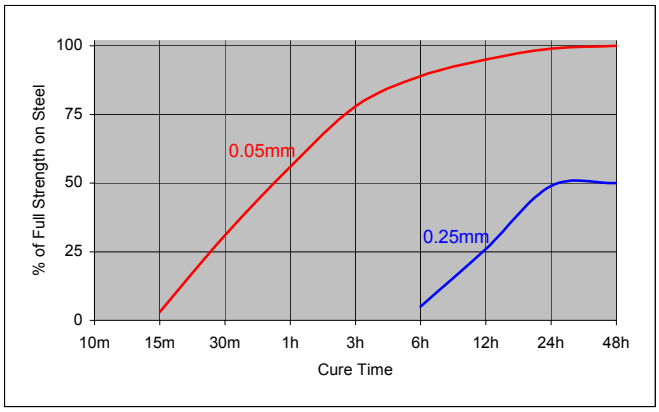
Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The graph below shows shear strength developed with time on steel pins and collars compared to different materials and tested according to ISO 10123.



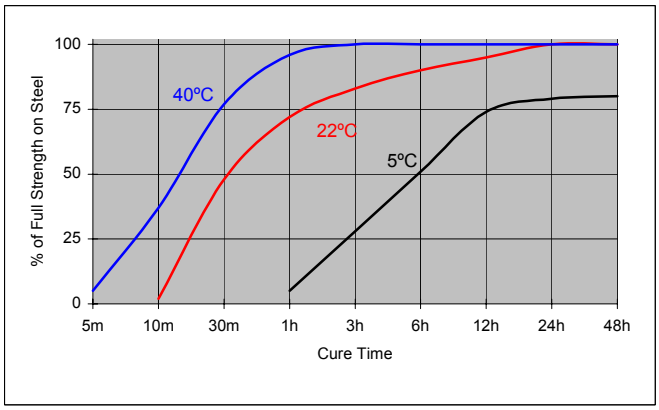
Cure Speed vs. Bond Gap

The rate of cure will depend on the bondline gap. The following graph shows shear strength developed with time on steel pins and collars using **EF® Primer 49** at different controlled gaps and tested according to ISO 10123.



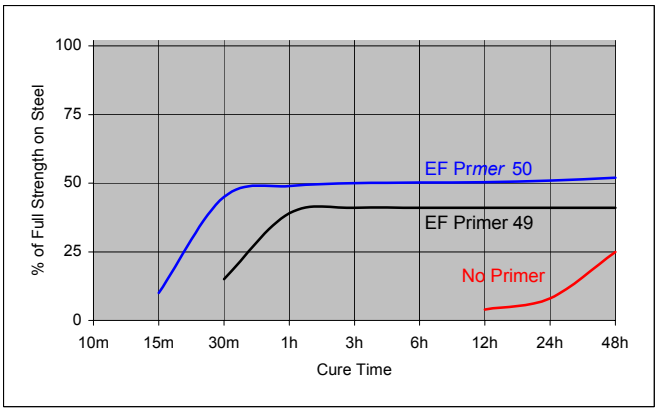
Cure Speed vs. Temperature

The rate of cure will depend on the ambient temperature. The graph shows the shear strength developed with time at different temperatures on steel pins and collars using **EF® Primer 49** and tested according to ISO 10123.



Cure Speed vs. Primer

Where cure speed is unacceptably long, or large gaps are present, applying primer to the surface will improve cure speed. The graph below shows the shear strength developed with time on zinc dichromate steel pins and collars using **EF® Primer 49 or 50** and tested according to ISO 10123.



Typical Cured Performance

Shear Strength, ISO 10123
Steel Pins and Collars

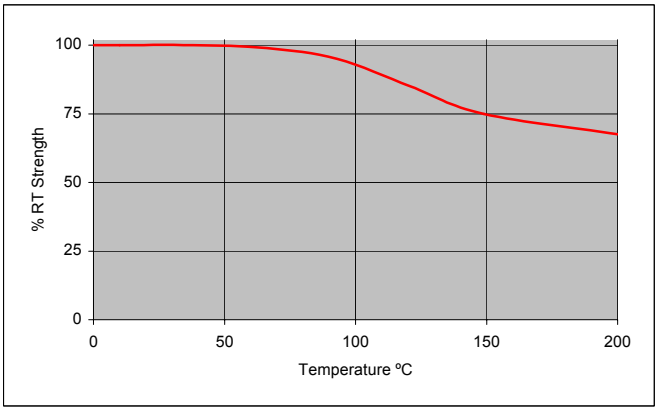
Cure Conditions	Shear Strength, N/mm² (psi)
24 hours at 22ºC	>20.7 (>3000)
1 hour at 93ºC, tested at RT	>24.1 (>3500)

Typical Environmental Resistance

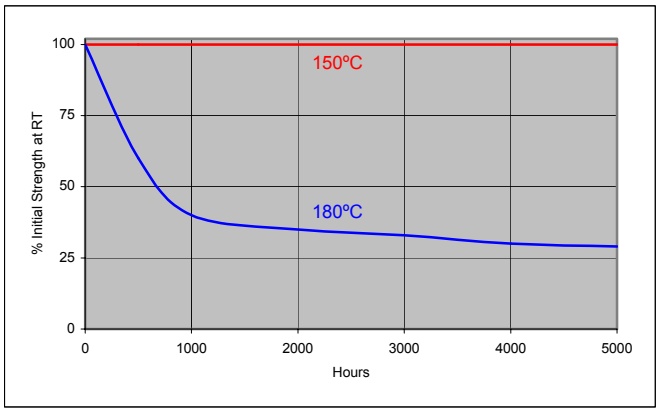
Cured for 1 week @ 22ºC
Shear Strength, ISO 10123
Steel Pins and Collars

Hot Strength

Tested at temperature



Heat Aging
Aged at temperature indicated - Tested at (22ºC).



Chemical/Solvent Resistance
Aged under condition indicated - Tested at 72ºF (22ºC).

	Temp	% of Initial Strength		
Chemical/Solvent	**(ºC)**	**100 h**	**500 h**	**1000 h**
Water Glycol 50/50	87	100	90	75
Brake fluid	22	100	100	100
Ethanol	22	100	100	100
Unleaded Gasoline	22	100	100	100
Leaded Gasoline	22	100	100	100
Motor Oil	125	100	100	100
Acetone	22	100	100	90

General Information

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cue and performance of the adhesive.

This product is not normally recommended for use on plastics (particularly thermoplastic materials where stress cracking of the plastic could result). It is recommended to confirm compatibility of the product with such substrates.

Directions For Use
In using **Cylinlock® 826**, several parameters must be considered:

- **Cleanliness**

Cylinlock® 826 relies upon keying into surfaces as well as chemical adhesion to develop its strength. Cleanliness is very important. If adhesive is applied to an oily or dirty substrate, ultimate strength will low and inconsistent. For best results, clean all surfaces (external and internal) with a **Hernon®** cleaning solvent and allow to dry.

- **Bondline Thickness**

Bondlines of .001" to .002" are ideal. Larger gaps result in lower strength. For large gaps, care must be taken to maintain concentricity. Fixtures are recommended, since the adhesive provides minimal centering action.

- **Surface Finish**

Rougher surfaces generally produce higher strengths. For surface finishes below 20µ inches, cleanliness is extremely important for high strength. Surface finishes above 125µ inches create excessive gaps, which reduce strength. Also tolerances cannot be maintained with rougher finishes. Recommended finish range is 30-80µ inches.

- **Materials to be Bonded**

Cylinlock® 826 cures best on iron and steel surfaces. For maximum strength on nonferrous metallic surfaces, passivated coatings, oxide coatings or for lower temperature or larger gaps, the use of **Hernon® EF® Primer 49 or 50** is recommended.

- **Bond Area**

When the engagment area between two parts exceeds 5 square inches, a size correction factor must be used. This is necessary since with large bond area force is not evenly distributed. The size of correction factor compensates for this uneven loading.

- **Operating Temperature and Differential Thermal Expansion**

At elevated temperatures, all adhesives experience a reduction in strength. If an assembly is to operate at an elevated temperature, heat aging must be accounted for. (Refer to section on Environmental Resistance) If thermal cycling occurs, heat aging data can then be used for accumulating total time at temperature.

Assembly
For Slip Fitted Assemblies, apply adhesive around the leading edge of the pin and the inside of the collar and use a rotating motion during assembly to ensure good coverage.

For Press Fitted Assemblies, apply adhesive thoroughly to both bond surfaces and assemble at high press on rates.

For Shrink Fitted Assemblies the adhesive should be coated onto the pin, the collar should then be heated to create sufficient clearance for free assembly.
Parts should not be disturbed until sufficient handling strength is achieved.

Disassembly and Cleanup
To aid in disassembly anaerobic compounds can be weakened by heating to at least 500ºF (260ºC). Once disassembled, cured adhesive can be removed with **Hernon® Gasket Remover 30**.

Storage
Cylinlock® 826 should be stored in a cool, dry location in unopened containers at a temperature between 46ºF to 82ºF (8ºC to 28ºC) unless otherwise labeled. Optimal storage is at the lower half of this temperature range. To prevent contamination of unused material, do not return any material to its original container.

Dispensing Equipment
Hernon® offers a complete line of semi and fully automated dispensing equipment. Contact **Hernon® Sales** for additional information.