HERNON®
High Performance Adhesives and Sealants
ISO 9001 Registered

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Technical Data Sheet
Nuts N' Bolts® 425

Product Description

Hernon® Nuts N' Bolts® 425 is a single component anaerobic threadlocking material, which is thixotropic and develops medium to high strength. The product cures when confined in the absence of air between close fitting metal surfaces.

Typical Applications

- Prevents loosening and leakage of threaded fasteners.
- Refrigeration hardware.
- Differential case bolts
- Tailroad traction-motor mounting bolts
- Heavy equipment studs
- Grade 5 and Grade 8 high strength bolts

Performance Testing

Each batch of **Nuts N' Bolts® 425** is tested to the lot requirements of MIL-S-46163A (Type II Grade O), and to the detail requirements of ASTM D5363 (AN0331).

Typical Properties (Uncured)

Property	Value
Chemical Type	Dimethacrylate Ester
Appearance	Red Fluorescent Liquid
Viscosity @ 77ºF (25ºC), cP	1200 to 2400
Specific gravity	1.09
Flash point	See SDS

Typical Properties (Cured)

Property	Value
Temperature Range, ºC (ºF)	-55 to 150 (-65 to 300)
Coefficient of thermal conductivity, ASTM C 177, W/(m·K)	0.36
Set Time, Steel, minutes	≤5

Typical Cured Performance

Cured and tested at 22ºC on 3/8 x 16 grade 5 bolts and type 2 nuts according to ASTM D5363.

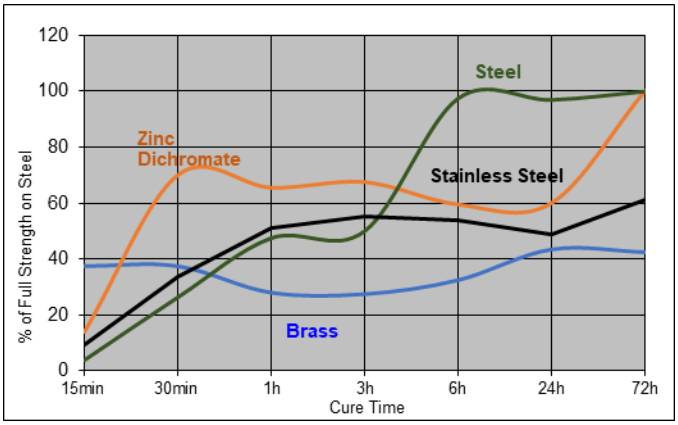
Cure	Substrate	Torque	N•m (in-lb)
60 minutes	Steel	Breakaway	≥ 5.6 (≥50)
		Prevailing	≥5.6 (≥50)
24 hours	Steel	Breakaway	11.3 to 28.2 (100-250)
		Prevailing	11.3-33.9 (100-300)
	Plated	Breakaway	5.6-28.2 (50-250)
		Prevailing	5.6-28.2 (50-250)

Shear Strength
Tested on steel pins and collars according to ISO 10123

Cure Conditioons	N/mm² (psi)
24 Hours at RT	≥ 10.3 (≥ 1500)

Typical Curing Performance

Cure Speed vs. Substrate
The rate of cure will depend on the substrate used. The graph below shows the breakaway strength developed with time on M10 steel nuts and bolts compared to different materials and tested according to ISO 10964.



Qualification of Primers
Torque Strength, ASTM D5363
3/8 x 16 grade 5 bolts and type 2 nuts
Cure Time at 22ºC with **Hernon® Primer 50**
(Grade N)

Prevailing Torque N•m (in-lb)	
Plated Steel	
6 Hours	5.6-16.9 (50-150)
24 Hours	11.3-33.9 (100-300)

Typical Environmental Resistance

Hot Strength

Cured for 24 hours at standard conditions.
Heated to 150°C for 2 hours,
3/8 x 16 grade 5 bolts and type 2 nuts
Tested hot according to ASTM D5363

Substrate	Torque	N•m (in-lb)
Steel	Breakaway	≥5.6 (≥50)
	Prevailing	≥5.6 (≥50)

Heat Aging

Cured for 24 hours at standard conditions.
Aged for 1000 hours at temperature and tested at room temperature, according to ASTM D5363.
3/8 x 16 grade 5 bolts and type 2 nuts

Substrate	Temperature	Torque	N•m (in-lb)
Steel	150°C	Breakaway	≥5.6 (≥50)
		Prevailing	≥5.6 (≥50)

Chemical/Solvent Resistance

Cured for 1 week at 22 ºC,
Aged for 1000 hours under the conditions indicated and tested at 22 ºC,
Breakaway Torque, ISO 10964:
M10 Zinc phosphate steel Nuts and Bolts

Chemical/Solvent	Temperature (ºC)	% of Initial Strength
Motor Oil	125	100
Water:Glycol (50:50)	87	100
Ethanol	22	>100
Acetone	22	>100
Brake Fluid	22	>100
Gasoline	22	>100
DEF	22	>100

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 Safety Data Sheet (SDS).

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 case, 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

For best performance surfaces should be clean and free of grease. **Nuts N' Bolts® 425** should be applied to the bolt in sufficient quantity to fill all engaged threads.

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

Nuts N' Bolts® 425 should be stored in a cool, dry location in unopened containers at a temperature between 45ºF to 85ºF (7ºC to 29ºC) 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.