

Technical Data Sheet Nuts N' Bolts[®] 423

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Product Description

Hernon[®] Nuts N' Bolts[®] 423 is a single component anaerobic thread locking material, which is thixotropic and develops medium strength. The product cures when confined in the absence of air between close fitting metal surfaces and is particularly suitable for less active substrates such as stainless steel and plated surfaces.

Typical Applications

- Prevents loosening and leakage of threaded fasteners.
- Pump and motor mounting bolts.
- Engine rocker nuts
- Equipment housing screws.
- Situations where disassembly with hand tools is required.

Performance Testing

Each batch of **Nuts N' Bolts[®] 423** is tested to the lot requirements of ASTM D5363 (AN0321), and to the detail requirements of MIL-S-46163A (Type II Grade N).

Typical Properties (Uncured)

Property	Value
Chemical Type	Dimethacrylate Ester
Appearance	Blue Fluorescent Liquid
Viscosity @ 77°F (25°C), cP	800-1600
Specific gravity	1.05
Flash point	See SDS

Typical Properties (Cured)

Property	Value
Temperature Range, °C (°F)	-55 to 150 (-65 to 300)
Set Time, Steel, minutes	<20

Typical Cured Performance

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

Cure	Substrate	Torque	N•m (in-lb)
60 Mins.	Steel	Breakaway	≥ 3.9 (≥35)
		Prevailing	≥1.1 (≥10)

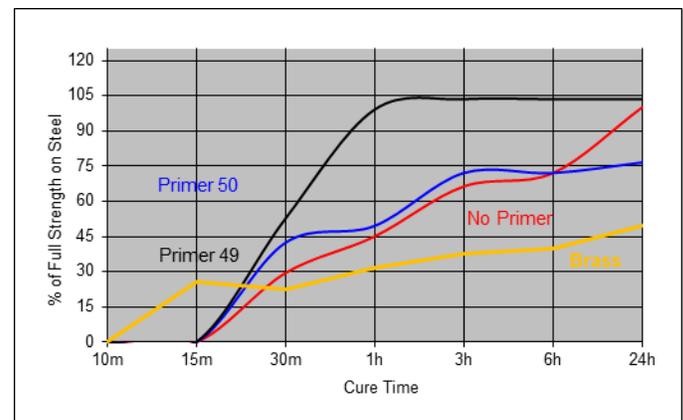
24 Hours.	Steel	Breakaway	7.9 to 22.6 (70 to 200)
		Prevailing	2.3 to 22.6 (20 to 200)
	Plated	Breakaway	1.1 to 22.6 (10 to 200)
		Prevailing	0.6 to 22.6 (5 to 200)
24 Hours	Zinc	Breakaway	≥ 3.9 (≥35)
		Prevailing	≥1.1 (≥10)

Cure	Substrate	Torque	N•m (in-lb)
24 Hours	M10 Zinc phosphate steel nuts and bolts, ISO 10964	Breakaway	≥5.6 (≥50)
		Prevailing	≥1.7 (≥15)

Typical Curing Performance

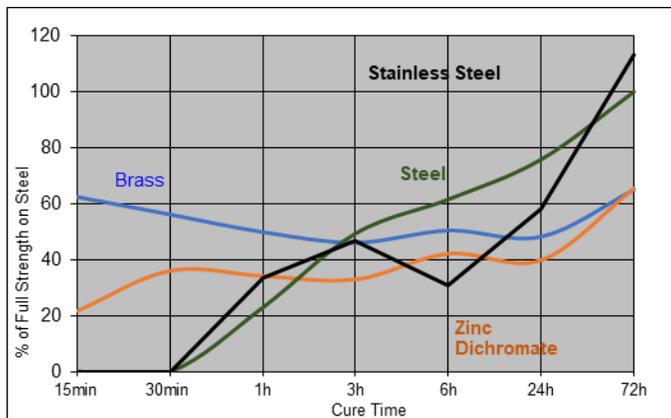
Cure Speed vs. Primer

When cure speed is unacceptably long (because of substrate, temperature or gap), performance may be improved by treating the surface with **Hernon[®] Primer 49 or 50**. The graph below shows breakaway strength developed with time using **Primer 49 and 50** on 3/8 X 16 steel nuts and bolts and other substrates tested.



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.



Chemical/Solvent	Temp (°C)	% of Initial Strength
Motor Oil	125	53
Water:Glycol (50:50)	87	>100
Ethanol	22	51
Acetone	22	62
Brake Fluid	22	>100
Gasoline	22	74
DEF	22	>100

Qualification of Primer

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

Prevailing Torque N•m (in-lb)	
Plated Steel	
6 Hours	0.3 to 11.3 (2.5-100)
24 Hours	0.5 to 22.6 (5-200)

Typical Environmental Resistance

Hot Strength

Cured for 24 hours at standard conditions, heated to 93°C for 2 hours and tested hot according to ASTM D5363. (3/8 x 16 Steel -Grade 2 Nuts and grade 5 Bolts)

Substrate	Torque	N•m (in-lb)
Steel	Breakaway	≥3.9 (≥35)
	Prevailing	≥1.1 (≥10)

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 Steel -Grade 2 Nuts and grade 5 Bolts)

Substrate	Temperature	Torque	N•m (in-lb)
Steel	93°C	Breakaway	≥3.9 (≥35)
		Prevailing	≥5.6 (≥50)
Steel	150°C	Breakaway	≥2.3 (≥20)
		Prevailing	≥5.6 (≥50)

Chemical/Solvent Resistance

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

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

Shake the product thoroughly before use. For best performance surfaces should be clean and free of grease. **Nuts N' Bolts® 423** 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 500°F (260°C). Once disassembled, cured adhesive can be removed with **Hernon® Gasket Remover 30**.

Storage

Nuts N' Bolts® 423 should be stored in a cool, dry location in unopened containers at a temperature between 45°F to 85°F (7°C to 29°C) 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.

These suggestions and data are based on information we believe to be reliable and accurate, but no guarantee of their accuracy is made. HERNON MANUFACTURING, INC. shall not be liable for any damage, loss or injury, direct or consequential arising out of the use or the inability to use the product. In every case, we urge and recommend that purchasers, before using any product in full scale production, make their own tests to determine whether the product is of satisfactory quality and suitability for their operations, and the user assumes all risk and liability whatsoever, in connection therewith. Hernon's Quality Management System for the design and manufacture of high-performance adhesives and sealants is registered to the ISO9001 Quality Standard.