

Technical Data Sheet Nuts N' Bolts[®] 427

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Product Description

Hernon[®] Nuts N' Bolts[®] 427 is a single component anaerobic thread locking material, which develops 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.
- Cylinder liner studs.
- Automotive front-end suspension bolts.
- Hydraulic press studs, where difficult removal is desired.
- Air compressor fasteners
- Refrigeration safety valves

UL Classification – File MH14222

Classified by Underwriters Laboratories Inc.[®] as to fire hazard only. Adhesive/Sealant 427 classed 20 to 30 between kerosene and paraffin oil in respect to fire hazard. Flash point (closed cup) 102.8°C (217°F). For use in devices handling gasoline petroleum oils, natural gas (pressure not over 300 psig), butane and propane not exceeding 2 in. pipe size. 29R9.

Performance Testing

Each batch of **Nuts N' Bolts[®] 427** is tested to the lot requirements of MIL-S-46163A (Type I Grade K), and to the detail requirements of ASTM D5363 (AN0221).

Typical Properties (Uncured)

Property	Value
Chemical Type	Dimethacrylate ester
Appearance	Red fluorescent liquid
Viscosity @ 77°F (25°C), cP	400 to 600
Specific gravity	1.08
Flash point	See SDS

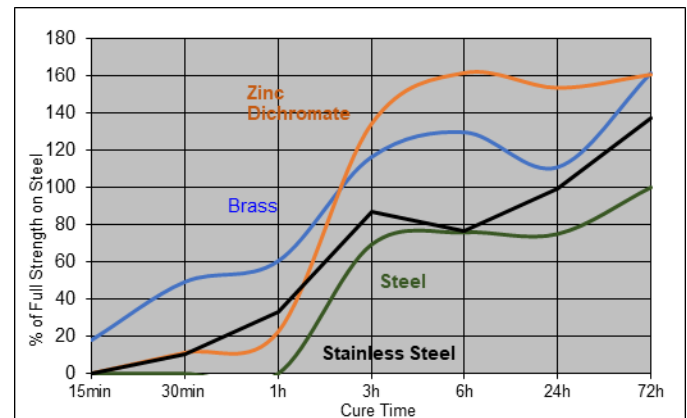
Typical Properties (Cured)

Property	Value
Temperature Range, °F	-65 to 300
Set Time, Steel, minutes	≤20 min

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.



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 _{om} (in-lb)
90 Minutes	Steel	Breakaway	≥8.4 (74)
		Prevailing	≥8.4 (74)
24 Hours	Steel	Breakaway	16.9 to 39.5 (150 to 350)
		Prevailing	16.9 to 56.5 (150 to 500)
	Plated	Breakaway	4.5 to 39.5 (40 to 350)
		Prevailing	4.5 to 56.5 (40 to 500)
24 Hours	Zinc	Breakaway	≥ 6.2 (≥55)
		Prevailing	≥11.3 (≥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 _{om} (in-lb)	
Plated Steel	
6 Hours	2.3 to 28.2 (20-250)
24 Hours	4.5 to 56.5 (40-500)

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 _{em} (in-lb)
Steel	Breakaway	≥8.4 (74)
	Prevailing	≥8.4 (74)

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 _{em} (in-lb)
Steel	150°C	Breakaway	≥8.4 (74)
		Prevailing	≥8.4 (74)

Chemical/Solvent Resistance

Cured for 1 week 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

Chemical/Solvent	Temp (°C)	% of Initial Strength
Motor Oil	125	52
Brake Fluid	22	100
Gasoline	22	100
Water/ Glycol 50/50	87	>100
Ethanol	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 cure 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® 427** 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® 427 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.