



LOCTITE[®] 248

May 2004

PRODUCT DESCRIPTION

LOCTITE[®] 248 provides the following product characteristics:

Technology	Acrylic
Chemical Type	Dimethacrylate ester
Appearance (uncured)	Blue, wax consistency ^{LMS}
Appearance (form)	Stick
Fluorescence	Positive under UV light ^{LMS}
Components	One component - requires no mixing
Cure	Anaerobic
Application	Threadlocking
Strength	Medium

LOCTITE[®] 248 is a medium strength anaerobic threadlocking material. It is supplied as a wax-like semi-solid, conveniently packaged in a self-feeding stick applicator. As with liquid anaerobic products, this material develops its cured properties in the absence of air when confined between close fitting metal surfaces. It achieves consistent strength and can be used on a variety of metal substrates. It is particularly well suited for applications where a liquid product may be too fluid to stay on a part or be difficult to apply. It stores easily and allows for direct contact to a threaded part during application to ensure even coverage.

NSF International

Certified to ANSI/NSF Standard 61 for use in commercial and residential potable water systems not exceeding 82°C.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ °C	1.10
Melting Point, °C	>80
Unworked Penetration, ISO 2137, 1/10 mm	90 to 140 ^{LMS}

Lubricity, K-Factor:

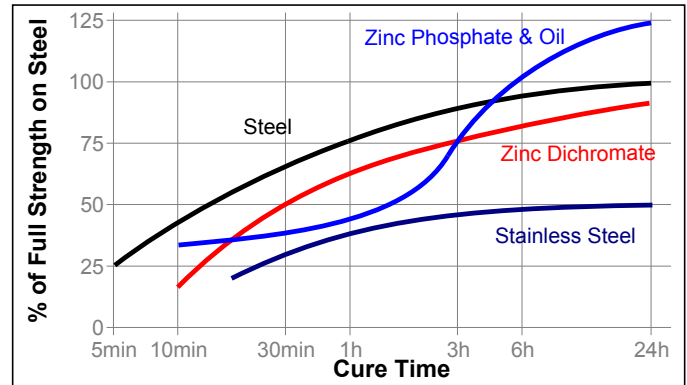
3/8 x 16 zinc phosphate & oil nuts and bolts:	
22.2 kN tension, control (no product)	0.20
22.2 kN tension, with product	0.19
26.7 kN tension, control (no product)	0.20
26.7 kN tension, with product	0.19

(In critical applications, it is necessary to determine the K-Factor independently. Loctite makes no warranty of specific performance on any individual fastener)

TYPICAL CURING PERFORMANCE

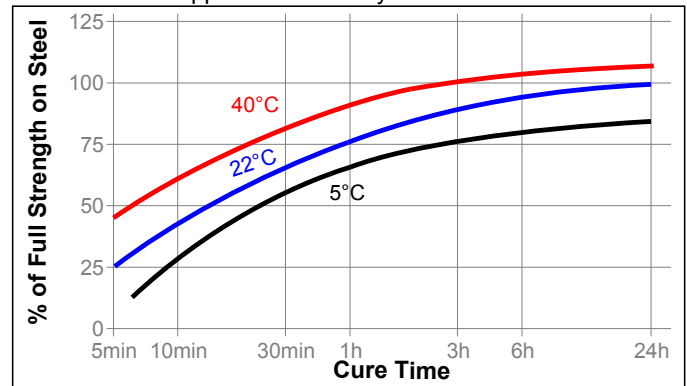
Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The graph below shows the breakloose strength developed with time on 3/8 x 16 degreased steel nuts & bolts compared to different materials and tested according to ISO 10964. All samples pre-torqued to 5 N·m. Product applied to bolts only.



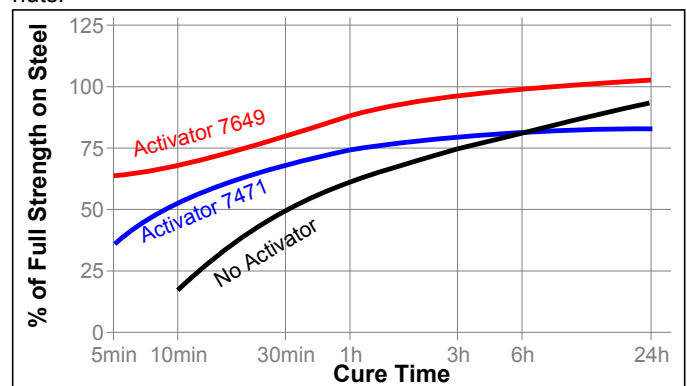
Cure Speed vs. Temperature

The rate of cure will depend on the temperature. The graph below shows the breakloose strength developed with time at different temperatures on 3/8 x 16 degreased steel nuts & bolts and tested according to ISO 10964. All samples pre-torqued to 5 N·m. Product applied to bolts only.



Cure Speed vs. Activator

Where cure speed is unacceptably long due to large gaps, applying activator to the surface may improve cure speed. However, this can reduce ultimate strength of the bond and therefore testing is recommended to confirm effect. The graph below shows the breakloose strength developed with time using Activator 7471 and 7649 on 3/8 x 16 zinc dichromate nuts and bolts and tested according to ISO 10964. All samples pre-torqued to 5 N·m. Product applied to bolts, activator to nuts.



TYPICAL PERFORMANCE OF CURED MATERIAL**Adhesive Properties**

Cured for 1 hour @ 22 °C

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:

3/8 x 16 zinc phosphate & oil nuts and bolts (degreased)	N·m (lb.in.)	5.70 to 28.40 ^{LMS} (50 to 250)
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Cured for 24 hours @ 22 °C

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:

M10 black oxide steel nuts and bolts (degreased)	N·m (lb.in.)	13 to 27 (115 to 240)
3/8 x 16 steel nuts (grade 2) and bolts (grade 5) (degreased)	N·m (lb.in.)	13 to 27 (115 to 240)

TYPICAL ENVIRONMENTAL RESISTANCE

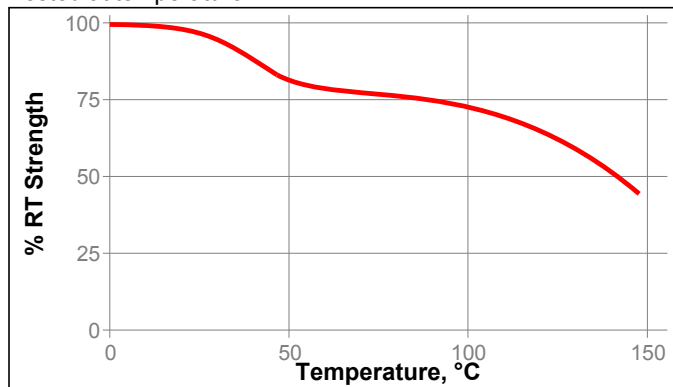
Cured for 72 hours @ 22 °C

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:

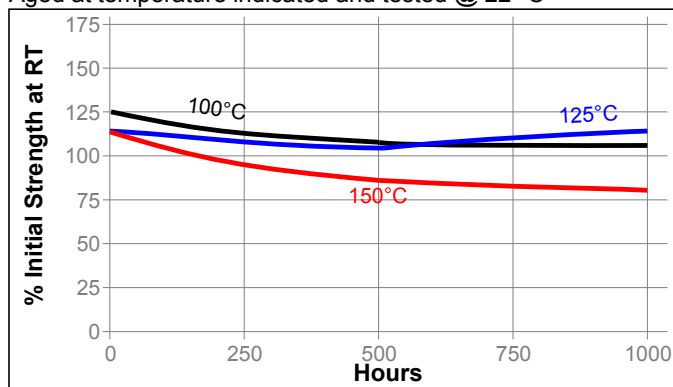
3/8 x 16 zinc phosphate & oil nuts and bolts

Hot Strength

Tested at temperature

**Heat Aging**

Aged at temperature indicated and tested @ 22 °C

**Chemical/Solvent Resistance**

Aged under conditions indicated and tested @ 22 °C.

Environment	°C	% of initial strength	
		500 hr	1000 hr
Motor Oil	125	95	92
Gasoline	22	115	113
Brake fluid	22	118	120
Auto Trans. Fluid	87	115	115
Water Glycol 50/50	87	98	99
Ethanol	22	105	98
Acetone	22	92	105
IPA	22	108	107

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 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). Users are recommended to confirm compatibility of the product with such substrates.

Directions for use**For Assembly**

1. For best results, clean all surfaces (external and internal) with a Loctite cleaning solvent and allow to dry.
2. Advance only enough stick product to use at the time of application.
3. Remove any skin that may have formed on the top of the stick.
4. Apply sufficient product to fill the threads in the area where the nut will be engaged on the bolt.
5. Recap product after use.
6. Assemble and tighten as required.

For Disassembly

1. Remove with standard hand tools.
2. In rare instances where hand tools do not work because of excessive engagement length, apply localized heat to nut or bolt to approximately 250 °C. Disassemble while hot.

For Cleanup

1. Cured product can be removed with a combination of soaking in a Loctite solvent and mechanical abrasion such as a wire brush.

Loctite Material Specification^{LMS}

LMS dated May 06, 2003. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Loctite Quality.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$

$\text{kV/mm} \times 25.4 = \text{V/mil}$

$\text{mm} / 25.4 = \text{inches}$

$\text{N} \times 0.225 = \text{lb}$

$\text{N/mm} \times 5.71 = \text{lb/in}$

$\text{N/mm}^2 \times 145 = \text{psi}$

$\text{MPa} \times 145 = \text{psi}$

$\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$

$\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$

$\text{mPa}\cdot\text{s} = \text{cP}$

Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage

LOCTITE is a trademark of Henkel Corporation

Reference 1