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LOCTITE

Technical Data Sheet

LOCTITE® 290™

February 2022

PRODUCT DESCRIPTION

LOCTITE® 290™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Dimethacrylate ester
Appearance (uncured)	Green liquid
Fluorescence	Positive under UV light
Components	One component - requires no mixing
Viscosity	Low
Cure	Anaerobic
Secondary Cure	Activator
Application	Threadlocking
Strength	Medium to High

LOCTITE® 290™ is designed for the locking and sealing of threaded fasteners. Because of its low viscosity and capillary action, the product wicks between engaged threads and eliminates the need to disassemble prior to application. The product cures when confined in the absence of air between close fitting metal surfaces and prevents loosening and leakage from shock and vibration. The product can also fill porosity in welds, castings and powdered metal parts.

Mil-S-46163A

LOCTITE® 290™ is tested to the lot requirements of Military Specification Mil-S-46163A. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

ASTM D5363

Each lot of adhesive produced in North America is tested to the general requirements defined in paragraphs 5.1.1 and 5.1.2 and to the Detail Requirements defined in section 5.2.

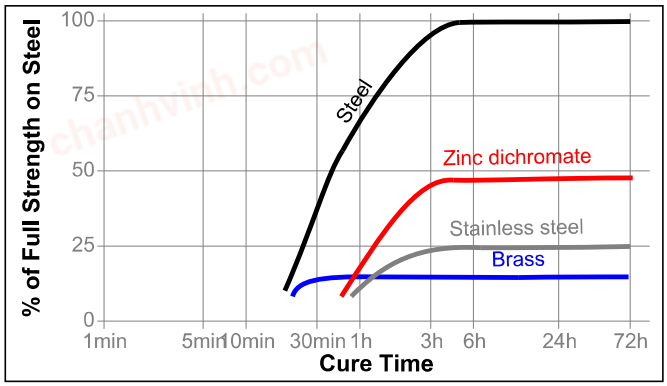
TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.08
Flash Point - See SDS	
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 1, speed 50 rpm	20 to 55

TYPICAL CURING PERFORMANCE

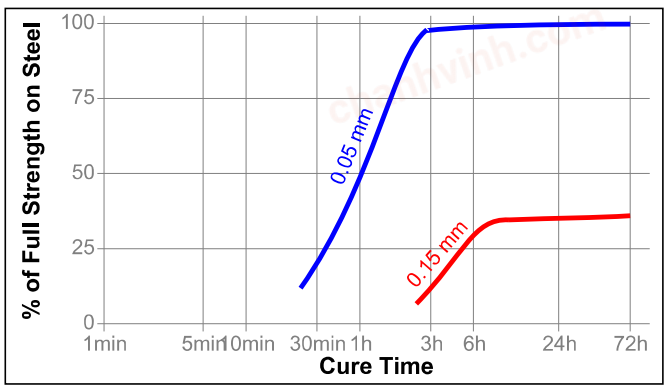
Cure Speed vs. Substrate

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.



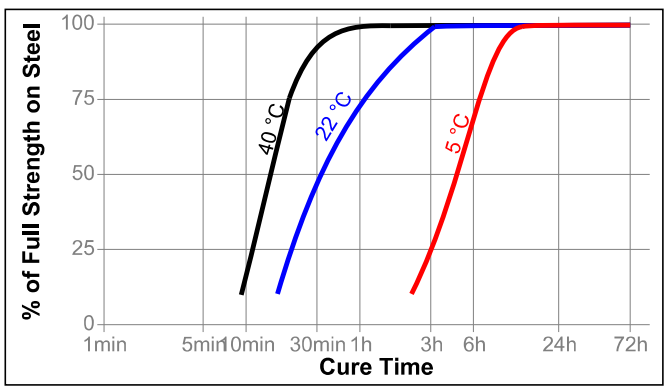
Cure Speed vs. Bond Gap

The rate of cure will depend on the bondline gap. Gaps in threaded fasteners depends on thread type, quality and size. The following graph shows shear strength developed with time on steel pins and collars at different controlled gaps and tested according to ISO 10123.



Cure Speed vs. Temperature

The rate of cure will depend on the temperature. The graph below shows the breakaway strength developed with time at different temperatures on M10 steel nuts and bolts and tested according to ISO 10964.



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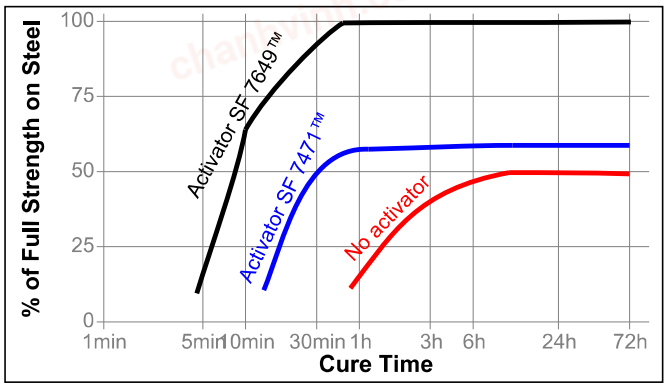
Cure Speed vs. Activator

Where cure speed is unacceptably long, or large gaps are present, applying activator to the surface will improve cure speed. The graph below shows the breakaway strength developed with time on M10 zinc dichromate steel nuts and bolts using Activator SF 7471™ or SF 7649™ and tested according to ISO 10964.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}	80×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.1
Specific Heat, kJ/(kg·K)	0.3

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

After 24 hours @ 22 °C

Breakaway Torque, ISO 10964:

M10 steel nuts and bolts	N·m	10
	(lb.in)	(90)

Prevail Torque, ISO 10964:

M10 steel nuts and bolts	N·m	29
	(lb.in)	(260)

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

M10 steel nuts and bolts	N·m	30
	(lb.in)	(270)

Max. Prevail Torque, ISO 10964, Pre-torqued to 5 N·m:

M10 steel nuts and bolts	N·m	40
	(lb.in)	(350)

Compressive Shear Strength, ISO 10123:

Steel pins and collars	N/mm^2	≥5.4
	(psi)	(≥780)

TYPICAL ENVIRONMENTAL RESISTANCE

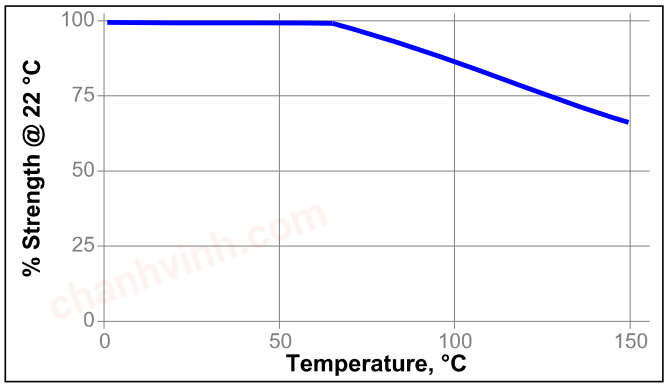
Cured for 1 week @ 22 °C

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

M10 zinc phosphate steel nuts and bolts:

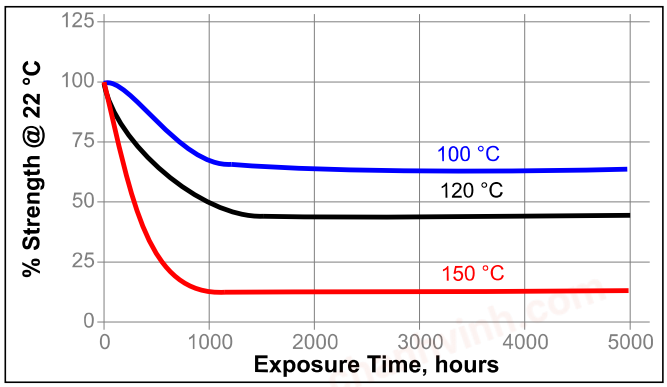
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested @ 23 °C



Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 23°C

		% of initial strength			
Environment	**°C**	**100 h**	**500 h**	**1000 h**	**5000 h**
Motor oil (MIL-L-46152)	125	85	85	50	50
Leaded Petrol	22	90	90	90	90
Brake fluid	22	90	90	85	85
Water/glycol 50/50	87	90	90	90	90
Acetone	22	85	85	85	85
Ethanol	22	80	80	80	80
DEF (AdBlue®)	22		110	110	135

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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 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 Pre-assembled Threaded Parts with Thru Holes

1. Prior to assembly, clean all threads (bolt and hole) with a LOCTITE® cleaning solvent and allow to dry.
2. **For Thru Holes**, apply several drops of product at screw and body juncture.
3. Avoid touching the bottle tip to the metal surface.

For Assembly

1. **For Blind Holes**, apply several drops of the product down the internal threads to the bottom of the hole

For Porosity Sealing

1. Clean area and apply localized heat to the area to approximately 121°C.
2. Allow to cool to approximately 85°C and apply the product.

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.

Clean-up

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

Not for product specifications

The technical data contained herein are intended as reference only and are not considered specifications for the product.
Product specifications are located on the Certificate of Analysis or please contact Henkel representative.

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 Henkel representative.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Disclaimer

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