LOCTITE® 2015™

May 2006

PRODUCT DESCRIPTION

LOCTITE® 2015™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Dimethacrylate
Appearance	Soft dry orange, pre-applied film
Components	One component - requires no mixing
Cure	Anaerobic
Application	Threadlocking

LOCTITE® 2015™ is a pre-applied threadlocker with good hot strength, heat aging and solvent resistance on threaded parts. The product has good lubricating properties maintaining low torque tension ratios similar to received (oiled) parts. The pre-applied film is dry-to-the-touch and remains an inert coating until assembly. During assembly microcapsules, which are contained within the coating, are crushed thereby releasing an active ingredient which initiates the curing process. LOCTITE® 2015™ prevents loosening of threaded fasteners. Particularly suitable in situations where threaded parts are required to be ready for immediate use in an adhesive joint and a high volume production environment where it may not be possible to use a liquid product. When cured, this product will also act as a thread sealant.

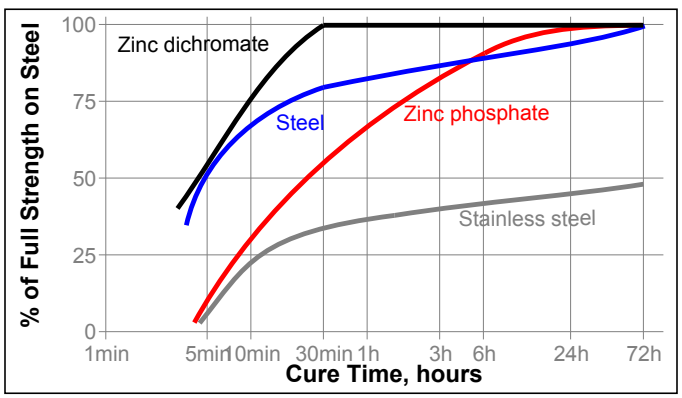
TYPICAL PROPERTIES OF UNCURED MATERIAL

Flash Point - See MSDS

TYPICAL CURING PERFORMANCE

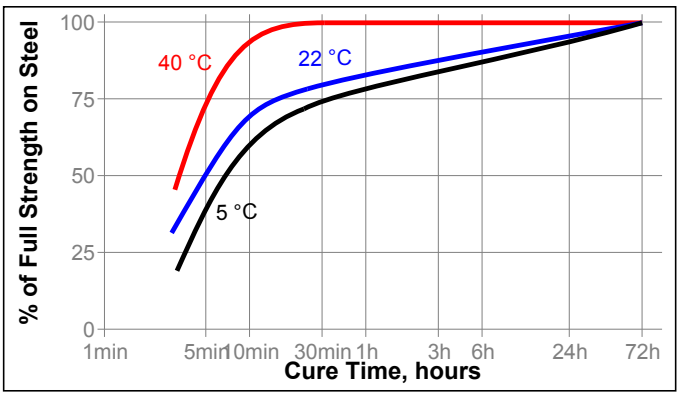
Cure Speed vs. Substrate

This product develops functional strength within 1 hour on all metal substrates. 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. Temperature

The rate of cure will depend on the ambient 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.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}	1×10^{-4}
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

Cured for 24 hours @ 22 °C

Breakaway Torque, ISO 10964:		
M10 black oxide bolts and mild steel nuts	N·m (lb.in.)	≥8[LMS] (≥70.8)
Breakaway Torque, ISO 10964:		
M10 X 1.5 steel bolts	N·m (lb.in.)	8 to 16 (70 to 140)
Prevail Torque, ISO 10964:		
M10 X 1.5 steel bolts	N·m (lb.in.)	2 to 6 (20 to 50)
Breakaway Torque, DIN 267-27:		
M10 X 1.25 zinc plated nuts & bolts	N·m (lb.in.)	5 to 21 (40 to 190)
Breakloose Torque, DIN 267-27:		
M10 X 1.25 zinc plated nuts & bolts	N·m (lb.in.)	1 to 5 (8 to 40)

Cured for 24 hours @ 22 °C followed by 2 hours @ 150 °C, tested @ 150 °C

Breakaway Torque, ISO 10964:		
M10 black oxide bolts and mild steel nuts	N·m (lb.in.)	≥4[LMS] (≥35.4)

TYPICAL ENVIRONMENTAL RESISTANCE

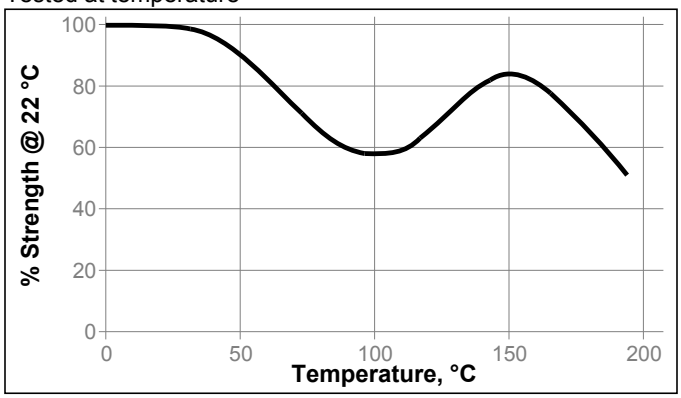
Cured for 72 hours @ 22 °C

Breakaway Torque, ISO 10964:

M10 steel nuts and bolts

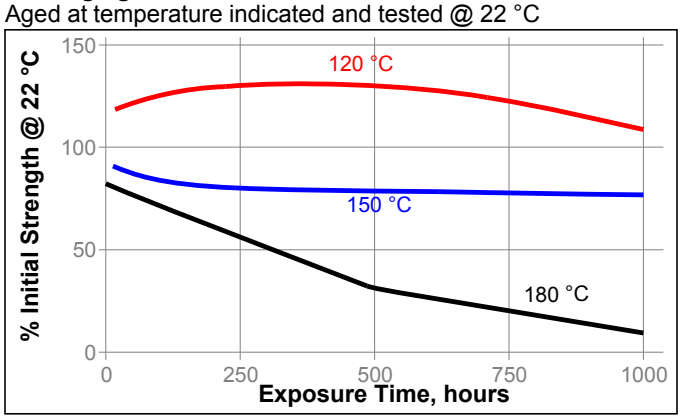
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested @ 22 °C



Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22°C.

Breakaway Torque, DIN 267-27:

M10 X 1.25 zinc plated nuts & bolts

		% of initial strength		
Environment	**°C**	**168 h**	**500 h**	**1000 h**
Motor oil (15W-50)	120	145	125	140
Unleaded gasoline	22	125	145	135
Brake fluid	90	165	185	185
Water/glycol 50/50	90	150	180	175
Transmission fluid	120	150	145	145
Gear oil 85W/140	120	140	130	140

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).

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

1. This coating is produced from an aqueous three component system consisting of two liquid binders and microencapsulated chemical initiators. Usually these components are mixed in specific ratios, applied to fasteners and dried at an elevated temperature. Guidelines on recommended mixing and drying conditions are available from your local Technical Service Center.
2. The coated fastener is ready for immediate use and can be assembled to its mating threaded component at any time within its on-part shelf life period.
3. For best performance the mating surface should be clean and free of grease.
4. Product is normally pre-applied to the bolt in sufficient quantity to fill all engaged threads. Very large thread sizes may create gaps which will affect performance.
5. After assembly and cure a fastener coated with LOCTITE® 2015™ should not be re-used if the joint is disassembled. In the case of disassembly a fastener coated with LOCTITE® 2015™ or a liquid threadlocker of similar performance should be used.

Loctite Material Specification[LMS]

LMS dated October 21, 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 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
(°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/mm^2 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

Note
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Reference 1.0