



# LOCTITE<sup>®</sup> 2020™

June 2006

## PRODUCT DESCRIPTION

LOCTITE<sup>®</sup> 2020™ provides the following product characteristics:

<b>Technology</b>	Acrylic
<b>Chemical Type</b>	Methacrylate ester
<b>Appearance (uncured)</b>	Purple homogeneous liquid <sup>LMS</sup>
<b>Appearance (pre-applied)</b>	Soft dry purple, pre-applied film
<b>Components</b>	One component - requires no mixing
<b>Cure</b>	Anaerobic
<b>Application</b>	Threadlocking
<b>Strength</b>	Low

LOCTITE<sup>®</sup> 2020™ is a low strength, water-based, pre-applied adhesive/sealant coating for threaded fasteners and fittings. As a pre-applied film, the product is dry-to-the-touch and remains an inert coating until assembly. During assembly of the fitting/fastener, a microencapsulated activator is released, initiating the curing process. The coating fills all the voids in the threads and cures to securely lock and seal the assembly. The product can be applied using automatic or semi-automatic equipment. LOCTITE<sup>®</sup> 2020™ is designed for sealing brass fittings against a range of typical fluids such as motor oils and water/glycol solutions.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.18
pH @ 25 °C	7.5 to 9.0 <sup>LMS</sup>
Flash Point - See MSDS	
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 6, speed 2.5 rpm	70,000 to 228,000 <sup>LMS</sup>
Spindle 6, speed 20 rpm	22,000

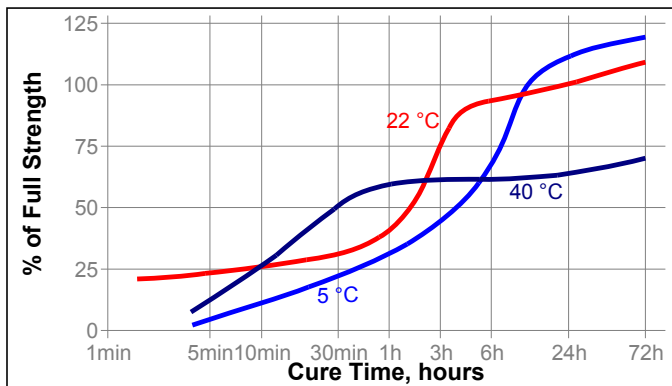
## TYPICAL PROPERTIES OF PRE-APPLIED MATERIAL

On Part Life, years	4
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## TYPICAL CURING PERFORMANCE

### 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 brass bolts and degreased steel nuts and tested according to ISO 4587.



## TYPICAL PERFORMANCE OF CURED MATERIAL

### Adhesive Properties

Cured for 24 hours @ 22 °C

Breakaway Torque, ISO 10964: M10 brass bolts and steel nuts	N·m (lb.in.)	7.9 (70)
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Prevail Torque, ISO 10964:

M10 brass bolts and steel nuts	N·m (lb.in.)	1.1 (10)
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Cured for 72 hours @ 22 °C

On - Torque, ISO 10964: M10 brass bolts and degreased steel nuts	N·m (lb.in.)	≤3 <sup>LMS</sup> (≤26.5)
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Breakaway Torque, ISO 10964:

M10 brass bolts and degreased steel nuts	N·m (lb.in.)	≥2 <sup>LMS</sup> (≥17.7)
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Prevail Torque, ISO 10964:

M10 brass bolts and degreased steel nuts	N·m (lb.in.)	≥1 <sup>LMS</sup> (≥8.8)
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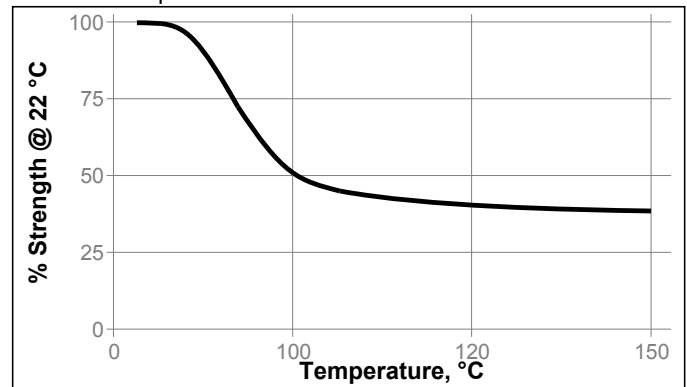
## TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 72 hours @ 22 °C

Breakaway Torque, ISO 10964: M10 brass bolts and degreased steel nuts	
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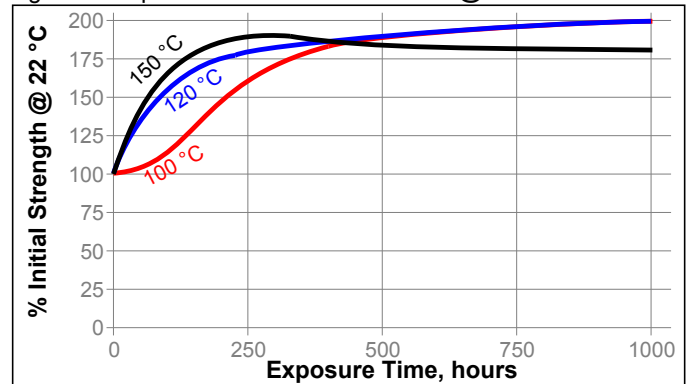
## Hot Strength

Tested at temperature



## Heat Aging

Aged at temperature indicated and tested @ 22 °C



**Chemical/Solvent Resistance**

Aged for 30 days at temperatures indicated and tested @ 22°C.

Leak test, Navistar D-31:

3/8 - 18 brass pipe tees and brass plugs

<u>Solvent</u>	<u>Temperature</u>	<u>Result</u>
Motor oil	120 °C	No Leaks
Water/glycol (50/50)	100 °C	No Leaks
Diesel fuel	22 °C	No Leaks
Transmission fluid	120 °C	No Leaks
Power steering fluid	120 °C	No Leaks

**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**

1. This coating is produced from an aqueous two component system consisting of a liquid binder 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® 2020™ should not be re-used if the joint is disassembled. In the case of disassembly a fastener coated with LOCTITE® 2020™ or a liquid threadlocker of similar performance should be used.

**Loctite Material Specification<sup>LMS</sup>**

LMS dated August 14, 1998. 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**

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$   
 $\text{kV/mm} \times 25.4 = \text{V/mil}$   
 $\text{mm} / 25.4 = \text{inches}$   
 $\mu\text{m} / 25.4 = \text{mil}$   
 $\text{N} \times 0.225 = \text{lb}$   
 $\text{N/mm} \times 5.71 = \text{lb/in}$   
 $\text{N/mm}^2 \times 145 = \text{psi}$   
 $\text{MPa} \times 145 = \text{psi}$   
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$   
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$   
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$   
 $\text{mPa}\cdot\text{s} = \text{cP}$

**Note**

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Reference 1.0