

## LOCTITE® 561

December 2013

### PRODUCT DESCRIPTION

LOCTITE® 561 provides the following product characteristics:

|                             |                                           |
|-----------------------------|-------------------------------------------|
| <b>Technology</b>           | Acrylic                                   |
| <b>Chemical Type</b>        | Methacrylate ester                        |
| <b>Appearance (uncured)</b> | Off-white, wax consistency <sup>LMS</sup> |
| <b>Appearance (form)</b>    | Stick                                     |
| <b>Fluorescence</b>         | Positive under UV light <sup>LMS</sup>    |
| <b>Components</b>           | One component - requires no mixing        |
| <b>Cure</b>                 | Anaerobic                                 |
| <b>Application</b>          | Thread sealing                            |
| <b>Strength</b>             | Low                                       |

LOCTITE® 561 is designed for the locking and sealing of pre-torqued metal pipes and fittings. It is supplied in a self-feeding applicator stick that facilitates application of the material where a conventional liquid or paste product would be difficult to use. The product cures when confined in the absence of air between close fitting metal surfaces and prevents loosening and leakage from shock and vibration. This industrial grade sealant develops controlled low strength to facilitate disassembly. This product also fluoresces for easy coverage inspection.

### NSF International

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

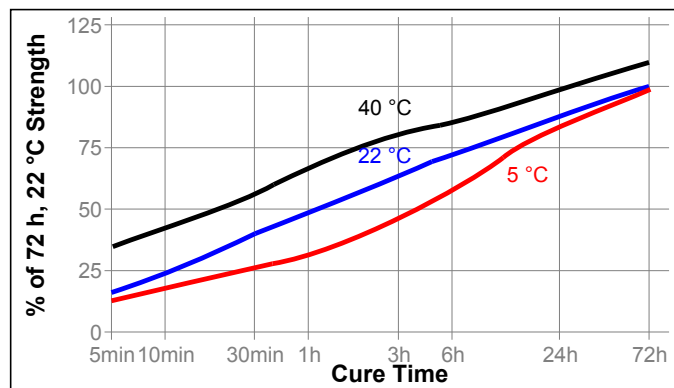
### TYPICAL PROPERTIES OF UNCURED MATERIAL

|                                         |                          |
|-----------------------------------------|--------------------------|
| Specific Gravity @ 25 °C                | 1.14                     |
| Unworked Penetration, ISO 2137, 1/10 mm | 80 to 140 <sup>LMS</sup> |
| Melting Point, °C                       | >80                      |

### TYPICAL CURING PERFORMANCE

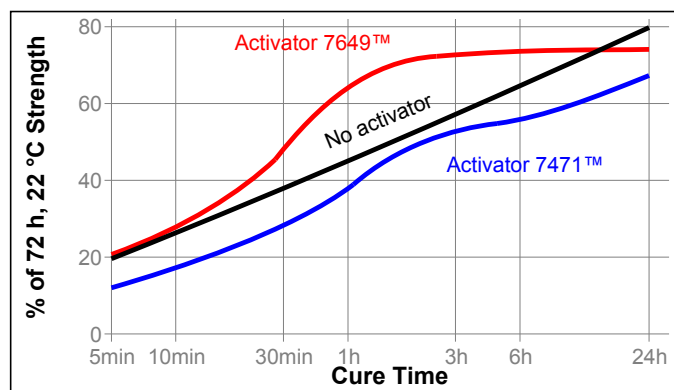
#### Cure Speed vs. Temperature

The rate of cure will depend on the temperature. The graph below shows the breakloose strength developed with time at different temperatures on degreased 3/8 malleable iron pipe tees and steel plugs. All samples pretorqued to 27 N·m and tested to ASTM D 6396.



#### 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 breakaway strength developed with time using Activator 7471™ and 7649™ on degreased 3/8 malleable iron pipe tees and steel plugs. All samples pretorqued to 27 N·m and tested to ASTM D 6396. Activator applied to pipe tee only.



**TYPICAL PERFORMANCE OF CURED MATERIAL****Adhesive Properties**

After 72 hours @ 22 °C:

Breakloose Torque, ASTM D 6396, Pre-torqued to 27 N·m:  
 3/8 malleable iron pipe tees      N·m      30 to 50  
 and steel pipe plugs              (lb.in.)    (265 to 440)  
 (degreased)

After 24 hours @ 22 °C:

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:  
 3/8 x 16 steel nuts (grade      N·m      7 to 10  
 2) and bolts (grade 5)          (lb.in.)    (60 to 90)  
 (degreased)

After 4 hours @ 22 °C:

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:  
 3/8 x 16 zinc phosphate &      N·m      5<sup>LMS</sup>  
 oil nuts and bolts (degreased)    (lb.in.)    (44)

**High Pressure Resistance**

LOCTITE® 561 was successfully tested for pressure resistance and sealability to 69 MPa. 3/8" degreased stainless steel high pressure NPT fittings were assembled and torqued to 102 N·m and allowed to cure for 72 hours prior to testing at 69 MPa according to ASTM D 1599.

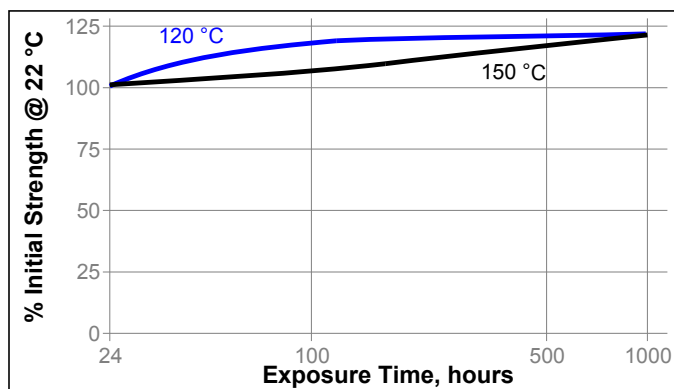
**TYPICAL ENVIRONMENTAL RESISTANCE**

Cured for 72 hours @ 22 °C

Breakloose Torque, ISO 10964, Pre-torqued to 27 N·m:  
 3/8 malleable iron pipe tees and steel plugs  
 (degreased)

**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 h                 | 1000 h |
| Motor oil (MIL-L-46152) | 125 | 131                   | 143    |
| Unleaded gasoline       | 22  | 100                   | 100    |
| Brake fluid             | 22  | 102                   | 103    |
| Transmission fluid      | 87  | 127                   | 133    |
| Water/glycol 50/50      | 87  | 122                   | 122    |
| Ethanol                 | 22  | 95                    | 91     |
| Acetone                 | 22  | 90                    | 87     |
| Isopropanol             | 22  | 103                   | 100    |
| DEF (AdBlue®)           | 22  | 120                   | 110    |

**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 Assembly**

1. For best results, clean all surfaces (external and internal) with a LOCTITE® cleaning solvent and allow to dry.
2. Advance only enough 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 male and female threads will be engaged.
5. Recap product after use.
6. Using compliant practices, assemble and wrench tighten fittings in accordance with manufacturers recommendations.

**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.

**NOTE:**

For maximum pressure and solvent resistance, allow at least 24 hours for product to fully cure before filling and pressurising the system

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

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 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:**

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

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Reference 0.1