

LOCTITE® 5452™

December 2013

PRODUCT DESCRIPTION

LOCTITE® 5452™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Methacrylate ester
Appearance (uncured)	Purple liquid ^{LMS}
Components	One component - requires no mixing
Viscosity	Medium
Cure	Anaerobic
Secondary Cure	Activator
Application	Thread sealing

LOCTITE® 5452™ is designed for threaded fittings commonly found in hydraulic and pneumatic systems. The thixotropic nature makes LOCTITE® 5452™ suitable for large diameter pipes. This material is useful with dry seal fittings such as O-Ring boss style connectors, by preventing the rotation that ultimately leads to leakage. LOCTITE® 5452™ can be used as a sealant on mating surfaces of flare style fittings to seal scratches and surface imperfections. It contains no fillers or particles that can interfere with a hydraulic system.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C 1.15

Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):
Spindle 6, speed 20 rpm, 15,000 to 40,000^{LMS}

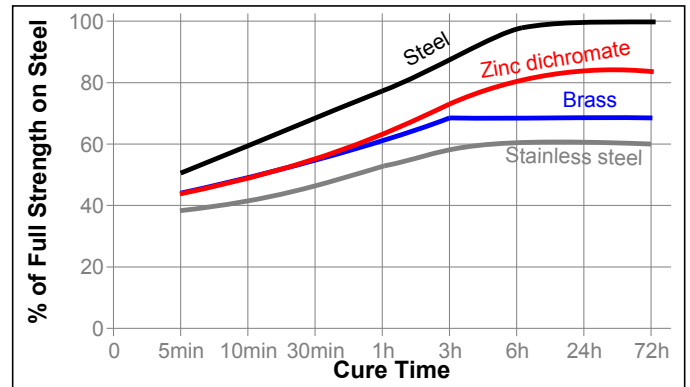
Viscosity, Cone & Plate, 25 °C, mPa·s (cP):
Physica MK22, Cone CP50-1, shear rate 20 s⁻¹ 2,500 to 6,500^{LMS}

Flash Point - See SDS

TYPICAL CURING PERFORMANCE

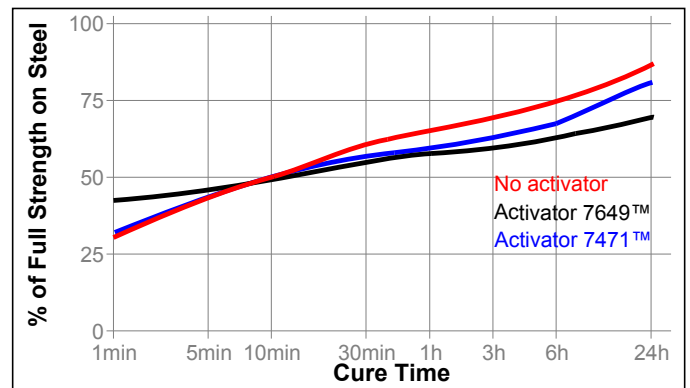
Cure Speed vs. Substrate

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 steel nuts & bolts compared to different materials and tested according to ISO 10964, pretorqued to 5 N·m.



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 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, pretorqued to 5 N·m.



TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

After 1 hour @ 22 °C

Breakaway Torque, ISO 10964, Unseated:

3/8 x 16 steel nuts and bolts (degreased)	N·m	0.9
	(lb.in.)	(8)

After 24 hours @ 22 °C

Compressive Shear Strength, ISO 10123: Steel pins and collars (degreased)	N/mm ² (psi)	≥1.7 ^{LMS} (≥246)
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Breakaway Torque, ISO 10964, Unseated: 3/8 x 16 steel nuts and bolts (degreased)	N·m (lb.in.)	3.5 (31)
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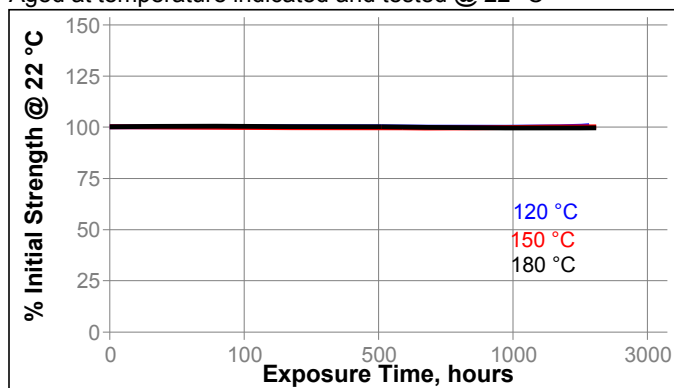
TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 1 week @ 22 °C

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:
3/8 x 16 zinc phosphate nuts and bolts

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		
		100 h	500 h	1000 h
Motor oil	125	100	100	100
Unleaded gasoline	22	100	100	100
Brake fluid	22	100	100	100
Ethanol	87	100	100	100
Acetone	22	85	85	85
E85 Ethanol fuel	22	N/A	80	100
B100 Bio-Diesel	22	N/A	95	90
DEF (AdBlue®)	22		80	75

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

- For best results, clean all surfaces (external and internal) with a LOCTITE® cleaning solvent and allow to dry.
- If quicker service time is required, use Activator 7471™ or 7649™ prior to application of sealant and allow to dry.
- For NPT or other taper joint fittings apply a 360° band of sealant to leading threads of the male fitting. For larger threads and gaps, adjust the volume of sealant accordingly.
- For ORB & O-Ring Fittings apply a 360° band of sealant to the threads for the male fitting. Ensure product is applied into roots of the threads and adequate coverage.
- For JIC Fittings coat the face of the male JIC with the sealant. This is applicable for new and damaged fittings. Also apply to threads for vibration resistance.

For Disassembly

- Remove with standard hand tools.
- Where hand tools do not work because of excessive engagement length or large diameters (over 25 mm), apply localized heat to approximately 250 °C. Disassemble while hot.

For Cleanup

- Cured product is most easily removed with mechanical abrasion such as a wire brush and wiped clean with a cotton cloth.
- Fittings if mechanically acceptable can normally be reused once cleaned.

Loctite Material Specification^{LMS}

LMS dated October 17, 2008. 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 0.2