



LOCTITE® 5699™

November 2004

PRODUCT DESCRIPTION

LOCTITE® 5699™ provides the following product characteristics:

Technology	Silicone
Chemical Type	Oxime silicone
Appearance (uncured)	Grey paste ^{LMS}
Components	One component - requires no mixing
Thixotropic	Reduced migration of liquid product after application to substrate
Cure	Room temperature vulcanizing (RTV)
Application	Sealing
Specific Benefit	Non-corrosive

LOCTITE® 5699™ is designed primarily for flange sealing with excellent oil resistance on rigid flange sealing for example on transmissions and cast metal housings.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 20 °C	1.45
Flash Point - See MSDS	
Extrusion Rate, g/min:	
Pressure 0.62 MPa, time 15 seconds, temperature 25 °C:	
Semco Cartridge	≥200 ^{LMS}

TYPICAL CURING PERFORMANCE

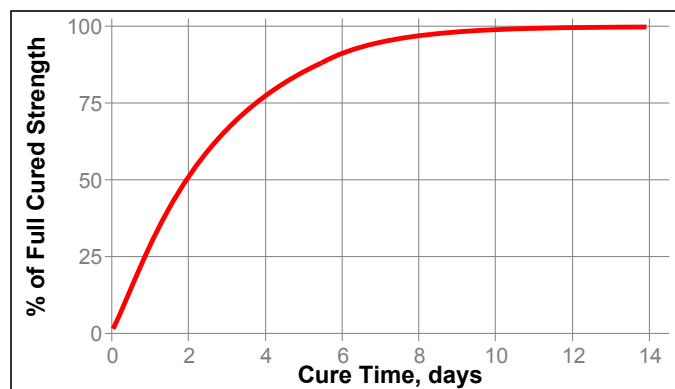
Surface Cure

Tack Free Time is the time required to achieve a tack free surface.

Tack Free Time, minutes:	
Cured @ 25 °C / 50±5% RH	≤30 ^{LMS}

Cure Speed

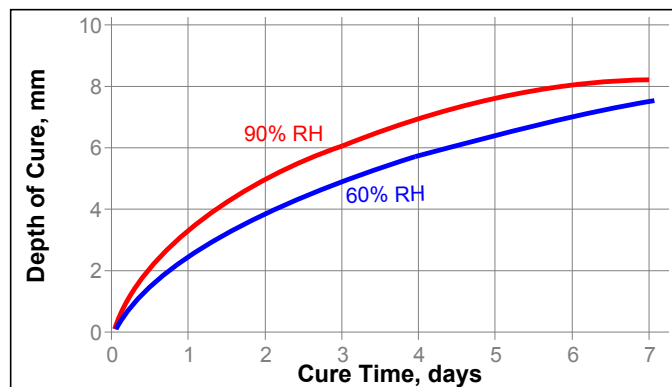
The graph below shows shear strength developed with time on grit blasted mild steel lapshears at a bond gap of 0.5mm. Cure condition 23±2 °C, 60±5% RH. Strength is determined according to ISO 4587



Depth of Cure

The depth of cure depends on temperature and humidity. Depth of cure was measured on strip pulled from a ramped PTFE mold (maximum depth 10mm).

The graph below shows the increase in depth of cure with time at 23°C with increase in humidity.



TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 1 week @ 25 °C / 50±5% RH

Physical Properties:

Shore Hardness, ASTM D 2240, Durometer A	45 to 75 ^{LMS}
Elongation, ASTM D 412, %	≥100 ^{LMS}
Tensile Strength, ASTM D 412	N/mm² ≥2.4 ^{LMS} (psi) (≥348)

Electrical Properties:

Surface Resistivity, IEC 60093, Ω	2×10 ¹⁵
Volume Resistivity, IEC 60093, Ω·cm	2×10 ¹⁵
Dielectric Constant / Dissipation Factor, IEC 60250:	
100Hz	2.8
10 kHz	4.0
10 MHz	4.1

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

After 14 days @ 23 °C / 60±5% RH and 0.5 mm gap

Lap Shear Strength, ISO 4587:

Aluminum	N/mm² 0.1 to 0.7 (psi) (15 to 102)
Zinc dichromate	N/mm² 0.7 to 1.5 (psi) (102 to 213)
Mild steel (grit blasted)	N/mm² 1.3 to 2.1 (psi) (189 to 305)
Aluminum (abraded)	N/mm² 1.3 to 2.0 (psi) (189 to 290)

TYPICAL ENVIRONMENTAL RESISTANCE

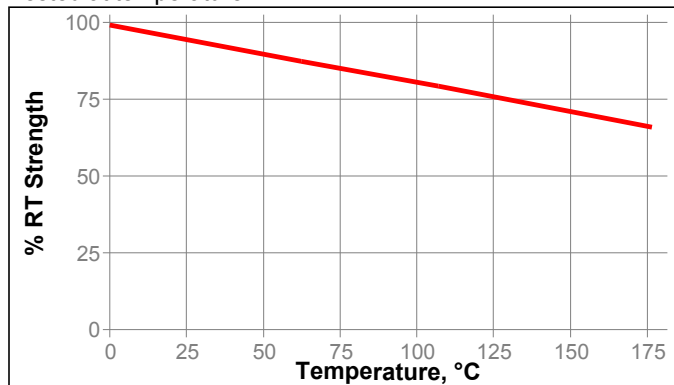
Cured for 14 days @ 23 °C / 60±5% RH

Lap Shear Strength, ISO 4587:

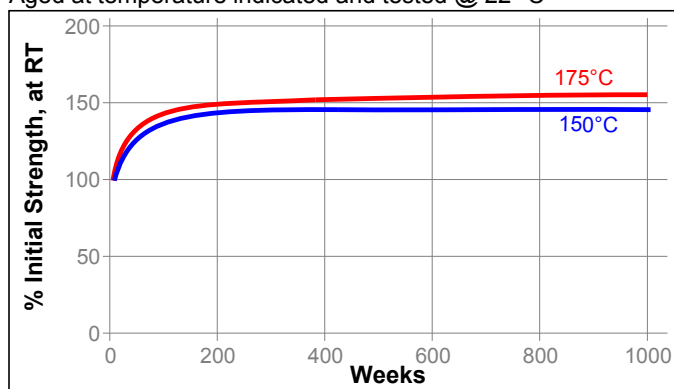
Mild steel (grit blasted)

Hot Strength

Tested at temperature

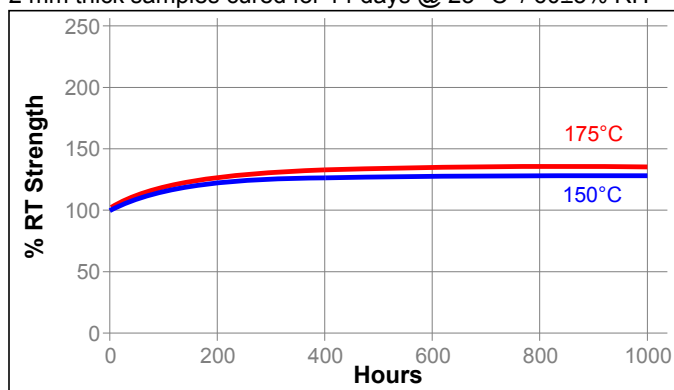
**Heat Aging**

Aged at temperature indicated and tested @ 22 °C

**Heat Aging**

Aged at temperature indicated and tested @ 22 °C

2 mm thick samples cured for 14 days @ 23 °C / 60±5% RH

**Chemical/Solvent Resistance**

Aged under conditions indicated and tested @ 22 °C.

Environment	°C	% of initial strength		
		100 h	500 h	1000 h
Multi-grade	120	95	95	90
Multi-grade	150	80	80	75
ATF (Dextron II oil)	120	70	85	75
ATF (Dextron II oil) - Japanese Grade	150	75	65	35
Water glycol 50/50	100	85	90	65

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).

NOTE: This product is not recommended for contact with gasoline.

Directions for use

1. For best performance bond surfaces should be clean and free from grease.
2. Moisture curing begins immediately after the product is exposed to the atmosphere, therefore parts to be assembled should be mated within a few minutes after the product is dispensed.
3. The bond should be allowed to cure (e.g. seven days), before subjecting to heavy service loads.
4. Excess material can be easily wiped away with non-polar solvents.

Loctite Material Specification^{LMS}

LMS dated October 24, 2001. 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

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

Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 1.1