

LOCTITE[®] SI 5990[™]

February 2013

PRODUCT DESCRIPTION

LOCTITE[®] SI 5990[™] provides the following product characteristics:

Technology	Silicone
Chemical Type	Silicone
Appearance (uncured)	Copper colored paste ^{LMS}
Components	One component - requires no mixing
Thixotropic	Reduced migration of liquid product after application to substrate
Cure	Room temperature vulcanizing (RTV)
Application	Gasketing and sealing
Specific Benefit	Adheres to a wide range of substrates.

LOCTITE[®] SI 5990[™] is a moisture-curing, non-corrosive silicone. The thixotropic nature of LOCTITE[®] SI 5990[™] reduces the migration of liquid product after application to the substrate. It has been designed specially for gasketing and sealing applications where excellent temperature resistance is required. It is also used for electrical insulating applications. This product is typically used in applications up to 350 °C.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 22 °C	1.04
Extrusion Rate, g/min:	
Pressure 0.62 MPa, time 15 seconds, temperature 22 °C:	
Semco Cartridge	≥275

Flash Point - See MSDS

TYPICAL CURING PERFORMANCE

Surface Cure

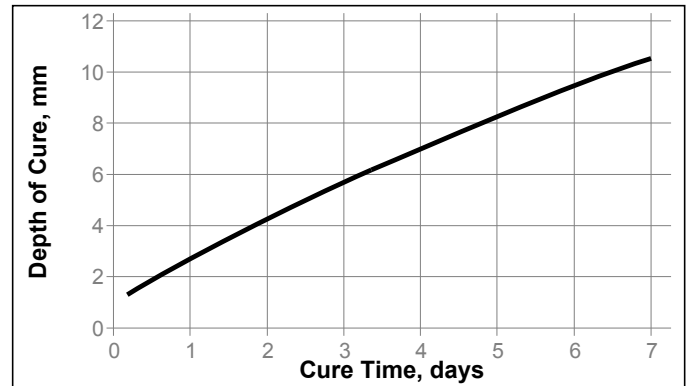
Tack Free Time is the time required to achieve a tack free surface

Tack Free Time, minutes:	
Cured @ 22 °C / 50±5 % RH	40

Skin Over Time, minutes	25
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Depth of Cure

The graph below shows the increase in depth of cure with time at @ 22 °C



TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 21 days @ 25 °C / 50±5 % RH

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K ⁻¹	340×10 ⁻⁶
Shore Hardness, ISO 868, Durometer A	27
Elongation, ISO 37, %	270
Tensile Strength, ISO 37	N/mm ² 1.9 (psi) (275)

Electrical Properties:

Volume Resistivity, IEC 60093, Ω·cm	10×10 ¹⁵
Surface Resistivity, IEC 60093, Ω	200×10 ¹⁵

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

After 21 days @ 22 °C / 50% RH, and 0.5 mm gap
Lap Shear Strength, ISO 4587:

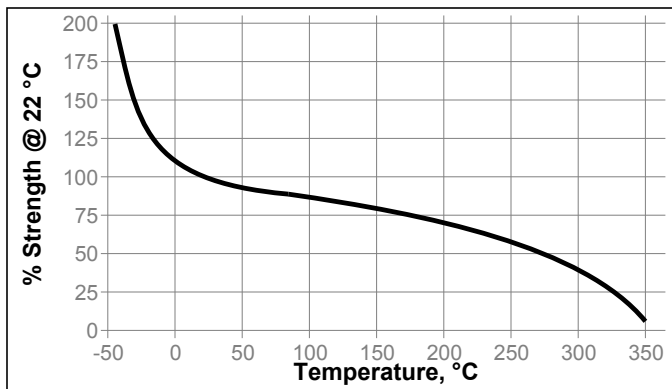
Copper	N/mm ² 0.3 (psi) (40)
Brass	N/mm ² 0.23 (psi) (35)
Mild steel	N/mm ² 0.25 (psi) (35)
Mild steel (grit blasted)	N/mm ² 1.03 (psi) (150)
Aluminum	N/mm ² 0.2 (psi) (29)
Aluminum (grit blasted)	N/mm ² 0.8 (psi) (120)
Stainless steel	N/mm ² 0.2 (psi) (30)
ABS	N/mm ² 0.1 (psi) (15)
Silicone	N/mm ² 0.1 (psi) (15)
Phenolic	N/mm ² 1.0 (psi) (145)
Zinc plated steel	N/mm ² 0.4 (psi) (55)
Steel (e-coated)	N/mm ² 1.2 (psi) (170)

TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 21 days @ 22 °C / 50% RH

Hot Strength

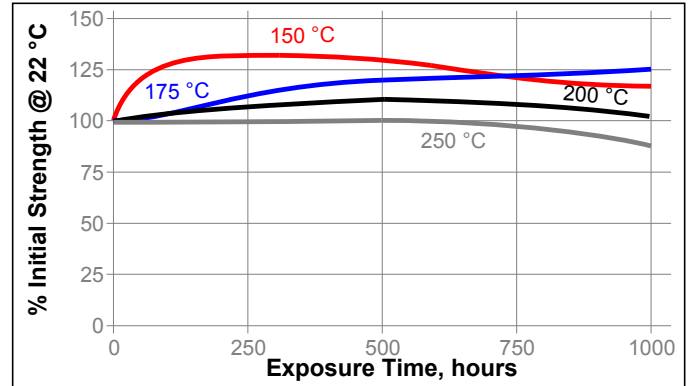
Lap Shear Strength, ISO 4587, Aluminum (Gritblasted)



Heat Aging

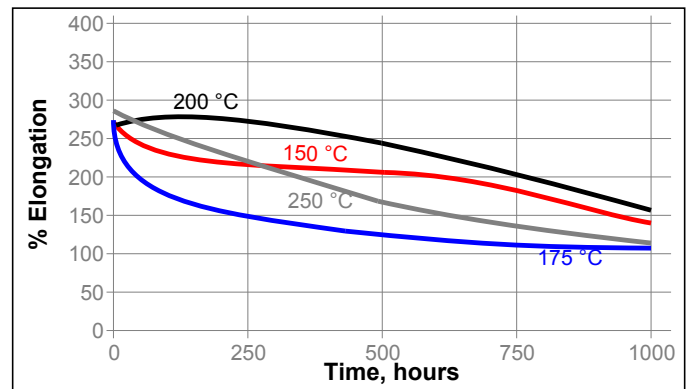
Aged at temperature indicated and tested @ 22 °C

Lap Shear Strength, ISO 4587:
Aluminum (Gritblasted)



Physical Properties

Elongation, %



Chemical/Solvent Resistance

Shear Strength on Aluminum (Gritblasted) Lapshears

Environment	°C	% of initial strength		
		100 h	500 h	1000 h
ATF	120	65	55	55
Mineral Oil	150	55	45	45
Motor oil (5W40 -Synthetic)	120	80	75	75
Motor oil (5W40 -Synthetic)	150	60	40	40
Water	60	110	125	120
Water	90	75	60	60
Water/glycol 50/50	100	65	55	55
Water/glycol 50/50	120	45	45	45

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.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

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 0.1