Technical Data Sheet

LOCTITE® SI 5900®

Known as LOCTITE® 5900®
October 2018

PRODUCT DESCRIPTION

LOCTITE® SI 5900® provides the following product characteristics:

Technology	Silicone
Chemical Type	Oxime silicone
Appearance (uncured)	Black paste[LMS]
Components	One component - requires no mixing
Viscosity	Thixotropic paste
Cure	Room temperature vulcanizing (RTV)
Application	Sealing
Specific Benefit	Excellent resistance to automotive engine oils

Typical applications include stamped sheet metal covers (timing covers and oil sumps) where good oil resistance and the ability to withstand high joint-movement is required. It withstands on line, low pressure tests carried out before product begins to cure. The thixotropic nature of LOCTITE® SI 5900® reduces the migration of liquid product after application to the substrate. LOCTITE® SI 5900® has an excellent adhesion profile to an outstanding wide variety of plastic substrates, as well as glass, ceramics and metals.

NSF International

Registered to NSF Category P1 for use as a sealant where there is no possibilty of food contact in and around food processing areas. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.3 to 1.37[LMS]
Extrusion Rate, g/min:	
Pressure 0.62 MPa, time 15 seconds, temperature 25 °C:	
Semco Cartridge	20 to 50[LMS]
Blow Out Resistance, seconds:	
4 mm Flange, 1.5 mm Gap @ 0.014 MPa	≥100[LMS]
Flow, ISO 7390, mm:	
After 2 minutes @ 25 °C	≤0.2[LMS]
Volatile Content, %	≤0.5[LMS]
Flash Point - See SDS	

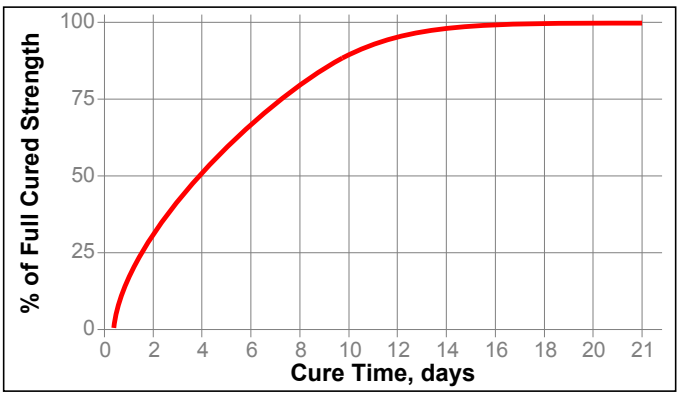
TYPICAL CURING PERFORMANCE

Surface Cure

Tack Free Time, minutes:	
Cured @ 25 °C / 50±5 % RH	7 to 24[LMS]

Cure Speed

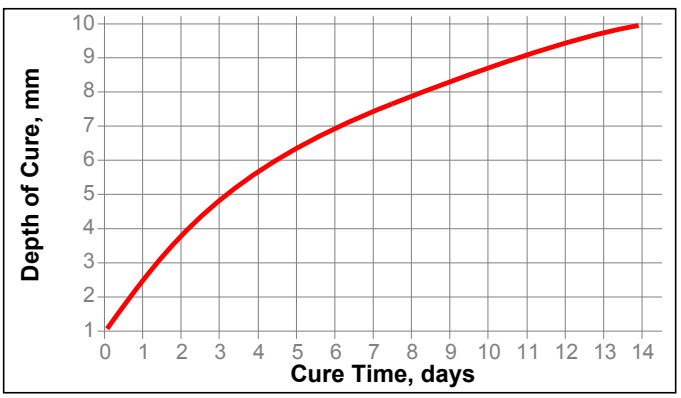
The graph below shows shear strength developed with time on Aluminum lapshears at a bond gap of 0.5 mm. Cure condition 23±2 °C, 60±5% RH. Strength is determined according to ISO 4587.



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 10 mm).

The graph below shows the increase in depth of cure with time at 23±2 °C / 50±5 % RH.



TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 1 week @ 25 °C / 50±5 % RH

Physical Properties:

Shore Hardness, ISO 868, Durometer A		31 to 46[LMS]
Elongation, at break, ISO 37, %		≥400[LMS]
Tensile Strength, ISO 37	N/mm²	≥1.7[LMS]
	(psi)	(≥246)

Electrical Properties:

Volume Resistivity, IEC 60093, Ω·cm	6.7×10^{13}
Surface Resistivity, IEC 60093, Ω	4.35×10^{15}
Dielectric Constant / Dissipation Factor, IEC 60250:	
1 kHz	5.05 / 0.048
100 kHz	4.29 / 0.042
1 MHz	4.13 / 0.023
10 MHz	4.12 / 0.013

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 21 days @ 23 °C / 50±5 % RH and 0.5 mm gap

Lap Shear Strength, ISO 4587:

Mild steel	N/mm²	1 to 1.4
	(psi)	(145 to 200)
Aluminum 2024-T3	N/mm²	0.7 to 1.3
	(psi)	(100 to 190)
Alclad	N/mm²	1 to 1.5
	(psi)	(145 to 215)
Zinc dichromate	N/mm²	1 to 2
	(psi)	(145 to 290)

Cured for 7 days @ 25 °C / 50±5 % RH, Moisture cure only

Aluminum (Alclad)	N/mm²	≥1.2[LMS]
	(psi)	(≥174)
Aluminum (Alclad) to Steel (as received)	N/mm²	≥1.0[LMS]
	(psi)	(≥145)

TYPICAL ENVIRONMENTAL RESISTANCE

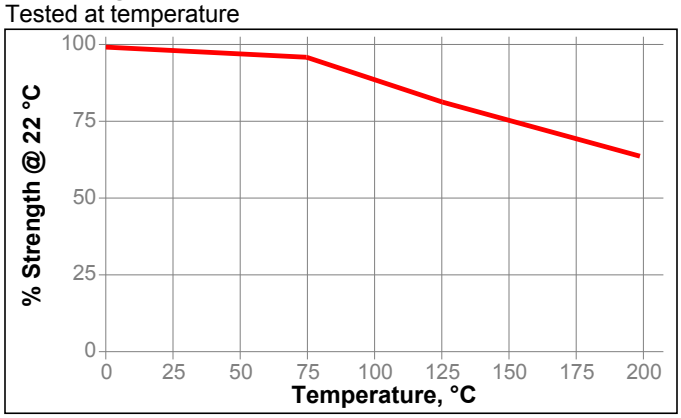
Cured for 21 days @ 23 °C / 60±5% RH

Lap Shear Strength, ISO 4587:

Alclad

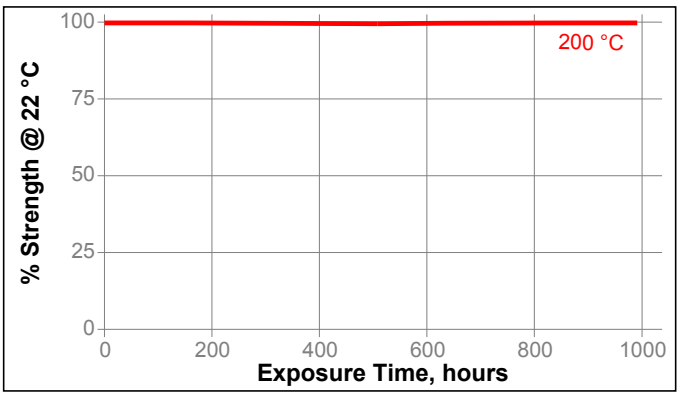
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested @ 22 °C



Environmental Aging - Effect on bulk properties

Cured for 21 days @ 23±2 °C / 60±5% RH, tested @ 22 °C, 2 mm thick film

Tensile strength, ISO 37, N/mm² (Elongation, at break, %):

Environment	100 h	500 h	1000 h
22 °C	2.0(570)	2.3(580)	2.0(570)
150 °C	2.4(350)	1.8(570)	2.1(350)
175 °C	1.8(340)	1.7(320)	1.6(320)
200 °C	1.8(350)	1.8(310)	1.3(220)
5W40 oil, 120 °C	1.9(500)	2.3(460)	2.3(570)
Motor oil, 150°C	1.7(440)	1.5(430)	1.9(530)
Water/glycol	1.1(620)	0.6(470)	0.7(430)

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).

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.
5. For full automatic applications a volumetric dispensing system is recommended.

Loctite Material Specification[LMS]

LMS dated March 31, 2010. 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

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = 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 1.7