

## LOCTITE® SI 5980™

February 2013

### PRODUCT DESCRIPTION

LOCTITE® SI 5980™ provides the following product characteristics:

|                             |                                                                    |
|-----------------------------|--------------------------------------------------------------------|
| <b>Technology</b>           | Silicone                                                           |
| <b>Chemical Type</b>        | Alkoxy silicone                                                    |
| <b>Appearance (uncured)</b> | Black paste and lump free <sup>LMS</sup>                           |
| <b>Components</b>           | One component - requires no mixing                                 |
| <b>Thixotropic</b>          | Reduced migration of liquid product after application to substrate |
| <b>Cure</b>                 | Room temperature vulcanizing (RTV)                                 |
| <b>Application</b>          | Gasketing                                                          |
| <b>Specific Benefit</b>     | Excellent resistance to automotive engine oils                     |

LOCTITE® SI 5980™ has been designed specifically for gasketing applications. It withstands on line, low pressure tests carried out before product begins to cure. 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.

### TYPICAL PROPERTIES OF UNCURED MATERIAL

Density @ 25 °C, g/cm<sup>3</sup> 1.2 to 1.4<sup>LMS</sup>

Flash Point - See SDS

Extrusion Rate, g/min:

Pressure 0.62 MPa, temperature 25 °C:

Semco Cartridge 120 to 325<sup>LMS</sup>

Solids/Non-Volatile Content, % 99.75

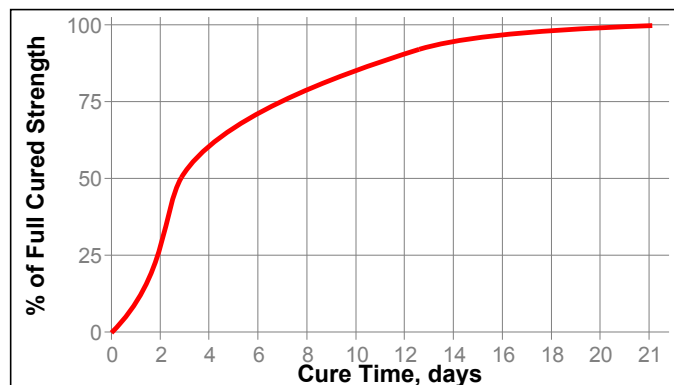
### TYPICAL CURING PERFORMANCE

#### Tack Free Time

Tack Free Time, minutes 15 to 45<sup>LMS</sup>

#### Cure Speed

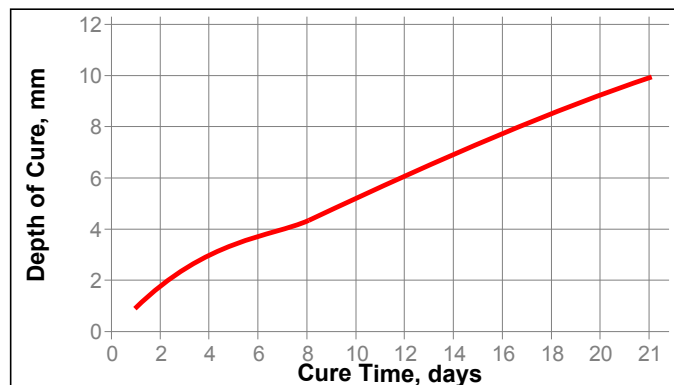
The graph below shows the shear strength developed over time at 22 °C / 50 % RH on Aluminum and tested according to ISO 4587.



#### 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

#### Physical Properties:

|                                                                |                                      |
|----------------------------------------------------------------|--------------------------------------|
| Shore Hardness, ISO 868, Durometer A                           | 27                                   |
| Coefficient of Thermal Expansion, ISO 11359-2, K <sup>-1</sup> | 240×10 <sup>-6</sup>                 |
| Volume Shrinkage, ISO 1675, %                                  | 3.0                                  |
| Linear Shrinkage, ISO 1675, %                                  | 1.0                                  |
| Elongation, at break, ISO 37, %                                | 290                                  |
| Tensile Strength, ISO 37                                       | N/mm <sup>2</sup> 1.6<br>(psi) (230) |
| Tensile Modulus, ISO 37                                        | N/mm <sup>2</sup> 1.0<br>(psi) (145) |

**Electrical Properties:**

|                                                         |                     |
|---------------------------------------------------------|---------------------|
| Surface Resistivity, IEC 60093, $\Omega$                | $28 \times 10^{15}$ |
| Volume Resistivity, IEC 60093, $\Omega \cdot \text{cm}$ | $50 \times 10^{15}$ |

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

Cured for 21 days @ 23 °C / 50±5 % RH

Lap Shear Strength, ISO 4587:

|                           |                   |       |
|---------------------------|-------------------|-------|
| Mild steel (grit blasted) | N/mm <sup>2</sup> | 1.4   |
|                           | (psi)             | (200) |
| Aluminum                  | N/mm <sup>2</sup> | 2.2   |
|                           | (psi)             | (320) |
| Alclad                    | N/mm <sup>2</sup> | 2.0   |
|                           | (psi)             | (290) |
| Stainless steel           | N/mm <sup>2</sup> | 1.7   |
|                           | (psi)             | (250) |
| Copper                    | N/mm <sup>2</sup> | 1.5   |
|                           | (psi)             | (220) |
| Brass                     | N/mm <sup>2</sup> | 1.3   |
|                           | (psi)             | (190) |
| Polycarbonate             | N/mm <sup>2</sup> | 1.3   |
|                           | (psi)             | (190) |
| ABS                       | N/mm <sup>2</sup> | 0.6   |
|                           | (psi)             | (90)  |
| Phenolic                  | N/mm <sup>2</sup> | 0.8   |
|                           | (psi)             | (120) |
| PMMA                      | N/mm <sup>2</sup> | 0.5   |
|                           | (psi)             | (70)  |
| PET                       | N/mm <sup>2</sup> | 0.6   |
|                           | (psi)             | (90)  |
| PA66                      | N/mm <sup>2</sup> | 1.1   |
|                           | (psi)             | (160) |
| PVC                       | N/mm <sup>2</sup> | 1.7   |
|                           | (psi)             | (250) |
| Nitrile                   | N/mm <sup>2</sup> | 0.3   |
|                           | (psi)             | (40)  |
| NBR                       | N/mm <sup>2</sup> | 0.3   |
|                           | (psi)             | (40)  |

**TYPICAL ENVIRONMENTAL RESISTANCE**

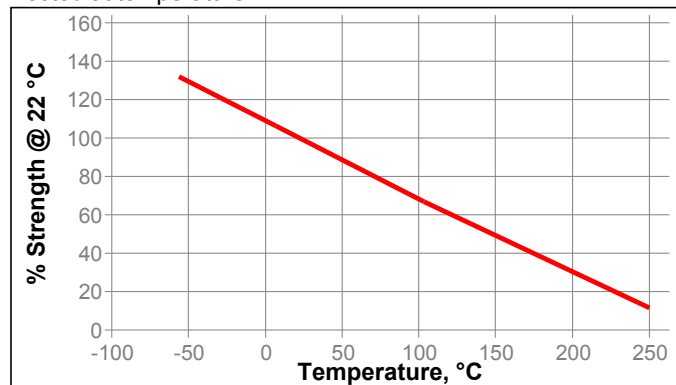
Cured for 21 days @ 23±2 °C / 50±5% RH

Lap Shear Strength, ISO 4587:

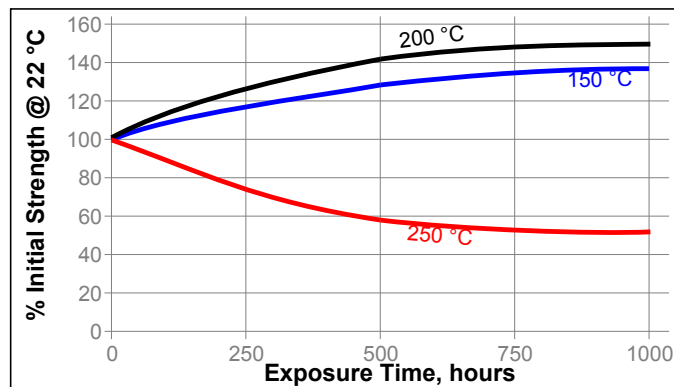
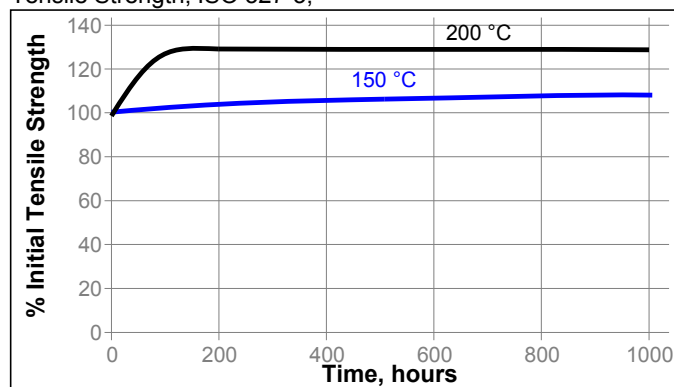
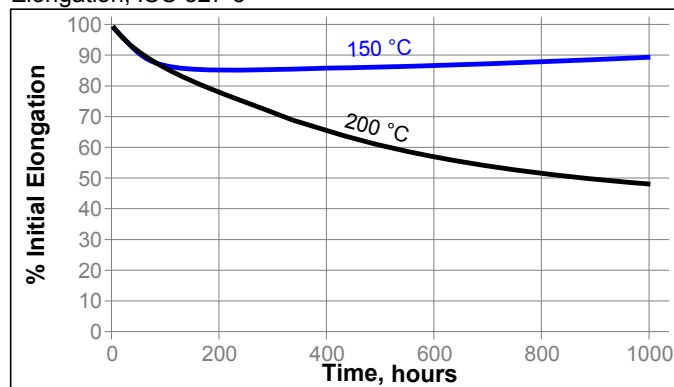
Aluminum

**Hot Strength**

Tested at temperature

**Heat Aging**

Aged at temperature indicated and tested @ 22 °C

**Tensile Strength, ISO 527-3,****Elongation, ISO 527-3****Chemical/Solvent Resistance**

Aged under conditions indicated and tested @ 22 °C.

| Environment        | °C  | % of initial strength |       |        |
|--------------------|-----|-----------------------|-------|--------|
|                    |     | 100 h                 | 500 h | 1000 h |
| Motor oil (5W30)   | 150 | 60                    | 45    | 40     |
| IRM 902            | 150 | 65                    | 55    | 50     |
| Water/glycol 50/50 | 120 | 55                    | 45    | 20     |
| Water              | 60  | 70                    | 85    | 80     |
| Water              | 90  | 65                    | 45    | 40     |

**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.

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

LMS dated March 09, 2009. 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**