Technical Data Sheet

LOCTITE® SI 5083™

Known as LOCTITE® 5083
May 2014

PRODUCT DESCRIPTION

LOCTITE® SI 5083™ provides the following product characteristics:

Technology	Silicone
Chemical Type	Acetoxy silicone
Appearance (uncured)	Translucent paste[LMS]
Components	One component - requires no mixing
Thixotropic	Reduced migration of liquid product after application to substrate
Cure	Ultraviolet (UV) light
Secondary Cure	Moisture for shadowed areas
Cure Benefit	Production - high speed curing
Application	Potting, Gasketing or Sealing
Strength	High

LOCTITE® SI 5083™ is used for potting, coating and sealing of various automotive, electronic, military and industrial components. Also adheres to a wide range of substrates (glass, rubber, wood, ceramics, and painted surfaces). Suitable for use in electric motor balancing applications.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.12
Solids/Non-Volatile Content, %	≥95[LMS]
Flash Point - See SDS	
Flow, ISO 7390, mm	0
Extrusion Rate, g/min:	
Pressure 0.6 MPa, time 15 seconds, temperature 25 °C:	
Semco Cartridge	130 to 170[LMS]

TYPICAL CURING PERFORMANCE

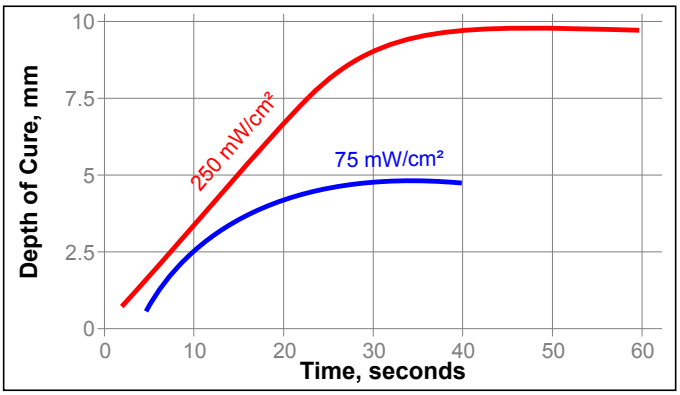
Normal processing conditions will include exposure to sufficient UV light irradiance to effectively cure the material. Surface and/or atmospheric moisture will promote the cure of material in shadowed regions. Although functional strength is developed almost instantly due to the UV curing nature of LOCTITE® SI 5083™, increased cure properties are developed during 72 hours at ambient conditions.

Surface Cure

When curing with sufficient UV light irradiance, exposed material will cure dry to the touch in seconds. Atmospheric moisture cures material not exposed to UV light. Typically, non-UV light cured areas will skin over in approximately 11 minutes and become tack free in 14 minutes.

Depth of Cure

Shadowed areas rely on surface and/or atmospheric moisture to effect cure. Depth of cure is limited to approximately 6 millimeters and will take at least 24 hours to develop. Rapid depth of cure can be attained with focused UV light. The graph(s) below show the depth of cure obtained up to 60 seconds at two different levels of UV irradiance.



TYPICAL PROPERTIES OF CURED MATERIAL

Cured @ 40 mW/cm² , measured @ 365 nm, for 60 seconds per side plus 7 days @ 22 °C / 50% RH

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}		2.28×10^{-4}
Water Absorption, ISO 62, %:		
24 hours in water @ 22 °C		0
Shore Hardness, ISO 868, Durometer A		45 to 65[LMS]
Elongation, ISO 37, %		≥170[LMS]
Tensile Strength, ISO 37	N/mm² (psi)	≥3.1[LMS] (≥450)
Tear Strength, ISO 34-1 , Die B	N/mm (lb./in.)	9.4 (50)
Shrinkage, %		1.5
Water Vapor Trans. Rate, ASTM E96, g/(h·m²)		0.395
Compression Set, ASTM D 395, Method B, %:		
Aged @ 22 °C for 70 hours		14
Aged @ 75 °C for 70 hours		26
Aged @ 100 °C for 70 hours		34

Electrical Properties:

Dielectric Constant / Dissipation Factor, IEC 60250:

100 Hz	2.93 / 0.0014
100 kHz	2.8 / 0.0038
Volume Resistivity, IEC 60093, Ω·cm	9.7×10^{15}
Dielectric Breakdown Strength, IEC 60243-1, kV/mm	25

TYPICAL PERFORMANCE OF CURED MATERIAL

Cured @ 40 mW/cm² , measured @ 365 nm, for 60 seconds, plus 7 days post UV Cure @ 22 °C / 50% RH

Lap Shear Strength, ISO 4587:

Aluminum to Glass	N/mm²	0.24
	(psi)	(35)
Steel to Glass	N/mm²	0.7
	(psi)	(100)
Glass to Glass	N/mm²	1.9
	(psi)	(275)

180° Peel Strength, ISO 8510-2:

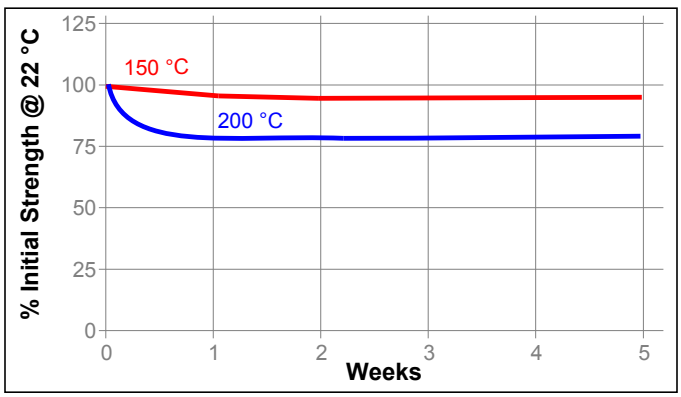
Aluminum	N/mm	<0.2
	(lb/in)	(<1)
Steel	N/mm	<0.2
	(lb/in)	(<1)
Glass	N/mm	10
	(lb/in)	(57)

TYPICAL ENVIRONMENTAL RESISTANCE

2 mm thick samples cured @ 40 mW/cm² , measured @ 365 nm, for 60 seconds per side

Heat Aging

Aged at temperature indicated and tested @ 22 °C



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. The product is designed to be initially cured with UV light at a minimum irradiance of 30 mW/cm2 for approximately 20 seconds, increased exposure may be required for curing deeper sections.
3. Functional strength is achieved almost instantly.
4. Full performance properties will develop over 72 hours.
5. 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.
6. Excess material can be easily wiped away with non-polar solvents.

Loctite Material Specification[LMS]

LMS dated September 1, 1995. 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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