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Technical Data Sheet

LOCTITE® SI 5611F™

Known as LOCTITE® 5611F™
May 2014

PRODUCT DESCRIPTION

LOCTITE® SI 5611F™ provides the following product characteristics:

Technology	Silicone
Chemical Type	Alkoxy silicone
Appearance, Resin (Component A)	White liquid[LMS]
Appearance, Hardener (Component B)	Black liquid[LMS]
Appearance (Mixture)	Grey Liquid[LMS]
Components	Two component - requires mixing
Mix Ratio, by volume - Part A: Part B	10 : 1
Cure	Room temperature cure and Atmospheric moisture
Application	Bonding and Sealing

LOCTITE® SI 5611F™ is a two part, fast cure, low viscosity / self leveling silicone. This product is designed for applications that require a fast cure. LOCTITE® SI 5611F™ is neutral curing and non-corrosive. Typical applications include solar, lighting, switches, and electronic connectors.

UL Classification

LOCTITE® SI 5611F™ is listed in UL's recognized component index with 94V-0 flammability rating in 6.8mm, 9.0mm thickness cross section

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A:

Specific Gravity @ 25 °C	1.34
Flash Point - See SDS	
Viscosity, Cone & Plate, 25 °C, mPa·s (cP):	
Spindle 20, Speed 20 s^{-1}	3,500 to 10,000[LMS]

Part B:

Specific Gravity @ 25 °C	1.08
Flash Point - See SDS	
Viscosity, Cone & Plate, 25 °C, mPa·s (cP):	
Spindle 20, Speed 20 s^{-1}	3,000 to 10,000[LMS]

Mixed:

Specific Gravity @ 25 °C	1.22
Tack Free Time , minutes	6
Slump Test, minutes Time at which No Slump occurs	≤15[LMS]
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

The mix of part A and part B initiates the reaction. There is a secondary cure with atmospheric moisture that promotes full cure over 7 days.

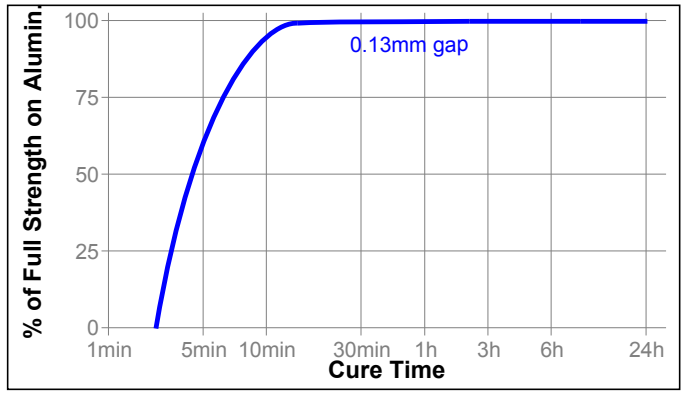
Skin Over Time

Skin over time is the time the surface of the adhesive forms a skin upon exposure to atmospheric moisture at 25 ± 2 °C, 50 ± 5% RH.

Skin Over Time, minutes	6 to 18[LMS]

Cure Speed vs. Time

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



TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 24 hours @ 22±3 °C / 50±20% RH

Physical Properties:

Shore Hardness, ISO 868, Durometer A	≥50[LMS]

Cured for 7 days @ 22 °C / 50% RH

Physical Properties:

Glass Transition Temperature (Tg), °C		-57
Elongation, at break, ISO 527-3, %		59
Tensile Strength, ISO 527-3	N/mm² (psi)	2 (290)
Tensile Modulus, at 50% elongation	N/mm² (psi)	1.8 (260)
Tear Strength, ISO 34-1 , Die C	N/mm (lb./in.)	3.7 (21)

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Water Absorption, ISO 62, %:	
24 hours in water @ 22 °C:	
Increased weight	0.55
Soluble matter loss	0.13
Coefficient of Thermal Conductivity, W/(m·K)	0.32
Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}:	
Post Tg	235×10^{-6}
Volume Shrinkage, %	7.7
Linear Shrinkage, %	2.63

Electrical Properties:

Dielectric Constant / Dissipation Factor, IEC 60250:	
1 kHz	3.877 / 0.0448
1 MHz	3.655 / 0.0131
Volume Resistivity, IEC 60093, Ω·cm	3.5×10^{14}
Dielectric Breakdown Strength, IEC 60243-1, kV/mm	19.8

TYPICAL PERFORMANCE OF CURED MATERIAL

Cured for 7 days @ 22 °C / 50% RH, 0 gap

Adhesive Properties

"T" Peel Strength, ISO 11339:

PVF	N/mm	0.3
	(lb/in)	(1.7)

Shear Strength:

Lap Shear Strength, ISO 4587:

Steel (degreased)	N/mm²	0.9
	(psi)	(140)
Stainless steel	N/mm²	0.7
	(psi)	(110)
Alclad	N/mm²	1.0
	(psi)	(150)
Aluminum	N/mm²	0.4
	(psi)	(65)
Glass	N/mm²	1.2
	(psi)	(180)
PVC	N/mm²	1.2
	(psi)	(170)
Acrylic	N/mm²	0.2
	(psi)	(25)
Polycarbonate	N/mm²	0.6
	(psi)	(90)
Nylon	N/mm²	0.4
	(psi)	(60)
PPO	N/mm²	0.5
	(psi)	(70)

TYPICAL ENVIRONMENTAL RESISTANCE

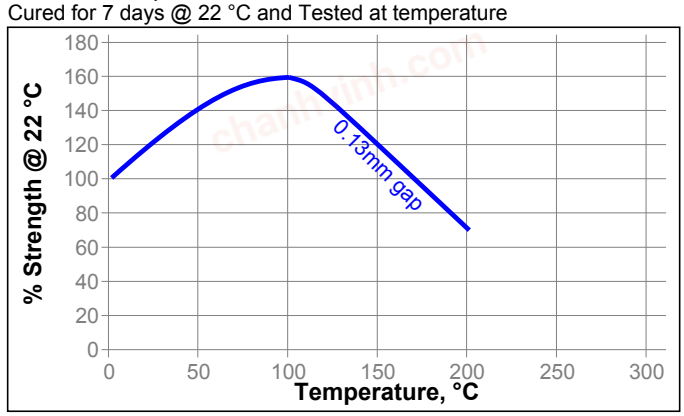
Lap Shear Strength, ISO 4587:

Alclad

Hot Strength

Tested at temperature

Cured for 7 days @ 22 °C and Tested at temperature



Heat Aging

Cured for 7 days @ 22 °C and Tested at temperature

Aged @ 100 °C for 1,000 hours:	
Change in Tensile Strength, %	36
Change in Elongation, %	25
Aged @ 150 °C for 1,000 hours:	
Change in Tensile Strength, %	108
Change in Elongation, %	8
Aged @ 200 °C for 1,000 hours:	
Change in Tensile Strength, %	90
Change in Elongation, %	-48

Chemical/Solvent Resistance

Cured for 7 days @ 22 °C

Tensile Strength, ISO 527-3,

		% of initial strength	
Environment	**°C**	**500 h**	**1000 h**
Water	22	100	100
Isopropanol	22	80	80
2% Ammonia/Water	22	100	100
Motor oil (10W30)	22	120	120
Water/glycol 50/50	22	100	100
85% RH	85	80	20

Elongation, ISO 527-3

		% of initial strength	
Environment	**°C**	**500 h**	**1000 h**
Water	22	100	100
Isopropanol	22	170	125
2% Ammonia/Water	22	120	120
Motor oil (10W30)	22	175	125
Water/glycol 50/50	22	145	145
85% RH	85	275	75

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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 high strength structural bonds, remove surface contaminants such as paint, oxide films, oils, dust, mold release agents and all other surface contaminants.
2. Use gloves to minimize skin contact. DO NOT use solvents for cleaning hands.
3. **Dual Cartridges:** To begin using a new cartridge, remove cartridge cap and dispense a small amount of adhesive, making sure both parts A&B are extruding. Attach nozzle and dispense approximately 25 to 50mm, before applying onto part to be bonded. Partially used cartridges can be stored with the mixing nozzle attached. To reuse, remove and discard old nozzle, attach the new nozzle, dispense approximately 25 to 50mm, before applying onto part to be bonded.
   Bulk Containers: Normally material is dispensed through volumetric metered mixing equipment, attached to static mix nozzles.
4. Application to the substrates should be made as soon as possible. Larger quantities and/or higher temperatures will reduce the working time.
5. Keep assembled parts from moving during cure. The bond should be allowed to develop full strength before subjecting to any service load.
6. Excess material can be easily wiped away with non-polar solvents.

Loctite Material Specification[LMS]
LMS dated November 20, 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
(°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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