Technical Data Sheet

LOCTITE® SI 5905™

Known as LOCTITE® 5905™
January 2015

PRODUCT DESCRIPTION

LOCTITE® SI 5905™ 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	Moisture cure, Room temperature vulcanizing (RTV)
Application	Gasketing, Sealing or Bonding
Specific Benefit	Non-corrosive, Nonslumping

LOCTITE® SI 5905™ is designed primarily as a form in place (FIP) gasket or sealant to seal devices. It may be suitable for select cure in place (CIP) applications. It has an excellent bead height profile, is easy to dispense and has good resistance to most engine fluids. Typical applications include rigid and flexible flange type covers made of either metal or plastic, timing covers, oil sumps and oil filled gauge type sight glass covers. LOCTITE® SI 5905™ may not be suitable for applications involving long term contact with ethylene glycol. The thixotropic nature of LOCTITE® SI 5905™ reduces the migration of liquid product after application to the substrate.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.2 to 1.4[LMS]
Flash Point - See SDS	
Flow, ISO 7390, mm:	
After 2 minutes	≤0.5[LMS]
Extrusion Rate, g/min:	
Pressure 0.62 MPa, temperature 25 °C:	
Semco Cartridge	200 to 380[LMS]

TYPICAL CURING PERFORMANCE

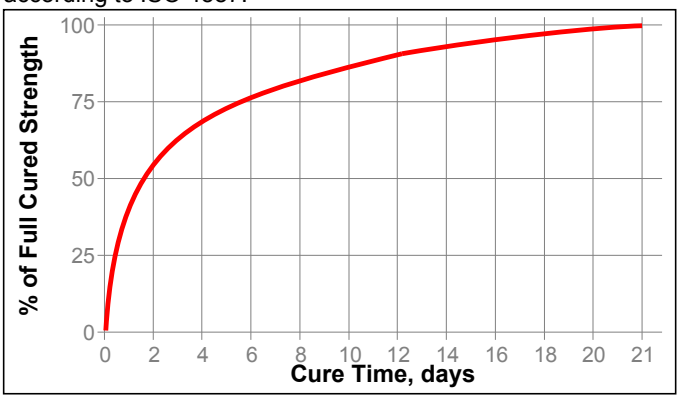
Skin Over Time

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	12 to 30[LMS]

Cure Speed

The graph below shows shear strength developed with time on grit blasted mild steel lapshears at a bond gap of 1.0 mm. Cure condition 23±2 °C, 50±5% RH. Strength is determined according to ISO 4587.



TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 7 days @ 25 °C / 50±5 % RH

Physical Properties:

Shore Hardness, ISO 868, Durometer A		39
Elongation, ISO 37, %		≥250[LMS]
Tensile Strength, ISO 37	N/mm²	≥1.6[LMS]
	(psi)	(≥230)
Tensile Modulus, ISO 37	N/mm²	2.66
	(psi)	(385)

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 7 days @ 25 °C / 50±5 % RH, 1 mm gap

Lap Shear Strength, ISO 4587:

Mild steel	N/mm²	0.94
	(psi)	(135)
Glass	N/mm²	1.03
	(psi)	(150)
Polycarbonate	N/mm²	0.95
	(psi)	(135)
Aluminum (Alclad)	N/mm²	≥1.0[LMS]
	(psi)	(≥145)
Aluminum (Alclad) to Mild steel	N/mm²	0.97
	(psi)	(140)
Aluminum (Alclad) to Glass	N/mm²	0.99
	(psi)	(145)
Aluminum (Alclad) to Polycarbonate	N/mm²	1.23
	(psi)	(180)

Heat Aging

Aged @ 125 °C for 168 hours		
Lap Shear Strength, ISO 4587:		
Aluminum to Glass	N/mm²	1.65
	(psi)	(240)
Aluminum to Polycarbonate	N/mm²	1.54
	(psi)	(225)
Aged @ 200 °C for 168 hours		
Lap Shear Strength, ISO 4587:		
Aluminum to Aluminum (Alclad)	N/mm²	1.54
	(psi)	(220)

Immersion

Aged @ 125 °C for 168 hours		
5W30 oil:		
Lap Shear Strength, ISO 4587:		
Aluminum to Glass	N/mm²	0.88
	(psi)	(130)
Aluminum to Polycarbonate	N/mm²	0.75
	(psi)	(110)
ASTM 902 oil:		
Lap Shear Strength, ISO 4587:		
Aluminum to Glass	N/mm²	0.94
	(psi)	(135)
Aluminum to Polycarbonate	N/mm²	1.08
	(psi)	(155)
Aged @ 150 °C for 168 hours		
5W30 oil:		
Lap Shear Strength, ISO 4587:		
Aluminum to Aluminum (Alclad)	N/mm²	0.77
	(psi)	(110)
ASTM 902 oil:		
Lap Shear Strength, ISO 4587:		
Aluminum to Aluminum (Alclad)	N/mm²	0.6
	(psi)	(85)

TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 7 days @ 25 °C / 50±5 % RH

Heat Aging

Aged at temperature indicated and tested @ 22 °C

Aged @ 200 °C for 168 hours:	
Change in Durometer, Points (Initial =)	4
Change in Tensile Strength, %	14
Change in Elongation, %	-41

Typical Fluid Immersion Properties

Aged @ 150 °C for 168 hours:	
5W30 oil:	
Change in Durometer, Points (Initial =)	-18
Change in Tensile Strength, %	-24
Change in Elongation, %	-24
Volume Swell, %	25
ASTM IRM 902 oil:	
Change in Durometer, Points (Initial =)	-15
Change in Tensile Strength, %	6
Change in Elongation, %	46
Volume Swell, %	8
Aged @ 125 °C for 168 hours:	
Ethylene glycol/water, 50:50:	
Change in Durometer, Points (Initial =)	-26
Change in Tensile Strength, %	-76
Change in Elongation, %	152
Volume Swell, %	2

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. LOCTITE® SI 5905™ should be applied as a bead to clean surface.
2. To function as a cured in place gasket it should be allowed to cure prior to assembly.
3. If utilized as a formed in place gasket it should be assembled within 15 minutes for optimum results.
4. Excess material can be easily wiped away with non-polar solvents.

Loctite Material Specification[LMS]

LMS dated November 8, 2005. 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

Reference 2.1

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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