Technical Data Sheet

LOCTITE® 5102™

January 2007

PRODUCT DESCRIPTION

LOCTITE® 5102™ provides the following product characteristics:

Technology	Dimethacrylate ester
Appearance (uncured)	Opaque pink paste[LMS]
Cure	Anaerobic
Components	One component - requires no mixing
Strength	Medium
Application	Gasketing and Sealing
Specific Benefit	Good temperature resistance.

LOCTITE® 5102™ cures when confined in the absence of air between close fitting metal surfaces. It is supplied in cartridges and is particularly suitable for robotic dispensing.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.1
Flash Point - See SDS	
Viscosity, Brookfield - HBT, 25 °C, Pa·s:	
Spindle TC, speed 2.5 rpm, Helipath	200,000 to 750,000[LMS]
Spindle TC, speed 20 rpm, Helipath	40,000 to 140,000[LMS]

Instant Sealing Capability

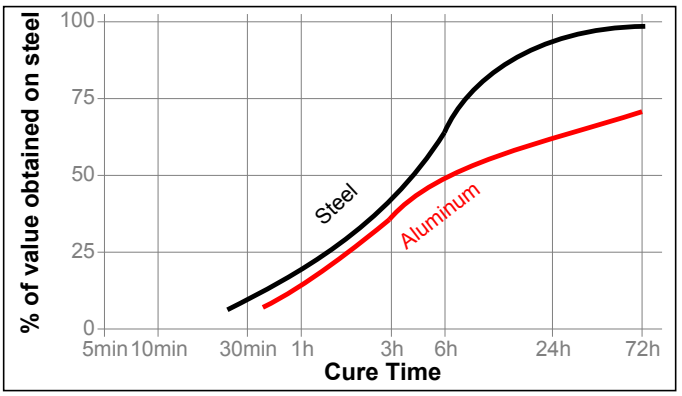
Anaerobic sealants have the ability to resist low on-line test pressures while uncured. This test was performed with uncured product immediately after assembly of an annular polycarbonate sealing surface with an internal diameter of 50 mm and an external diameter of 70 mm.

Pressure Resistance, MPa:	
Induced Gap 0 mm	0.02
Induced Gap 0.125 mm	0.01
Induced Gap 0.25 mm	0.01

TYPICAL CURING PERFORMANCE

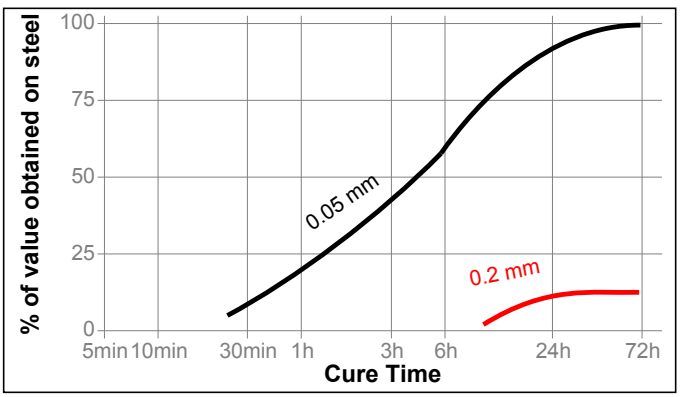
Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The graph below shows the shear strength developed with time on grit blasted steel lap shears compared to different materials and tested according to ISO 4587.



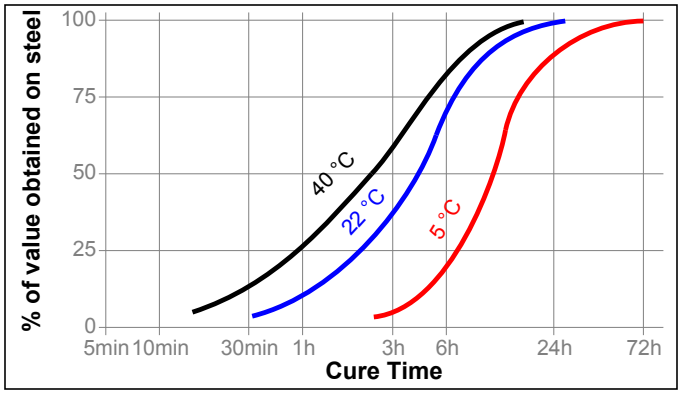
Cure Speed vs. Bond Gap

The rate of cure will depend on the bondline gap. The graph below shows the shear strength developed with time on grit blasted steel lap shears compared to different controlled gaps and tested according to ISO 4587.

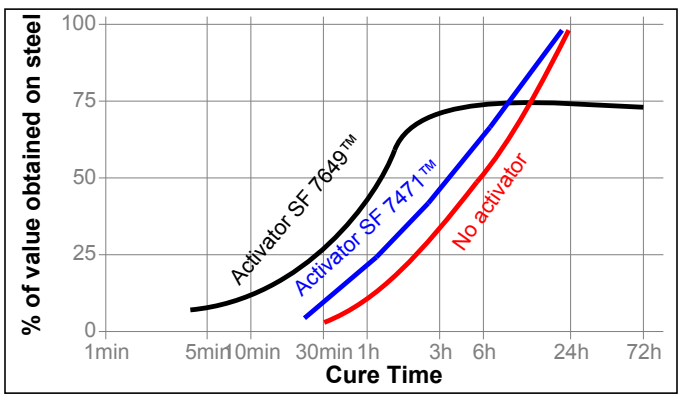


Cure Speed vs. Temperature

The rate of cure will depend on the ambient temperature. The graph below shows the shear strength developed with time on grit blasted steel lap shears at different temperatures and tested according to ISO 4587.



Cure Speed vs. Activator
Where cure speed is unacceptably long, or large gaps are present, applying activator to the surface will improve cure speed. The graph below shows the shear strength developed with time on grit blasted steel lap shears using and tested according to ISO 4587.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion:	
ASTM D 696, K^{-1}	80×10^{-6}
Coefficient of Thermal Conductivity:	
ASTM C177, W/(m·K)	0.1
Specific Heat:	
kJ/(kg·K)	0.3

TYPICAL PERFORMANCE OF CURED MATERIAL

Cured for 1 h at 22 °C

Shear Strength:	
Pin & Collar Shear, ISO 10123, N/mm² :	
(grit blasted)	≥1 LMS

Cured for 24 h at 22 °C

Shear Strength:	
Pin & Collar Shear, ISO 10123, N/mm² :	
(grit blasted)	≥7.5 LMS
Lap Shear, ISO 4587, N/mm² (psi):	
(grit blasted)	5
Tensile Strength, ISO 6922, N/mm² :	
(grit blasted)	7.5

Sealing Capability
An annular shaped gasket with an inner diameter of 50 mm and an external diameter of 70 mm was tested up to 1.3 MPa for leakage.

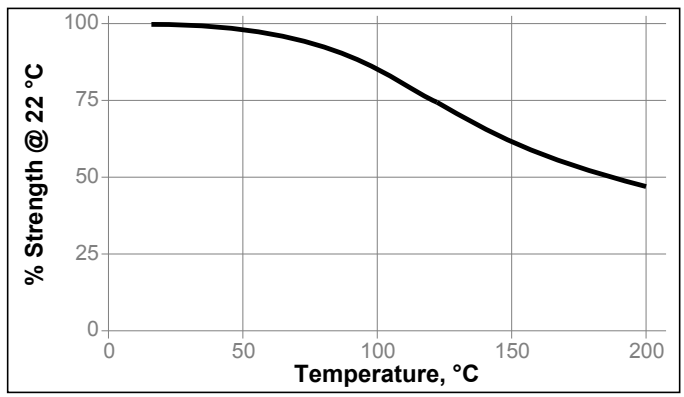
Sealed to Maximum Induced Gap, mm:	
Mild steel	≤0.125
Aluminum 2011T3	≤0.125

TYPICAL ENVIRONMENTAL RESISTANCE

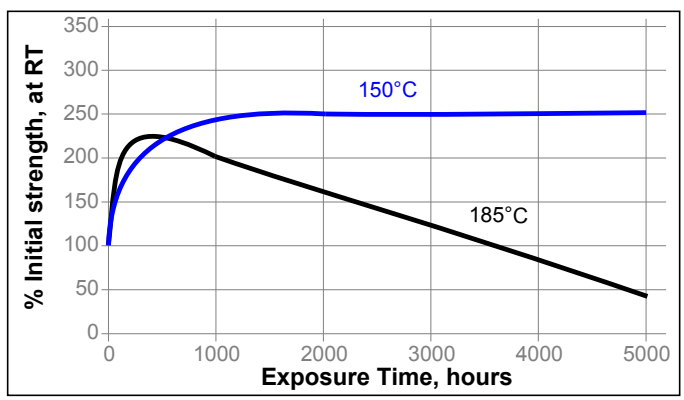
The following tests refer to the effect of environment on strength. This is not a measure of sealing performance.

After 1 week @ 22 °C
Lap Shear Strength, ISO 4587:
Grit Blasted Mild Steel (GBMS)

Hot Strength
Tested at temperature



Heat Aging
Aged at temperature indicated and tested @ 22 °C



Chemical/Solvent Resistance
Aged under conditions indicated and tested @ 22°C.

		% of initial strength		
Environment	**°C**	**100 h**	**500 h**	**1000 h**
Motor oil	125	100	100	100
Unleaded Petrol	22	95	60	60
Water/glycol 50/50	87	160	110	110

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).

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cure and performance of the adhesive.

This product is not normally recommended for use on plastics (particularly thermoplastic materials where stress cracking of the plastic could result). Users are recommended to confirm compatibility of the product with such substrates.

Directions for use:

1. For best performance bond surfaces should be clean and free from grease.
2. The product is designed for close fitting flanged parts with gaps up to 0.25 mm (0.01 in).
3. Apply manually as a continuous bead or by screen printing to one surface of the flanges.
4. Low pressures (<0.05 MPa, 7 psi) may be used when testing to confirm a complete seal immediately after assembly and before curing.
5. Flanges should be tightened as soon as possible after assembly to avoid shimming.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Product shall be ideally stored in a cool, dry location in unopened containers at a temperature between 8°C and 28°C unless otherwise labeled. Optimal storage is at the lower half of this temperature range. 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.

Loctite Material Specification[LMS]

LMS dated January 15, 2004. 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.

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 0.1