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TEROSON®

Technical Data Sheet

Teroson MS 939NA

Formerly known as Loctite 5512
June 2016

PRODUCT DESCRIPTION

Teroson MS 939NA provides the following product characteristics:

Technology	MS® - Polymer
Chemical Type	Modified silane polymer
Appearance (uncured)	Black, White and Gray
Smoothness	Smooth[LMS]
Components	One part - requires no mixing
Viscosity	Paste
Cure	Atmospheric moisture
Application	Sealing or Bonding

Teroson MS 939NA is a high strength, high elongation adhesive used for elastic bonding and sealing on various substrates. It is a one component adhesive/sealant based on a modified silane polymer, which cures by reaction with moisture to an elastomeric thermoset product. The skin formation and curing times are dependent on humidity, temperature, and joint depth. By increasing the exposure to moisture these times can be reduced. Teroson MS 939NA is sag-resistant leading to high initial tack. It is non-corrosive and free of solvents, isocyanates, silicones, PVC, and is odorless. It demonstrates good adhesion without primer to a wide variety of substrates and is compatible with suitable paint systems. The adhesive/sealant also demonstrates good UV resistance and can therefore be used for interior and exterior applications.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Density, ISO 2811-1 @ 22 °C, g/ml	1.3 to 1.6
Flash Point - See SDS	
Extrusion Rate @ 23°C, D=3.5mm, 3 bar, 15 s, g	5 to 40[LMS]

TYPICAL CURING PERFORMANCE

Under normal conditions, the atmospheric moisture initiates the curing process. The product develops functional strength in 24 hours and fully cures in 7 days.

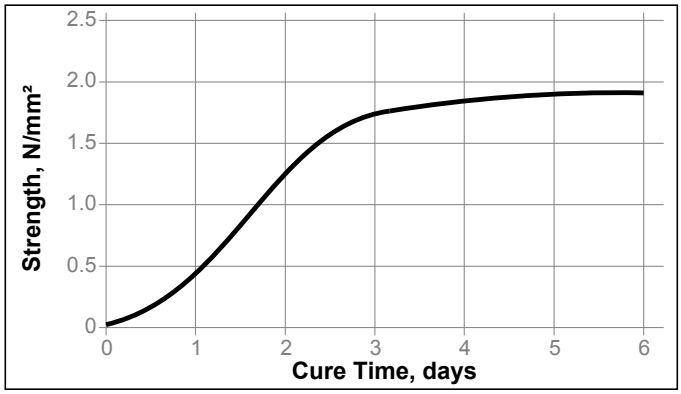
Skin Over Time

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	3 to 12[LMS]

Cure Speed vs. Time

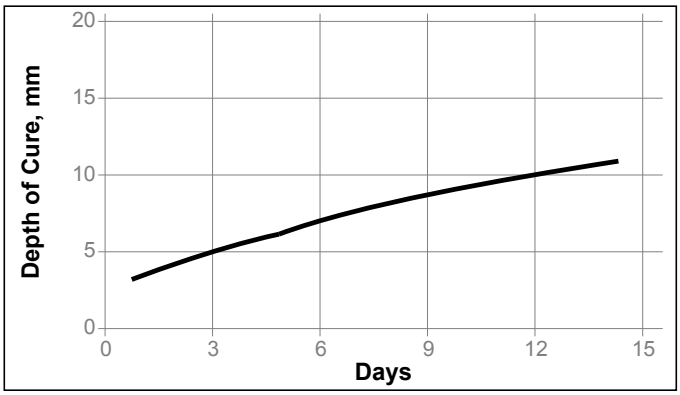
The graph below shows the shear strength developed over time at 22 °C / 50 % RH on mild steel (grit blasted) and tested according to ISO 4587.



Depth of Cure

The depth of cure depends on temperature and humidity. Depth of cure was determined by filling a 51 mm deep cup and removing the cured film of material. The cured section of product is measured to determine depth of cure.

The graph below shows the increase in depth of cure with time at @ 22 °C / 40 to 60% RH



TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 3 days @ 22 °C / 50±5 % RH

Physical Properties:

Shore Hardness, ISO 868, Durometer A		52 to 62[LMS]
Elongation, at break, ISO 527-3, %		500
Tensile Strength, ISO 527-3	N/mm²	2.7
	(psi)	(390)

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Electrical Properties:

Dielectric Constant / Dissipation Factor, IEC 60250:	
1kHz	7.73
100 kHz	7.37
1 MHz	7.1
Volume Resistivity, IEC 60093, Ω·cm	2.2×10^{10}
Surface Resistivity, IEC 60093, Ω	7.2×10^{11}

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 21 days @ 22 °C

Lap Shear Strength, ISO 4587:

Steel (grit blasted)	N/mm²	1.9
	(psi)	(270)
Stainless Steel	N/mm²	2.0
	(psi)	(290)
Galvanized Steel	N/mm²	2.7
	(psi)	(390)
Aluminum	N/mm²	1.8
	(psi)	(255)
Zinc dichromate	N/mm²	2.1
	(psi)	(300)
Wood (Pine)	N/mm²	1.9
	(psi)	(275)
Glass	N/mm²	2.2
	(psi)	(325)
Polycarbonate	N/mm²	1.9
	(psi)	(270)
PVC	N/mm²	2.2
	(psi)	(320)
ABS	N/mm²	1.7
	(psi)	(240)

"T" Peel Strength, ISO 11339:

Aluminum	N/mm	3.5
	(lb/in)	(20.1)

Impact Strength, ISO 9653, J:

Aluminum	2.4

TYPICAL ENVIRONMENTAL RESISTANCE

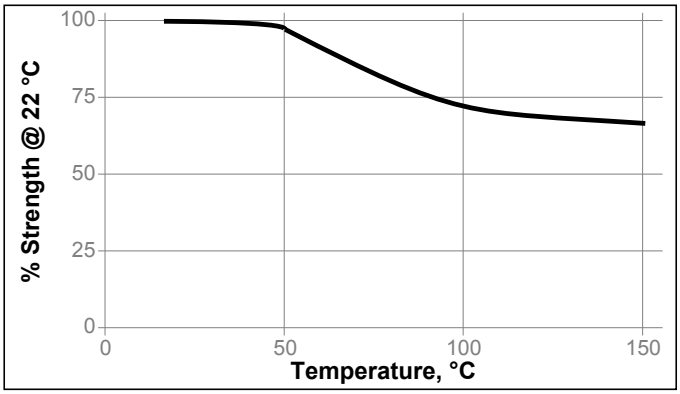
Hot Strength

Tested at temperature

Cured for 21 days @ 22 °C / 40 to 60% RH

Lap Shear Strength, ISO 4587:

Mild Steel (grit blasted)



Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C

		% of initial strength	
Environment	**°C**	**500 h**	**1000 h**
Motor oil	40	116	115
Gasoline	22	62	28
Isopropanol	22	51	8
Salt fog, 95% RH	49	80	87
85% RH	85	98	111

Heat Aging

Cured for 21 days @ 22 °C / 40 to 60% RH:

Aged @ 50 °C for 168 hours:	
Change in Durometer, Points (Initial = 52)	-1
Change in Tensile Strength, %	7
Change in Elongation, %	-9
Aged @ 100 °C for 168 hours:	
Change in Durometer, Points (Initial = 52)	-4
Change in Tensile Strength, %	-3
Change in Elongation, %	-32

GENERAL INFORMATION

When bonding and sealing PMMA, e.g. Plexiglas® and polycarbonate, e.g. Makrolon® or Lexan®, under tension, stress cracking may occur.

In such cases the product should not be utilized.

There is no adhesion to polyethylene, polypropylene and PTFE (e.g. Teflon®).

Substrates not mentioned above should be subject to trials.

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[LMS]

LMS dated February 22, 2006. 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