# LOCTITE® MS 930™

May 2007

## PRODUCT DESCRIPTION

LOCTITE® MS 930™ provides the following product characteristics:

| | |
|---|---|
| **Technology** | MS® - Polymer |
| Chemical Type | Modified silane polymer |
| Appearance (uncured) | Black paste[LMS] |
| Smoothness | Smooth[LMS] |
| Components | One part - requires no mixing |
| Viscosity | Paste |
| **Cure** | Atmospheric moisture |
| **Application** | Sealing |

LOCTITE® MS 930™ is a low modulus, flexible adhesive used for elastic sealing on various substrates. It is a one component sealant based on a modified silane polymer, which cures by reaction with moisture to a soft 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. LOCTITE® MS 930™ is non-corrosive and free of solvents, isocyanates, silicones, PVC, and is odorless. It demonstrates good adhesion to a wide variety of substrates and is compatible with suitable paint systems. The 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 | 1.44 to 1.5[LMS] |
| Flash Point - See MSDS | |

## 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.

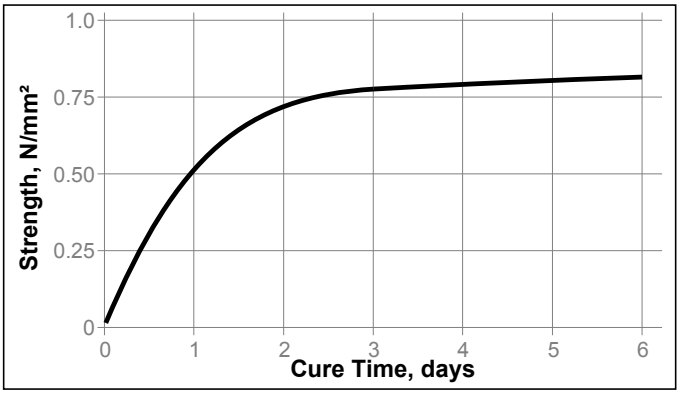
### Skin Over Time

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 | 10 to 40[LMS] |

### Cure Speed vs. Time

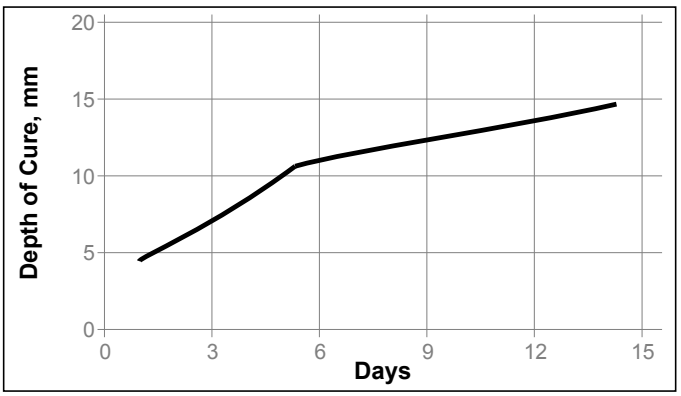
The graph below shows the shear strength developed over time at 22 °C / 50 % RH on mild steel (grit blasted) and tested according to ISO 4587.




### 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 | 20 to 30[LMS] | |
| Elongation, at break, ISO 527-3, % | 490 | |
| Tensile Strength, ISO 527-3 | N/mm² | 0.9 |
| | (psi) | (135) |

**Electrical Properties**:

| | |
|---|---|
| Dielectric Constant , IEC 60250: | |
| 1kHz | 6.22 |
| 100 kHz | 5.92 |
| 1 MHz | 5.83 |
| Volume Resistivity, IEC 60093, Ω·cm | $1.0\times10^{11}$ |
| Surface Resistivity, IEC 60093, Ω | $2.4\times10^{12}$ |

## TYPICAL PERFORMANCE OF CURED MATERIAL

**Adhesive Properties**

Cured for 21 days @ 22 °C

Lap Shear Strength, ISO 4587:

| | | |
|---|---|---|
| Steel (grit blasted) | N/mm² | 0.8 |
| | (psi) | (120) |
| Stainless Steel | N/mm² | 0.9 |
| | (psi) | (130) |
| Galvanized Steel | N/mm² | 1.1 |
| | (psi) | (160) |
| Aluminum | N/mm² | 1.0 |
| | (psi) | (150) |
| Zinc dichromate | N/mm² | 0.9 |
| | (psi) | (130) |
| Wood (Pine) | N/mm² | 0.6 |
| | (psi) | (80) |
| Glass | N/mm² | 0.9 |
| | (psi) | (135) |
| Polycarbonate | N/mm² | 1.0 |
| | (psi) | (145) |
| PVC | N/mm² | 1.0 |
| | (psi) | (145) |
| ABS | N/mm² | 1.0 |
| | (psi) | (145) |
| Nylon | N/mm² | 1.0 |
| | (psi) | (145) |

"T" Peel Strength, ISO 11339:

| | | |
|---|---|---|
| Aluminum | N/mm | 3.3 |
| | (lb/in) | (18.7) |

Impact Strength, ISO 9653, J:

| | |
|---|---|
| Aluminum | 1.3 |

## TYPICAL ENVIRONMENTAL RESISTANCE

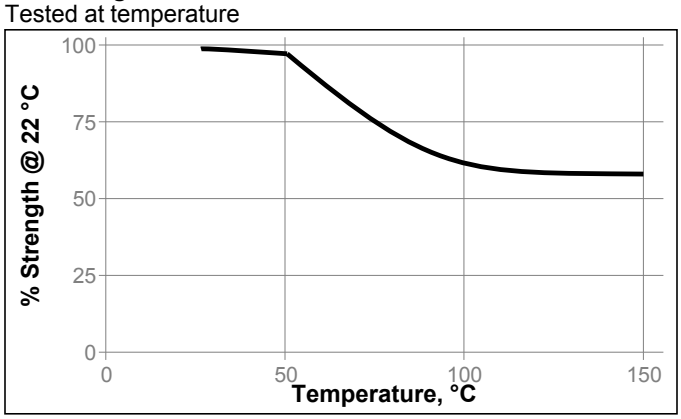
Cured for 21 days @ 22 °C / 40 to 60% RH

Lap Shear Strength, ISO 4587:

Mild steel (grit blasted)

### Hot Strength

Tested at temperature




### Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C

| | | % of initial strength | |
|---|---|---|---|
| **Environment** | **°C** | **500 h** | **1000 h** |
| Motor oil | 40 | 127 | 123 |
| Gasoline | 22 | 67 | 27 |
| Isopropanol | 22 | 73 | 11 |
| Salt fog, 95% RH | 49 | 90 | 70 |
| 85% RH | 85 | 70 | 72 |

### Heat Aging

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

Aged @ 50 °C for 168 hours:

| | |
|---|---|
| Change in Durometer, Points (Initial = 29) | 2 |
| Change in Tensile Strength, % | 0 |
| Change in Elongation, % | -15 |

Aged @ 100 °C for 168 hours:

| | |
|---|---|
| Change in Durometer, Points (Initial = ) | -15 |
| Change in Tensile Strength, % | -14 |
| Change in Elongation, % | 63 |

## 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 Material Safety Data Sheet (MSDS).**

### 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

**Note**
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Reference 0.1