



# LOCTITE® 5293™

October 2004

## PRODUCT DESCRIPTION

LOCTITE® 5293™ provides the following product characteristics:

<b>Technology</b>	Silicone
<b>Chemical Type</b>	Alkoxy silicone
<b>Appearance (uncured)</b>	Transparent amber to yellow liquid <sup>LMS</sup>
<b>Fluorescence</b>	Positive under UV light <sup>LMS</sup>
<b>Components</b>	One component - requires no mixing
<b>Cure</b>	Ultraviolet (UV) light
<b>Secondary Cure</b>	Moisture for shadowed areas
<b>Application</b>	Conformal coating

LOCTITE® 5293™ is designed to provide environmental protection for printed circuit boards and other sensitive electronic components.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.0
Flash Point - See MSDS	
Viscosity, Brookfield - RVT, 25 °C, :	
Spindle 1, speed 10 rpm	400 to 800 <sup>LMS</sup>
Solids/Non-Volatile Content, %	≥85 <sup>LMS</sup>

## TYPICAL CURING PERFORMANCE

Normal processing conditions will include exposure to sufficient UV light irradiance to effectively cure the material. Surface and/or atmospheric moisture will promote the cure of material in shadowed regions. Although functional strength is developed almost instantly due to the UV curing nature of LOCTITE® 5293™, increased cure properties are developed during 72 hours at ambient conditions.

### Surface Cure

Tack Free Time, ASTM C679, hours:	
Cured @ 22 °C / 50±5% RH	10 to 24 <sup>LMS</sup>

## TYPICAL PROPERTIES OF CURED MATERIAL

Cured @ 70 mW/cm<sup>2</sup> for 60 seconds per side using a glass filtered metal halide light source plus 7 days @ 22°C / 50±5% RH

### Physical Properties:

Coefficient of Thermal Expansion, ASTM E 228, K <sup>-1</sup>	300×10 <sup>6</sup>
Coefficient of Thermal Conductivity, ASTM C 177, W/(m·K)	0.18
Glass Transition Temperature, ASTM E 228, °C	-40
Water Vapor Transmission Rate	1.23 to 1.37

### Electrical Properties:

Dielectric Constant / Dissipation Factor, ASTM D 150:	
100 Hz	4.55 / 0.005
1 kHz	4.1 / 0.006
1 MHz	4.5 / 0.014
Volume Resistivity, ASTM D 257, Ω·cm	1×10 <sup>14</sup>
Dielectric Breakdown Strength, ASTM D 149, kV/mm	16

Cured @ 70 mW/cm<sup>2</sup> for 60 seconds per side

### Physical Properties:

Shore Hardness, ASTM D 2240, Durometer OO	60 to 90 <sup>LMS</sup>
UV Depth of Cure, mm	≥1.3 <sup>LMS</sup>

Cured for 1 week @ 22 °C / 50±5% RH

### Physical Properties:

Elongation, at break, ASTM D 412, %	15
Tensile Strength, ASTM D 412	N/mm <sup>2</sup> 0.4 (psi) (60)

## GENERAL INFORMATION

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. The product is designed to be initially cured with UV light at a minimum irradiance of 70 mW/cm<sup>2</sup> for approximately 20 to 40 seconds, increased exposure may be required for curing deeper sections.
3. Functional strength is achieved almost instantly.
4. Full performance properties will develop over 72 hours.
5. 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.
6. Excess material can be easily wiped away with non-polar solvents.

### Loctite Material Specification<sup>LMS</sup>

LMS dated February 24, 1997. 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: 2 °C to 8 °C. Storage below 2 °C or greater than 8 °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**

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$

$\text{kV/mm} \times 25.4 = \text{V/mil}$

$\text{mm} / 25.4 = \text{inches}$

$\text{N} \times 0.225 = \text{lb}$

$\text{N/mm} \times 5.71 = \text{lb/in}$

$\text{N/mm}^2 \times 145 = \text{psi}$

$\text{MPa} \times 145 = \text{psi}$

$\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$

$\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$

$\text{mPa}\cdot\text{s} = \text{cP}$

**Note**

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