LOCTITE® 366™

August 2005

PRODUCT DESCRIPTION

LOCTITE® 366™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Urethane methacrylate
Appearance (uncured)	Transparent yellow to light amber liquid[LMS]
Components	One component - requires no mixing
Viscosity	Medium
Cure	Ultraviolet (UV) light
Cure Benefit	Production - high speed curing
Secondary Cure	Activator
Application	Bonding

LOCTITE® 366™ is used to bond, seal or coat metal and glass components in industrial applications. Typical uses include unitizing electrical devices, appliance parts and decorative components. When cured, it is highly resistant to vibration and impact forces.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.06
Flash Point - See MSDS	
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 5, speed 20 rpm	5,000 to 10,000[LMS]
Viscosity, EN 12092 - MV, 25 °C, after 180 s, mPa·s (cP):	
Shear rate 36 s^{-1}	5,000 to 9,000

TYPICAL CURING PERFORMANCE

LOCTITE® 366™ is cured when exposed to UV radiation at 365nm. To obtain a full cure on surfaces exposed to air, radiation at 250nm is also required. The speed of cure will depend on the UV intensity as measured at the product surface. Typical cure condition is 20-30 seconds at 100mW/cm² using a medium pressure, quartz envelope, mercury vapor lamp.

Tack Free Time

Tack Free Time is the time required to achieve a tack free surface.

Tack Free Time, seconds:	
100 mW/cm² @ 365 nm	15

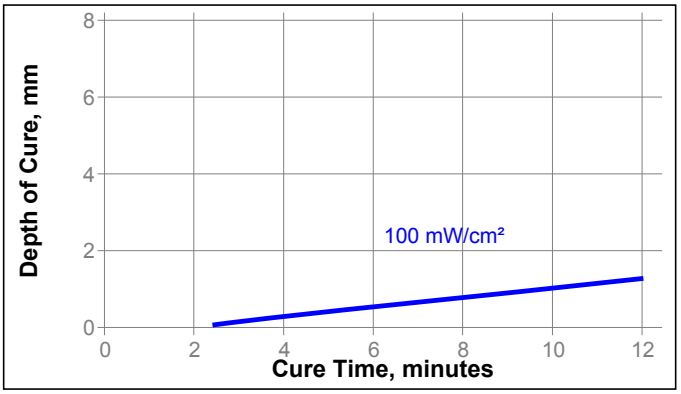
Fixture Time

Fixture time is defined as the time to develop a shear strength of 0.1 N/mm² .

UV Fixture Time, ISO 4587, Glass microscope slides, seconds:	
6 mW/cm² @ 365 nm	≤15[LMS]
100 mW/cm² @ 365 nm	5

Depth of Cure

The graph below shows the increase in depth of cure with time at 100mW/cm² as measured from the thickness of the cured pellet formed in a 15mm diameter PTFE die.



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
Shore Hardness, ISO 868, Durometer D	45

Electrical Properties

Dielectric Breakdown Strength, IEC 60243-1, kV/mm	30
Volume Resistivity, IEC 60093, Ω·cm	2×10^{13}
Dielectric Constant / Dissipation Factor, IEC 60250:	
100 Hz	5.3 / 0.03
1 kHz	5.3 / 0.03
10 kHz	5.3 / 0.03

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured @ 100 mW/cm² @ 365 nm for 20 seconds

Tensile Strength, ISO 6922:		
Steel pin to Glass	N/mm²	10
	(psi)	(1,450)

Cured for 24 hours @ 22 °C, Activator 7649™ on 2 sides

Lap Shear Strength, ISO 4587:		
Steel (grit blasted):		
0 gap	N/mm²	≥13.5[LMS]
	(psi)	(≥1,957)
0.25 mm gap	N/mm²	≥12.4[LMS]
	(psi)	(≥1,798)

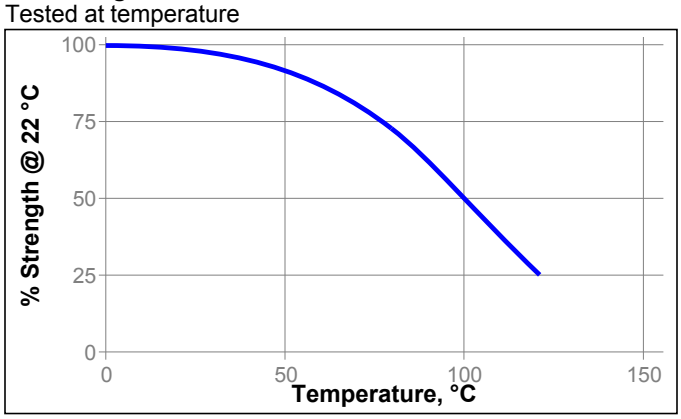
TYPICAL ENVIRONMENTAL RESISTANCE

Cured @ 100 mW/cm² @ 365 nm for 20 seconds plus 1 week @ 22 °C

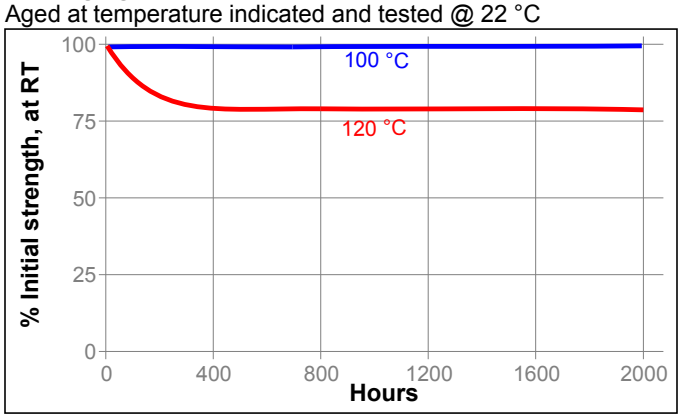
Tensile Strength, ISO 6922:

Steel pin (grit blasted) to Glass

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**	**500 h**
100% RH	50	50
Gasoline	22	60
Transmission fluid	87	100
Water/glycol 50/50	87	40
Phosphate ester	87	100

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. This product is light sensitive; exposure to daylight, UV light and artificial lighting should be kept to a minimum during storage and handling.
2. The product should be dispensed from applicators with black feedlines.
3. For best performance bond surfaces should be clean and free from grease.
4. Cure rate is dependent on lamp intensity, distance from light source, depth of cure needed or bondline gap and light transmittance of the substrate through which the radiation must pass.
5. Recommended intensity for cure in bondline situation is 5 mW/cm² minimum (measured at the bondline) with an exposure time of 4-5 times the fixture time at the same intensity.
6. For dry curing of exposed surfaces, higher intensity UV is required (100 mW/cm²).
7. Cooling should be provided for temperature sensitive substrates such as thermoplastics.
8. Plastic grades should be checked for risk of stress cracking when exposed to liquid adhesive.
9. Excess uncured adhesive can be wiped away with organic solvent (e.g. Acetone).
10. Bonds should be allowed to cool before subjecting to any service loads.

Loctite Material Specification[LMS]
LMS dated September 1, 1995. 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 2.1