Technical Data Sheet

LOCTITE® AA 349™

Known as LOCTITE® 349™
September 2014

PRODUCT DESCRIPTION

LOCTITE® AA 349™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Modified methacrylate ester
Appearance (uncured)	Transparent colorless to pale yellow liquid[LMS]
Components	One component - requires no mixing
Viscosity	Medium
Cure	Ultraviolet (UV) light
Application	Bonding

LOCTITE® AA 349™ bonds and seals glass to glass, or glass to metal components such as precision optical instruments, furniture and industrial devices. The electrical properties of this product also make it suitable for potting and tacking applications.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C 1.02

Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):
Spindle 5, speed 20 rpm, 6,000 to 13,500[LMS]

Flash Point - See SDS

TYPICAL CURING PERFORMANCE

This product is cured when exposed to UV radiation of 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.

Fixture Time

UV fixture time is defined as the light exposure time required to develop a shear strength of 0.1 N/mm² .

UV Fixture Time, Glass, seconds:
Medium pressure mercury arc:
10 mW/cm² , measured @ 365 nm, 3 to 8
100 mW/cm² , measured @ 365 nm, 1 to 5

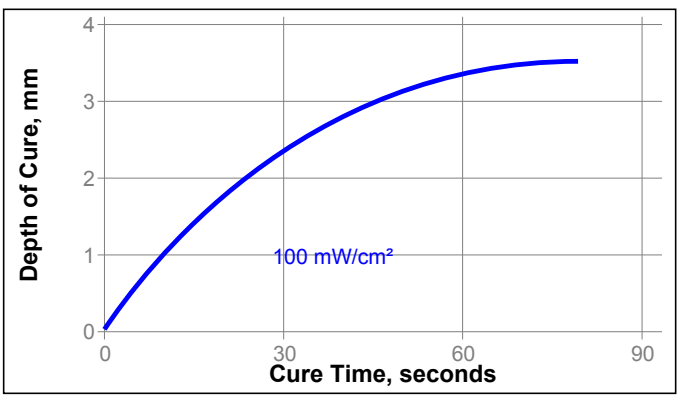
Tack Free Time

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

Tack Free Time, seconds:
Medium pressure mercury arc:
100 mW/cm² , measured @ 365 nm 5 to 10

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, ISO 11359-2, K^{-1}	80×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.1
Specific Heat, kJ/(kg·K)	0.3
Shore Hardness, ISO 868, Durometer D	70

Electrical Properties

Volume Resistivity, IEC 60093, Ω·cm	5×10^{15}
Dielectric Breakdown Strength, IEC 60243-1, kV/mm	90
Dielectric Constant / Dissipation Factor, IEC 60250:	
1 kHz	3.55 / 0.025

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured @ 100 mW/cm² , measured @ 365 nm, for 40 seconds
Tensile Strength, ISO 6922:

Steel pin (grit blasted) to Glass	N/mm²	11
	(psi)	(1,600)

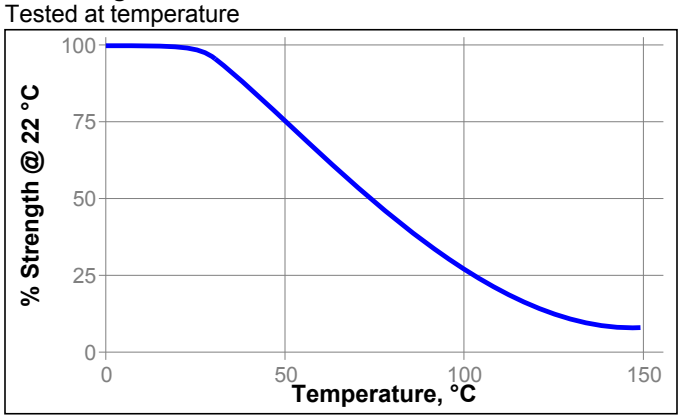
Cured @ 100 mW/cm² , measured @ 365 nm, for 10 seconds plus 24 hours post cure @ 22 °C
Torsional Shear Strength, ASTM D 3658:

Aluminum hex button to Glass	N·m	≥70[LMS]
	(lb.in.)	(≥620)

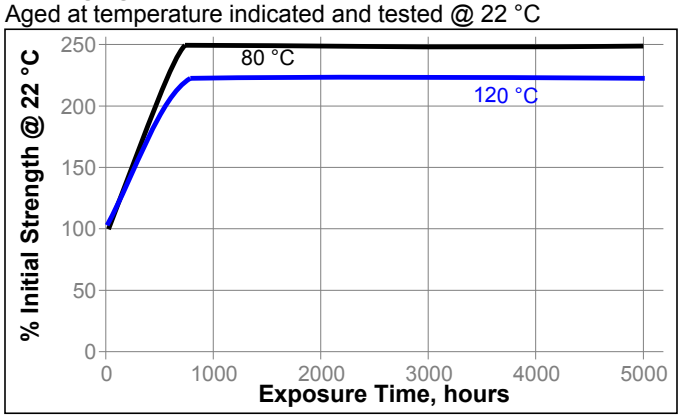
TYPICAL ENVIRONMENTAL RESISTANCE

Cured @ 100 mW/cm² , measured @ 365 nm, for 40 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**	**100 h**	**500 h**	**1000 h**
Gasoline	22	100	100	100
Freon TA	22	100	100	100
Industrial methylated spirits	22	100	100	100
Heat/humidity 90% RH	40	100	100	70

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).

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 40 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 adhesive can be wiped away with organic solvent.
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:

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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