Technical Data Sheet

LOCTITE® AA 3979™

Known as LOCTITE® 3979™
October 2024

PRODUCT DESCRIPTION

LOCTITE® AA 3979™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	UV Acrylic
Appearance (uncured)	Translucent to hazy yellow gel, free of undissolved solids
Fluorescence	Positive under UV light
Components	One component – requires no mixing
Viscosity	Gel
Cure	Ultraviolet (UV) / Visible light
Application	Bonding

LOCTITE® AA 3979™ is a one component UV/Visible light cure acrylic designed for medical bonding applications where the fluorescent properties of substrates interfere with the detection of the adhesives. This adhesive fluoresces red under UV light. Rapid cure is achieved by exposure to ultraviolet light or visible light of the appropriate wavelength.

ISO-10993

LOCTITE® AA 3979™ has been tested to Henkel's test protocols based on ISO-10993 biocompatibility standards, as a means to assist in the selection of products for use in the medical device industry.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.1
Refractive Index, ASTM D542	1.48
Viscosity, Cone & Plate, 25 °C, mPa·s (cP): Physica MC100, Cone MK 22, CP50, shear rate 2 s^{-1}	56,500
Viscosity, Cone & Plate, 25 °C, mPa·s (cP): Physica MC100, Cone MK 22, CP50, shear rate 20 s^{-1}	10,500

TYPICAL CURING PERFORMANCE

Stress Cracking

Liquid adhesive is applied to a medical grade polycarbonate bar 10.2 cm by 2.6 cm by 3 mm which is then flexed to induce a known stress level.

Stress cracking, ASTM D 3929, minutes:

13.8 N/mm² stress on bar	5
17.2 N/mm² stress on bar	4

Fixture Time

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

UV Fixture Time, Glass microscope slides, seconds:

LED flood light, CL42:

514 mW/cm², measured @ 405 nm	5
1290 mW/cm², measured @ 405 nm	5
100 mW/cm², measured @ 365 nm	5
1000 mW/cm², measured @ 365 nm	5

Medium Pressure mercury arc:

100 mW/cm², measured @ 365 nm	5

Electrodeless, D bulb:

100 mW/cm², measured @ 365 nm	15

LED CureJet:

100 mW/cm², measured @ 405 nm	15

Tack Free Time

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

Tack Free Time, seconds:

LED flood light, CL42:

514 mW/cm², measured @ 405 nm	60
1290 mW/cm², measured @ 405 nm	60
100 mW/cm², measured @ 365 nm	10
1000 mW/cm², measured @ 365 nm	5

Tack Free Time, minutes:

Medium Pressure mercury arc:

100 mW/cm², measured @ 365 nm	2

Electrodeless, D bulb:

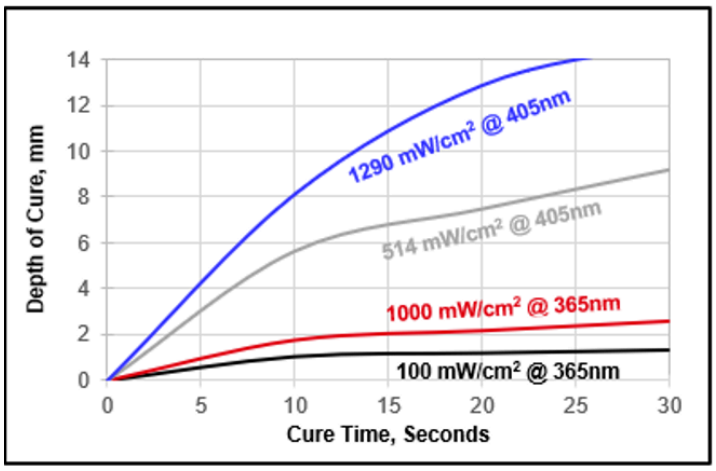
100 mW/cm², measured @ 365 nm	2

LED CureJet:

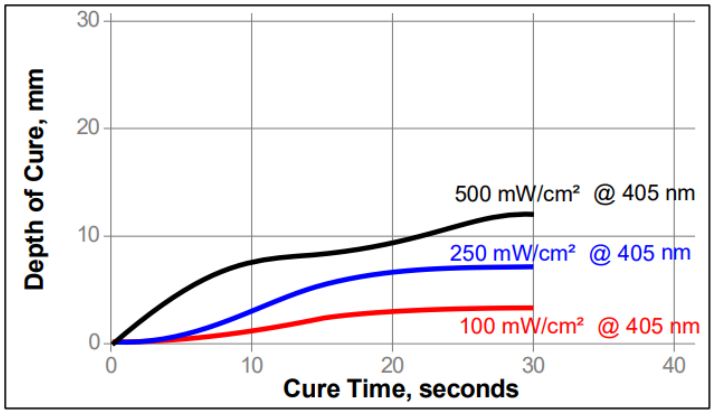
100 mW/cm², measured @ 405 nm	2

Depth of Cure vs. Irradiance (LED)
The graph below shows the increase in depth of cure with time at various light intensities as measured from the thickness of the cured product formed.

Curing System: LED flood light, CL42

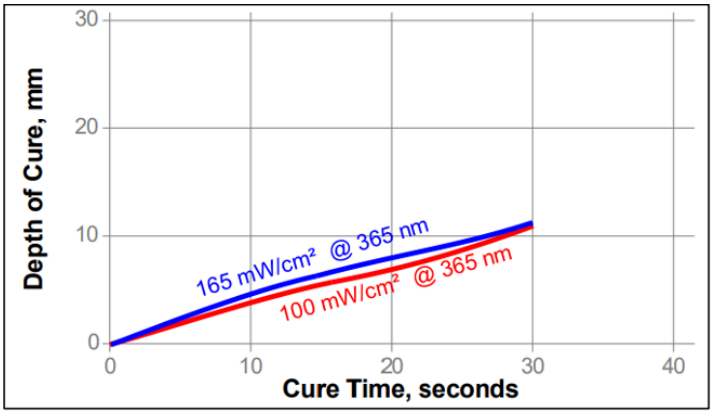


Curing System: CureJet

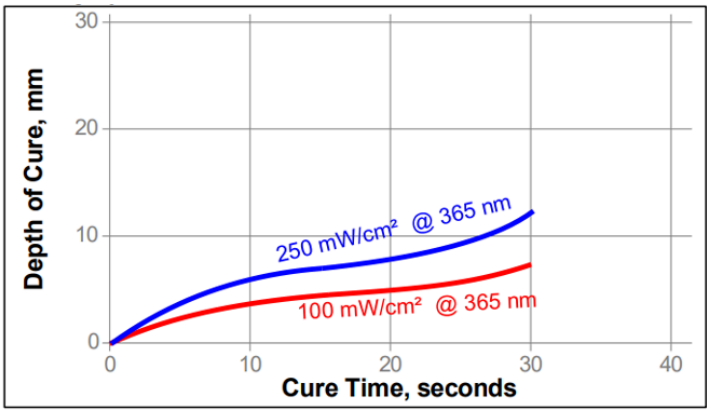


Depth of Cure vs. Irradiance (365 nm)
The graph below shows the increase in depth of cure with time at 100 mW/cm^2 – 250 mW/cm^2 as measured from the thickness of the cured product formed.

Curing System: Medium Pressure Mercury Arc



Curing System: Electrodeless, D bulb



TYPICAL PERFORMANCE OF CURED MATERIAL
Cured @ 100 mW/cm², measured @ 365 nm, for 30 seconds using an Electrodeless system, D bulb

Physical Properties:

Shore Hardness, ISO 868, Durometer D:		56
Refractive Index, ASTM D542		1.5
Water Absorption, ISO 62, %		
2 hours in boiling water		5.8
Linear Shrinkage, in/in		2.0
Volume Shrinkage, %		6.0
Elongation, at break, ISO 527-3, %		227
Tensile Modulus, ISO 527-3	N/mm^2 (psi)	378 (54,780)
Tensile Strength, ISO 527-3	N/mm^2 (psi)	18 (2,620)

Electrical Properties:

Dielectric Constant / Dissipation Factor, IEC 60250: Open Ended Coaxial Probe	
5-GHz	3.16/.058
10-GHz	3.09/.05
20-GHz	3.01/.044
30-GHz	2.98/.041
40-GHz	2.96/.04
50-GHz	2.92/.041
Dielectric Breakdown Strength, IEC 60243-1, kV/mm	24
Surface Resistivity, IEC 60093, Ω	2.37×10^{12}
Volume Resistivity, IEC 60093, Ω·cm	1.9×10^{11}

Adhesive Properties

Cured @ 280 mW/cm², for 10 seconds using a LOCTITE® Indigo™ 7418 Visible Flood Source, plus 1 hour @ 25 °C

Block Shear Strength, ISO 13445:

Polycarbonate (UV Transmitting)	N/mm² (psi)	12.41 (1,800)

Cured @ 100 mW/cm², measured @ 365 nm, for 30 seconds per side using an Electrodeless system, D bulb, plus 24 hours @ 22 °C

Block Shear Strength, ISO 13445:

Polycarbonate to Polycarbonate	N/mm² (psi)	30 (4,320)
Nylon to Polycarbonate	N/mm² (psi)	13 (1,880)
ABS to Polycarbonate	N/mm² (psi)	22 (3,180)
PVC to Polycarbonate	N/mm² (psi)	12 (1,685)

Lap Shear Strength:

Stainless Steel to Polycarbonate	N/mm² (psi)	9 (1,320)

TYPICAL ENVIRONMENTAL RESISTANCE

Cured @ 100 mW/cm², measured @ 365 nm, for 30 seconds per side using an Electrodeless system, D bulb

Block Shear Strength, ISO 13445:
Polycarbonate to Polycarbonate

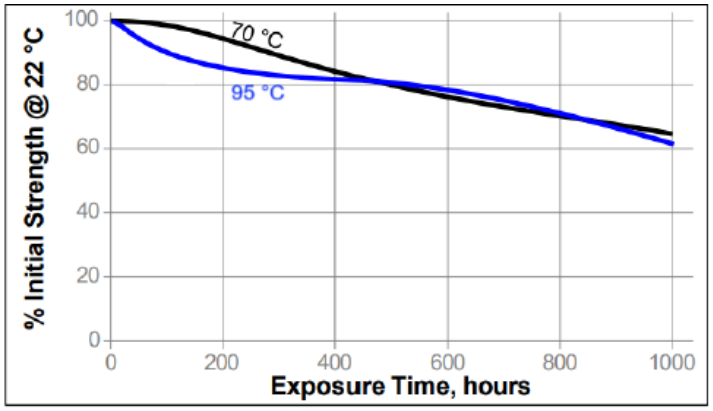
Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 23°C.

		% of initial strength		
Environment	**°C**	**170 h**	**500 h**	**1000 h**
Water Immersion	50	60	50	40
Isopropanol immersion	22	75	55	35
95% RH	38	80	50	50

Heat Aging

Aged at temperature indicated and tested @ 22 °C.



Effects of Sterilization

Block Shears sterilized as indicated and tested @ 22 °C
% of initial strength:

	Gamma	ETO	Autoclave	
	30 kGy	1 Cycle	1 Cycle	5 Cycle
Polycarbonate	80	80	80	60

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. Cooling should be provided for temperature sensitive substrates such as thermoplastics.
6. Plastic grades should be checked for risk of stress cracking when exposed to liquid adhesive.
7. Excess adhesive can be wiped away with organic solvent.
8. Bonds should be allowed to cool before subjecting to any service loads.

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 Henkel representative.

Product Specification

The technical data contained herein are intended as reference only and are not considered specifications for the product.
Product specifications are located on the Certificate of Analysis or please contact Henkel representative.

Approval and Certificate
Please contact Henkel representative for related approval or certificate of this product.

Data Ranges
The data contained herein may be reported as a typical value. Values are based on actual test data and are verified on a periodic basis.

Temperature/Humidity Ranges: 23°C / 50% RH = 23±2°C / 50±5% RH

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

Disclaimer
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