Technical Data Sheet

LOCTITE® AA 3320™

April 2019

Product description

LOCTITE® AA 3320™ provides the following product characteristics:

Technology	Acrylic
Chemical type	Acrylated urethane
Appearance	Colorless to light yellow liquid
Viscosity	Medium, thixotropic
Cure	Ultraviolet (UV) / Visible light
Application	Bonding
Flexibility	Enhances load bearing & shock absorbing characteristics of the bond area.

LOCTITE® AA 3320™ is primarily designed for bonding rigid or flexible PVC to polycarbonate where large gap filling capabilities and flexible joints are desired. The product has shown excellent adhesion to a wide variety of substrates including glass, many plastics and most metals. The thixotropic nature of LOCTITE® AA 3320™ reduces the migration of liquid product after application to the substrate.

Typical properties of uncured material

Specific gravity @ 25°C	1.08
Refractive index	1.48
Flash point - see SDS	
Viscosity, anton paar, CP50-1, $20S^{-1}$, mPa.s	3000 to 5000

Typical curing performance

LOCTITE® AA 3320™ can be cured by exposure to UV and/or visible light of sufficient intensity. To obtain full cure on surfaces exposed to air, radiation @ 220 to 260 nm is also required. The speed of cure will depend upon the UV intensity and spectral distribution of the light source, the exposure time and the light transmittance of the substrates.

Fixture time

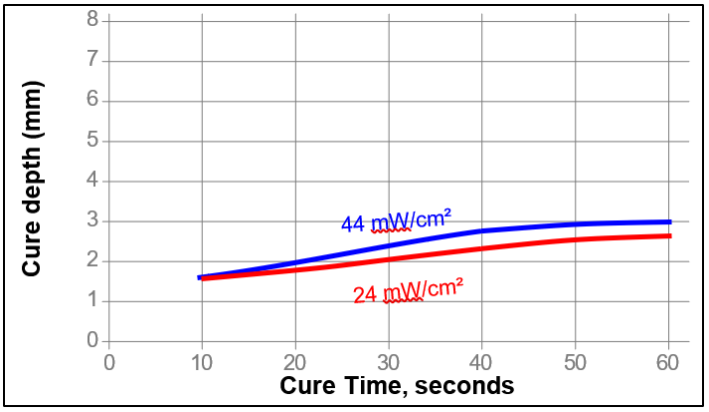
Fixture time is defined as the time to develop a shear strength of 0.1 N/mm².

UV fixture time, PC to PC, seconds	
LED flood:	
35 mW/cm², measured @ 365nm	<5
LED flood:	
40 mW/cm², measured @ 405nm	<5

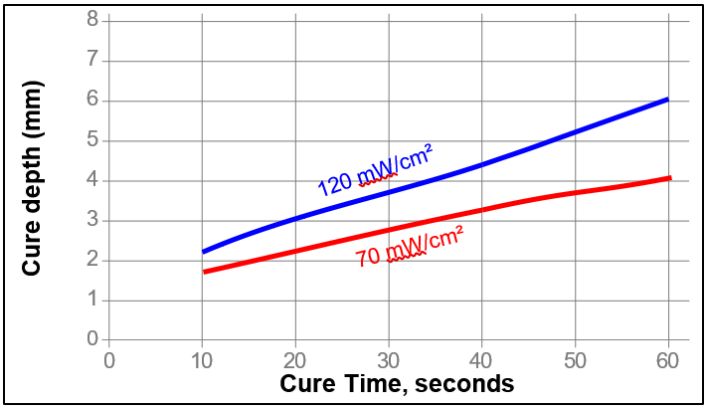
Depth of Cure vs. Irradiance (365 nm)

The graphs below show the increase in depth of cure with time at 24 mW/cm² - 120 mW/cm² as measured from the thickness of the cured product formed in a 15 mm diameter PTFE die.

Curing system: LED flood



Curing system: UVALOC 1000



Typical properties of cured material

Physical properties

Shore Hardness, ISO 868, Durometer D		49
Water absorption, ISO 62, %:		6.2
Elongation, at break, ISO 527-3, %		153
Tensile Modulus, ISO 527-3	N/mm^2 (psi)	273 (39,595)
Tensile Strength, at break, ISO 527-3	N/mm^2 (psi)	21.9 (3,176)

Typical performance of cured material

Adhesive properties

Cured @100 mW/cm² , measured @365 nm, for 30 seconds using a LOCTITE® UVALOC® 1000, (samples with 0.5 mm gap).

Lap Shear Strength, ISO 4587:

Polycarbonate	N/mm^2 (psi)	*9.3 (1,348)

*substrate failure

Typical environmental resistance

Cured @100 mW/cm² , measured @365 nm, for 30 seconds using a LOCTITE® UVALOC® 1000, (samples with 0.5 mm gap).
Lap Shear Strength, ISO 4587:
Polycarbonate:
0.5 mm gap

Chemical/solvent resistance

Aged under conditions indicated and tested @ 22 °C.

		% of initial strength		
Environment	°C	2 h	24 h	170 h
Boiling water	100	*100	-----	-----
Water Immersion	49	*100	-----	-----
Water Immersion	87	*100	-----	-----
Isopropanol immersion	22	-----	*97	-----

Heat aging

Lap shear strength, ISO 4587, % of initial strength:
Polycarbonate:

Aged @ 71°C for 170 hours	*100
Aged @ 71°C for 340 hours	*100
Aged @ 93°C for 170 hours	*100
Aged @ 93°C for 340 hours	*100

*substrate failure

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.

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. Crystalline and semi-crystalline thermoplastics 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.

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 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

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