Technical Data Sheet

LOCTITE® AA 3341™

Known as LOCTITE® 3341™
January 2015

PRODUCT DESCRIPTION

LOCTITE® AA 3341™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Acrylated urethane
Appearance (uncured)	Transparent light yellow liquid[LMS]
Fluorescence	Positive under UV light[LMS]
Components	One component - requires no mixing
Viscosity	Low
Cure	Ultraviolet (UV)/ visible light
Cure Benefit	Production - high speed curing
Application	Bonding or Potting
Flexibility	Enhances load bearing & shock absorbing characteristics of the bond area.

LOCTITE® AA 3341™ is designed primarily for bonding heavily plasticized PVC. This product has shown good adhesion to other thermoplastics, such as polycarbonate and ABS. Suitable for use in the assembly of **disposable medical devices**.

ISO-10993

An ISO 10993 Test Protocol is an integral part of the Quality Program for LOCTITE® AA 3341™. LOCTITE® AA 3341™ has been qualified to Henkel's ISO 10993 Protocol as a means to assist in the selection of products for use in the medical device industry. Certificates of Compliance are available on Henkel's website or through the Henkel Quality Department.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.09
Refractive Index	1.47
Flash Point - See SDS	
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 1, speed 10 rpm,	400 to 650[LMS]

TYPICAL CURING PERFORMANCE

LOCTITE® AA 3341™ 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.

Stress Cracking

Liquid adhesive is applied to a medical grade polycarbonate bar 6.4 cm by 13 mm by 3 mm which is then flexed to induce a known stress level.

Stress Cracking, ASTM D 3929, minutes:

12 N/mm² stress on bar	>15

Tack Free Time

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

Tack Free Time, seconds:

Zeta® 7400 light source, Metal Halide bulb (Indium):	
30 mW/cm² , measured @ 400 nm	80 to 90
50 mW/cm² , measured @ 400 nm	70 to 80
Electrodeless, V bulb:	
30 mW/cm² , measured @ 365 nm	5 to 10
50 mW/cm² , measured @ 365 nm	5 to 10
100 mW/cm² , measured @ 365 nm	5 to 10
Electrodeless, H bulb:	
30 mW/cm² , measured @ 365 nm	5 to 10
50 mW/cm² , measured @ 365 nm	5 to 10
100 mW/cm² , measured @ 365 nm	<5
Electrodeless, D bulb:	
50 mW/cm² , measured @ 365 nm	20 to 30
100 mW/cm² , measured @ 365 nm	10 to 20
Medium Pressure Hg Arc bulb, Zeta® 7200 light source:	
50 mW/cm² , measured @ 365 nm	10 to 20
100 mW/cm² , measured @ 365 nm	10 to 20

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:

Black light, Zeta® 7500 light source:	
6 mW/cm² , measured @ 365 nm	≤10[LMS]

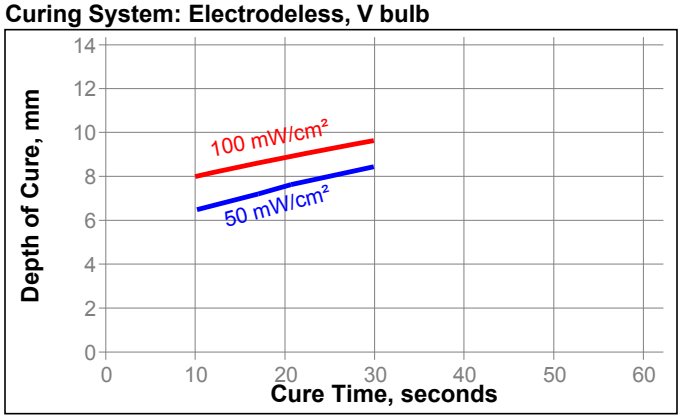
UV Fixture Time, Polycarbonate, seconds:

Zeta® 7400 light source, Metal Halide bulb (Indium):	
30 mW/cm² , measured @ 400 nm	<5
50 mW/cm² , measured @ 400 nm	<5
Electrodeless, V bulb:	
30 mW/cm² , measured @ 365 nm	<5
50 mW/cm² , measured @ 365 nm	<5
Electrodeless, H bulb:	
30 mW/cm² , measured @ 365 nm	<5
50 mW/cm² , measured @ 365 nm	<5
Electrodeless, D bulb:	
50 mW/cm² , measured @ 365 nm	20 to 30
100 mW/cm² , measured @ 365 nm	10 to 20
Medium Pressure Hg Arc bulb, Zeta® 7200 light source:	
50 mW/cm² , measured @ 365 nm	10 to 20
100 mW/cm² , measured @ 365 nm	10 to 20

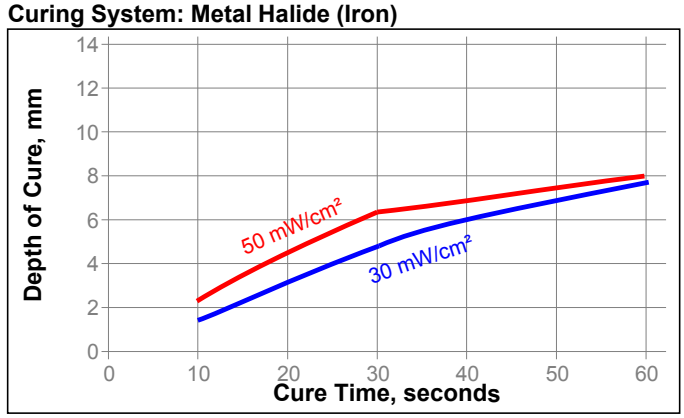
Depth of Cure vs. Irradiance (365 nm)

The graphs below show the increase in depth of cure with time at 30 mW/cm² - 100 mW/cm² as measured from the thickness of the cured product formed in a 9.5mm trough.

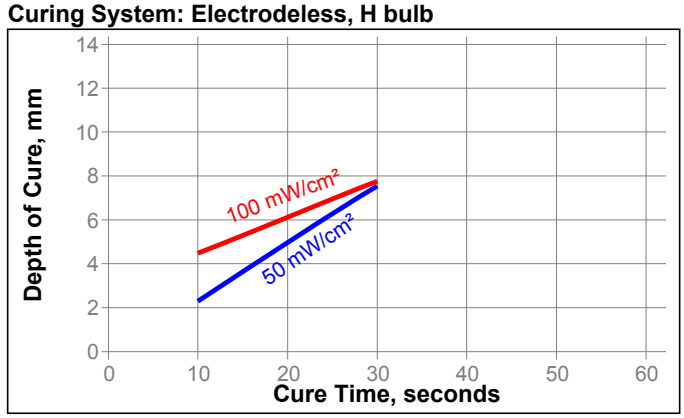
Curing System: Electrodeless, V bulb



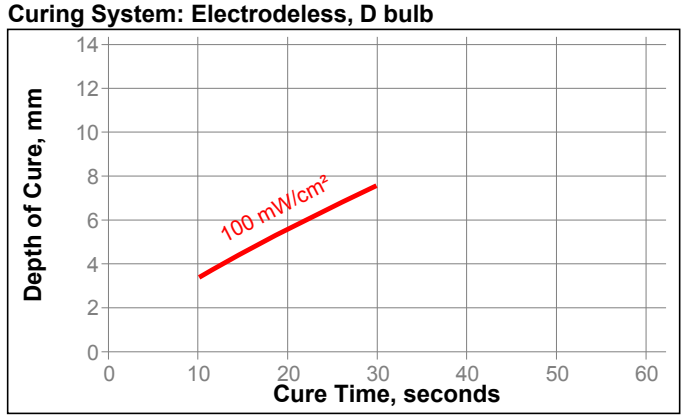
Curing System: Metal Halide (Iron)



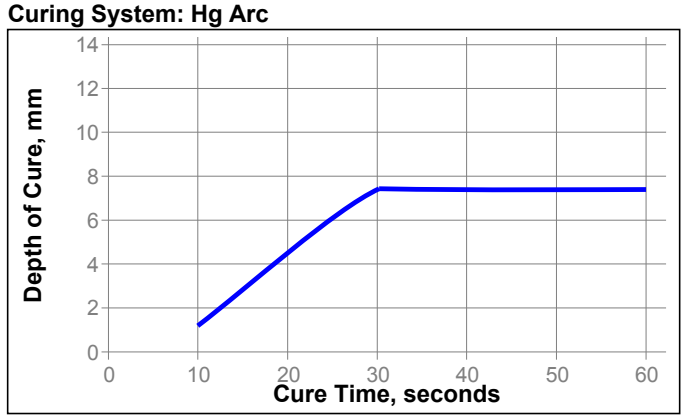
Curing System: Electrodeless, H bulb



Curing System: Electrodeless, D bulb



Curing System: Hg Arc



TYPICAL PROPERTIES OF CURED MATERIAL

Cured @ 30 mW/cm² , measured @ 400 nm for 30 seconds using an indium doped metal halide light source

Physical Properties:

Shore Hardness, ISO 868, Durometer D		27
Refractive Index		1.5
Water Absorption, ISO 62, %:		
2 hours in boiling water		3.64
Elongation, at break, ISO 527-3, %		220
UV Depth of Cure, mm		4.0
Tensile Modulus, ISO 527-3	N/mm² (psi)	25 (3,600)
Tensile Strength, at break, ISO 527-3	N/mm² (psi)	15 (2,200)

Electrical Properties:

Surface Resistivity, IEC 60093, Ω·cm	2.30×10^{15}
Volume Resistivity, IEC 60093, Ω·cm	9.62×10^{14}
Dielectric Breakdown Strength, , kV/mm	31.5
Dielectric Constant / Dissipation Factor, IEC 60250:	
100 Hz	4.52 / 0.05
1 kHz	5.07 / 0.05
1 MHz	3.52 / 0.04

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured @ 30 mW/cm² , measured @ 400 nm for 30 seconds using an indium doped metal halide light source

Block Shear Strength, ISO 13445:

Polycarbonate to PVC	N/mm² (psi)	≥6.2[LMS] (≥899)

TYPICAL ENVIRONMENTAL RESISTANCE

Cured @ 30 mW/cm² , measured @ 400 nm for 30 seconds using an indium doped metal halide light source

Block Shear Strength, ISO 13445:

Polycarbonate to PVC:

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**
Air	71	------	------	100
Air	93	------	------	100
Boiling water	100	95	------	------
Water immersion	49	------	------	40
Water immersion	87	------	------	20
Isopropanol immersion	22	------	75	------
Heat/humidity 95% RH	38	------	------	60

Effects of Sterilization

In general, products similiar in composition to LOCTITE® AA 3341™ subjected to standard sterilization methods, such as EtO and Gamma Radiation (25 to 50 kiloGrays cumulative) show excellent bond strength retention. LOCTITE® AA 3341™ maintains bond strength after 1 cycle of steam autoclave. It is recommended that customers test specific parts after subjecting them to the preferred sterilization method. Consult with Loctite® for a product recommendation if your device will see more than 3 sterilization cycles.

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 uncured adhesive can be wiped away with organic solvent (e.g. Acetone).
8. Bonds should be allowed to cool before subjecting to any service loads.

Loctite Material Specification[LMS]

LMS dated July 30, 2004. 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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Reference 1.4