Technical Data Sheet

LOCTITE® EA 3335™

Known as LOCTITE® 3335™
December 2014

PRODUCT DESCRIPTION

LOCTITE® EA 3335™ provides the following product characteristics:

Technology	UV Epoxy
Chemical Type	Epoxy
Appearance (uncured)	Clear liquid[LMS]
Components	One part - requires no mixing
Cure	Ultraviolet (UV)/ Cationic
Application	Bonding

LOCTITE® EA 3335™ is a single part epoxy based adhesive which cures rapidly to form hard, translucent coatings when exposed to medium intensity ultraviolet light of suitable wavelength. LOCTITE® EA 3335™ exhibits low shrinkage and, when cured, exhibits good thermal, water and chemical resistance. LOCTITE® EA 3335™ is designed primarily for bonding, coating and tacking applications on metal, plastics or glass substrates. LOCTITE® EA 3335™ is suitable for applications where low outgassing is required.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.1 to 1.18[LMS]
Flash Point - See SDS	
Infrared Spectroscopy	≥95 %[LMS]
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 6, speed 50 rpm,	5,000 to 7,000[LMS]

TYPICAL CURING PERFORMANCE

LOCTITE® EA 3335™ can be cured by exposure to UV light @ 365 nm. To obtain full cure on exposed surfaces, irradiation at 220 to 260 nm is also required. Both speed and depth 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.

Tack Free Time

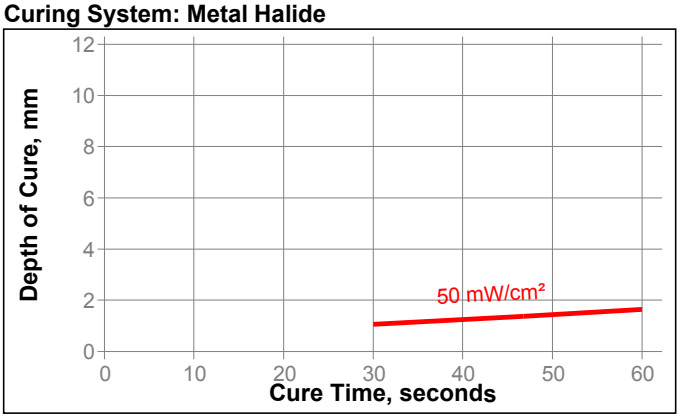
Tack Free Time is the time required to achieve a tack free surface

Tack Free Time, seconds:	
Metal Halide:	
30 mW/cm² , measured @ 365 nm	<20
50 mW/cm² , measured @ 365 nm	<20
Hg Arc:	
50 mW/cm² , measured @ 365 nm	<20
100 mW/cm² , measured @ 365 nm	<10
Electrodeless, D bulb:	
50 mW/cm² , measured @ 365 nm	<30
100 mW/cm² , measured @ 365 nm	<20

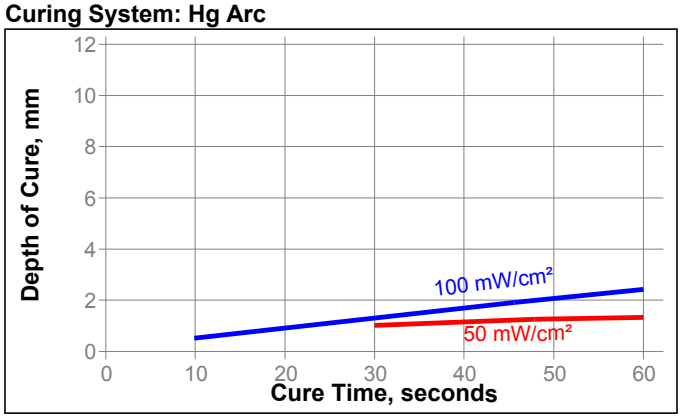
Depth of Cure vs. Irradiance (365 nm)

The graphs below show the increase in depth of cure with time at 50 mW/cm² and 100 mW/cm² as measured from the thickness of the cured test piece.

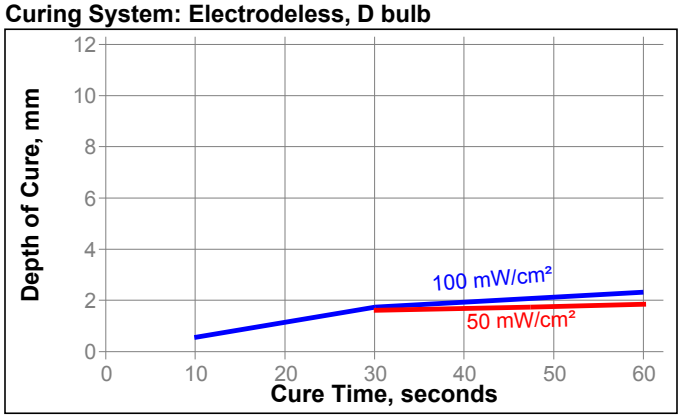
Curing System: Metal Halide



Curing System: Hg Arc



Curing System: Electrodeless, D bulb



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}		58.9×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)		0.205
Glass Transition Temperature, ISO 11357-2, °C		135
Refractive Index, ASTM D542		1.586
Volume Shrinkage, ASTM D 792, %		2.18
Shore Hardness, ISO 868, Durometer D		≥80[LMS]
Water Absorption, ISO 62, %:		
2 hours in boiling water		1.1
Extractable Ionic Content, µg/g:		
Chloride		1.1
Sodium		1.3
Potassium		<1.0
Fluoride		<1.0
Elongation, at break, ISO 527-3, %		2.2
Tensile Strength, at break, ISO 527-3	N/mm² (psi)	46.6 (6,755)
Tensile Modulus, ISO 527-3	N/mm² (psi)	2,344 (340,000)

Electrical Properties:

Volume Resistivity, IEC 60093, Ω·cm	4.10×10^{15}
Surface Resistivity, IEC 60093, Ω	1.88×10^{17}
Dielectric Breakdown Strength, IEC 60243-1, kV/mm	42.9

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured @ 100 mW/cm² , measured @ 365 nm, for 10 seconds using a Medium Pressure Hg Arc light source, followed by 24 hours @ 22 °C

Block Shear Strength, ISO 13445:

Glass to Steel (grit blasted)	N/mm² (psi)	2.9 (420)
Glass to Aluminum (grit blasted)	N/mm² (psi)	1.8 (260)
Polycarbonate to Polycarbonate	N/mm² (psi)	1.6 (230)
Acrylic to Acrylic	N/mm² (psi)	2.2 (320)

TYPICAL ENVIRONMENTAL RESISTANCE

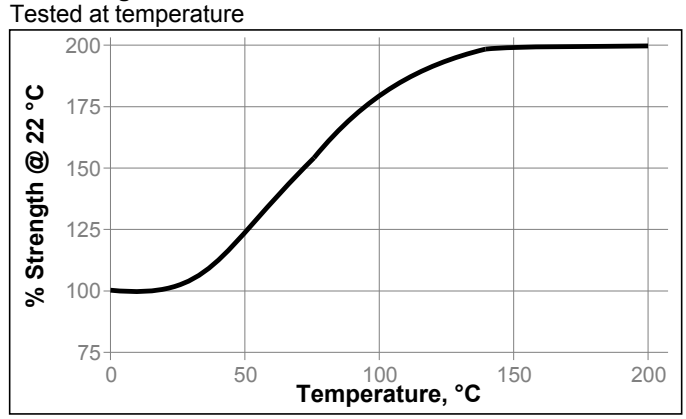
Cured @ 100 mW/cm² , measured @ 365 nm, for 30 seconds followed by 24 hours @ 22 °C

Block Shear Strength, ISO 13445:

Steel (grit blasted) to Glass:

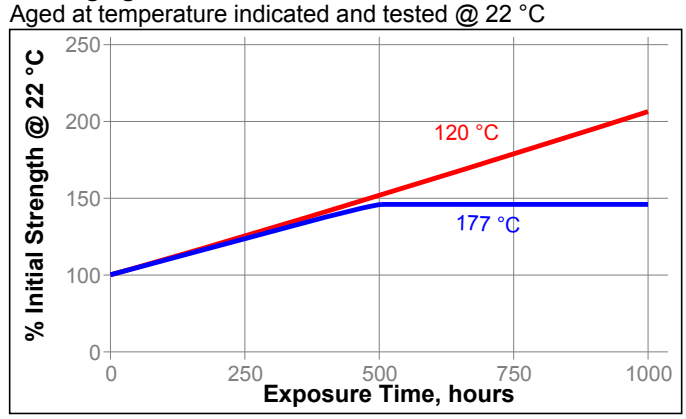
Hot Strength

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**	**1000 h**
Air	87	230	220
95% RH	40	80	80
95% RH	50	70	120
Water immersion	22	100	85
Salt fog	40	60	100
Motor oil (10W20)	87	155	80
Unleaded gasoline	87	200	165

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. LOCTITE® EA 3335™ is UV 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. Crystalline and semi-crystalline thermoplastics should be checked for risk of stress cracking when exposed to liquid adhesive.
6. Excess adhesive can be wiped away with organic solvent.
7. Bonds should be allowed to cool before subjecting to any service loads.

Loctite Material Specification[LMS]
LMS dated September 03, 2003. 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

Reference 1.3