

# LOCTITE<sup>®</sup> AA 3311 HV<sup>™</sup>

August 2019

## PRODUCT DESCRIPTION

LOCTITE<sup>®</sup> AA 3311 HV<sup>™</sup> provides the following product characteristics:

<b>Technology</b>	Acrylic
Chemical Type	Acrylated urethane
Appearance (uncured)	Transparent liquid <sup>LMS</sup>
Fluorescence	Positive under UV light <sup>LMS</sup>
<b>Cure</b>	Ultraviolet (UV) light
Cure Benefit	Production - high speed curing
<b>Application</b>	Bonding
Specific Benefit	<ul style="list-style-type: none"> <li>Enhances load bearing</li> <li>Shock absorbing characteristics</li> </ul>

LOCTITE<sup>®</sup> AA 3311 HV<sup>™</sup> is a medium viscosity light cure adhesive designed for applications where a fast curing, high adhesion and sterilization resistance adhesive is required. It is an optimal choice when bonding stainless steel cannula and PP hub. It also maintains high adhesion to rigid substrates such as polycarbonate, ABS, Acrylic, HDPE (when treated), PP (when treated) and more. 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<sup>®</sup> AA 3311 HV<sup>™</sup>. LOCTITE<sup>®</sup> AA 3311 HV<sup>™</sup> 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 1.1  
 Flash Point - See SDS  
 Viscosity, Physica rheometer, 25 °C, mPa·s (cP):  
 @ 100 s<sup>-1</sup> 550 to 810<sup>LMS</sup>

## TYPICAL CURING PERFORMANCE

### 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:

7 N/mm <sup>2</sup> stress on bar	>15
12 N/mm <sup>2</sup> stress on bar	3 to 4

### Fixture Time

Fixture time is defined as the time to develop a shear strength of 0.1 N/mm<sup>2</sup>.

UV Fixture Time, Glass microscope slides, seconds:

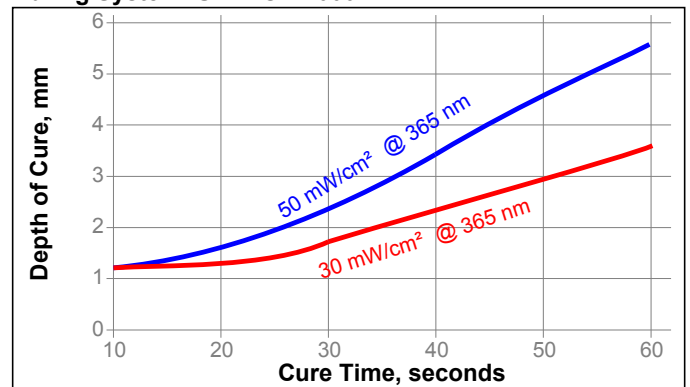
LOCTITE<sup>®</sup> UVALOC<sup>®</sup> 1000:

6 mW/cm <sup>2</sup> , measured @ 365 nm:	
0 gap	≤15 <sup>LMS</sup>
30 mW/cm <sup>2</sup> , measured @ 365 nm:	
0 gap	≤5

### Depth of Cure vs. Irradiance (365 nm)

The graphs below show the increase in depth of cure with time at 30mW/cm<sup>2</sup> - 50mW/cm<sup>2</sup> as measured from the thickness of the cured product formed in a 9.5mm trough.

### Curing System: UVALOC 1000



**TYPICAL PROPERTIES OF CURED MATERIAL**30 mW/cm<sup>2</sup>, measured @ 365 nm, for 80 seconds**Physical Properties**

Shore Hardness, ISO 868, Durometer D	60
Elongation, at break, ISO 527-3, %	198
Tensile Strength, at break, ISO 527-3	N/mm <sup>2</sup> 21 (psi) (3,045)
Tensile Modulus, ISO 527-3	N/mm <sup>2</sup> 346 (psi) (50,170)

**TYPICAL PERFORMANCE OF CURED MATERIAL****Adhesive Properties**Cured @ 30 mW/cm<sup>2</sup>, measured @ 405 nm for 120 seconds

Lap Shear Strength, ISO 4587:

Polycarbonate	N/mm <sup>2</sup> 30.86 (psi) (4,475)
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Cured @ 30 mW/cm<sup>2</sup>, measured @ 365 nm for 80 seconds

Lap Shear Strength, ISO 4587:

Polycarbonate	N/mm <sup>2</sup> 11.1 (psi) (1,610)
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**TYPICAL ENVIRONMENTAL RESISTANCE**Cured @ 30 mW/cm<sup>2</sup>, measured @ 365 nm, for 80 seconds

Lap Shear Strength, ISO 4587:

Polycarbonate:  
0.5 mm gap

**Chemical/Solvent Resistance**

Aged under conditions indicated and tested @ 22 °C.

Environment	°C	% of initial strength		
		2 h	24 h	170 h
Boiling water	100	85	-----	-----
Isopropanol immersion	21	-----	82	-----
Heat/humidity 60% RH	38	-----	-----	85
Water immersion	49	-----	-----	81

**Heat Aging**

Lap Shear Strength, ISO 4587, % of initial strength:

Polycarbonate:	
Aged @ 71 °C for 170 hours	86
Aged @ 71 °C for 340 hours	86
Aged @ 93 °C for 170 hours	88
Aged @ 93 °C for 340 hours	88

**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 5 mW/cm<sup>2</sup> 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/cm<sup>2</sup>).
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 uncured adhesive can be wiped away with organic solvent (e.g. Acetone).
10. Bonds should be allowed to cool before subjecting to any service loads.

**Loctite Material Specification<sup>LMS</sup>**

LMS dated October 2, 2000. 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/mm<sup>2</sup> 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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