

# LOCTITE AD 8650

February 2020

## PRODUCT DESCRIPTION

LOCTITE AD 8650 provides the following product characteristics:

<b>Technology</b>	Silicone
<b>Appearance</b>	Transparent liquid
<b>Appearance (cured)</b>	Clear, transparent solid
<b>Cure</b>	UV Cure
<b>Application</b>	Display devices, optical bonding
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>• Single component</li> <li>• Good optical properties</li> <li>• LOCA (Liquid Optical Clear Adhesive)</li> </ul>

LOCTITE AD 8650 is a low modulus, single component Liquid Optical Clear Adhesive (LOCA), specifically designed for gap filling of display devices for improved optical performance and durability. Upon exposure to UV/Visible light it cures into a clear, transparent silicone rubber.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Chemistry Type	Light Cure Silicone
Specific Gravity @ 25°C	0.97
Refractive Index	1.41
Viscosity @ 25°C, mPa.s	
Cone & Plate @ 12[1/s]	

## TYPICAL CURING PERFORMANCE

Typical processing conditions will include exposure to a UV or visible light source for a time determined by the application to effectively cure the material. Full cure properties are achieved using a Medium Pressure Hg Arc lamp bulb @ 100 mW/cm<sup>2</sup> (320-400 nm UVA dosimeter) in approximately 30 seconds or total UVA energy of 3 J/cm<sup>2</sup> between substrates and light source.

Using 405 nm LED the recommended intensity of 400 mW/cm<sup>2</sup> applied for 30 seconds or a total UVV energy amount of 12 J/cm<sup>2</sup> is needed for curing.

NOTE: material will maintain a slight surface tackiness after curing.

Cured with 405 nm LED 300 mW/cm<sup>2</sup> .

UV Depth of Cure after 30 sec	>10
405nm LED (300 mW/cm <sup>2</sup> )	
or MH (100 mW/cm <sup>2</sup> )	

UV Fixture Time, seconds	<5
Henkel STM 753	
Volume Shrinkage, %	<1
Henkel STM 753	

## TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties	Typical Value
Appearance	Colorless (Clear), Transparent solid
Hardness, Shore 000, ASTM D2240	10 to 30
% Elongation @ break, ASTM D412, %	>300
Storage shear modulus, G', Pa	2,900
tan delta	0.32

### Electrical Properties

Dielectric Constant / Dissipation Factor, IEC 60250:	
1-kHz	2.92 / 2.9 x 10 <sup>-4</sup>
100-kHz	2.91 / 5.4 x 10 <sup>-4</sup>
1-MHz	2.91 / 6.6 x 10 <sup>-4</sup>

### Optical Properties

TS297 Glass Specimens cured with 405 nm LED @ 300 mW/cm <sup>2</sup> for 40 seconds.	
LOCA thickness between glass microns	300
Light Transmission @ 550 nm, %	>99
b* (Yellowness) color value	
Haze, %	0.1

### RELIABILITY Testing

QUV Testing: Pass	
After 1,000 hours	No Delamination
HT Testing: Pass	
After 1,000 hours @ 95°C	No Delamination
HTHH Testing: Pass	
After 1,000 hours @ 85°C/85% RH	No Delamination
HTHH Testing: Pass	
After 1,000 hours @ 65°C/95% RH	No Delamination

**GENERAL INFORMATION**

**For safe handling information on this product, consult the Safety Data Sheet, (SDS).**

**DIRECTIONS FOR USE**

1. This product is light sensitive and should be kept to a minimum exposure to UV/Visible light during storage and handling.
2. The product should be dispensed from applicators with black feed lines.
3. Ensure all surfaces to be bonded are free from surface contamination.
4. Cure with an appropriate light source (mercury arc, H , H+, D or V bulb) for a time and intensity suitable for your application.
5. Functional strength is achieved after proper light cure and cooling for parts handling.
6. Excess material can be easily wiped away with non-polar solvent.

**Not for product specifications**

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

**STORAGE:**

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

**Optimal Storage : 15 to 25 °C**

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**

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$   
 $\text{kV/mm} \times 25.4 = \text{V/mil}$   
 $\text{mm} / 25.4 = \text{inches}$   
 $\text{N} \times 0.225 = \text{lb/F}$   
 $\text{N/mm} \times 5.71 = \text{lb/in}$   
 $\text{psi} \times 145 = \text{N/mm}^2$   
 $\text{MPa} = \text{N/mm}^2$   
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$   
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$   
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$   
 $\text{mPa}\cdot\text{s} = \text{cP}$

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**Reference 1.0**