

# LOCTITE AD 8650

February 2020

#### PRODUCT DESCRIPTION

LOCTITE AD 8650 provides the following product characteristics:

Technology	Silicone
Appearance	Transparent liquid
Appearance (cured)	Clear, transparent solid
Cure	UV Cure
Application	Display devices, optical bonding
Product Benefits	Single component
	Good optical properties
	<ul> <li>LOCA (Liquid Optical Clear</li> </ul>
	Adhesive)

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/cm².

 UV Depth of Cure after 30 sec
 >10

 405nm LED (300 mW/cm²)
 or MH (100 mW/cm²)

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 405nmLED@ 300mW/cm²for40seconds.LOCA thickness between glass microns300Light Transmission@ 550 nm, %>99b\* (Yellowness) color valueHaze, %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.
- 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

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

#### Disclaimer

#### 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. Any liability in respect of the information in the Technical Data Sheet or any other written or oral

recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

## In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

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. 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.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

#### In case products are delivered by Henkel Corporation, Resin Technology Group, Inc., or Henkel Canada Corporation, the following disclaimer is applicable:

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits. The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

#### Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 1.0