

# LOCTITE ECCOBOND LUX A4021T

August 2018

## PRODUCT DESCRIPTION

LOCTITE ECCOBOND LUX A4021T provides the following product characteristics:

<b>Technology</b>	Acrylate
<b>Color</b>	Pale yellow
<b>Cure</b>	Ultraviolet (UV) light, Visible light and Heat cure
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>• Single Pack</li> <li>• Photocurable</li> <li>• Optical grade</li> <li>• High refractive index</li> <li>• Low shrinkage</li> <li>• Good adhesion to glass and steel</li> </ul>
<b>Application</b>	Component assembly, Opto/Photonics
<b>Typical Optic Application</b>	General transmitter and receiver packaging, optical interconnects and ball lens mounting

LOCTITE ECCOBOND LUX A4021T photocurable adhesive is formulated to enhance productivity in the assembly of optical, fiber optic, and optoelectronic devices. This adhesive cures in seconds when exposed to the appropriate intensity of visible (blue) or UV light. In addition to light cure, this adhesive contains a secondary thermal cure initiator.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield Sp #14, 25 °C, mPa·s (cP):	
Speed 10 rpm	60,000
Shelf Life:	
@ 25°C, days	91
@ 5°C, days	183
Flash Point - See SDS	

## TYPICAL CURING PERFORMANCE Recommended UV Cure

Light Source:	
Ultraviolet (UV) light:	
UV Wavelength, nm	365
Light Intensity @ bondline, mW/cm <sup>2</sup>	50
Visible Light:	
Visible (Blue light), nm	470
Light Intensity @ bondline, mW/cm <sup>2</sup>	100

## Secondary Thermal Cure

- 1 hour @ 100°C or
- 2 hours @ 85°C

## Shrinkage on Cure

Linear Shrinkage on Cure, %	1.3
-----------------------------	-----

The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

## TYPICAL PROPERTIES OF CURED MATERIAL

### Physical Properties :

Hardness, Shore D , Durometer	79
Glass Transition Temperature, Tan $\Delta$ Max, (Tg) by DMTA, °C	112
Coefficient of Thermal Expansion, TMA expansion:	
Above Tg, ppm/°C	110
Water Absorption (24 hr immersion), %	0.13
Intrinsic Loss @ 1,320 nm, Infra-red spectroscopy, dB/cm	<1.1
Flexural Modulus, Dynamic mechanical thermal analysis, psi	435,110
Refractive Index:	
@ 589 nm	1.589
@ 633 nm	1.585
@ 830 nm	1.577
@ 1,320 nm	1.569
@ 1,550 nm	1.565

## GENERAL INFORMATION

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

## DIRECTIONS FOR USE

1. For UV cure, a wide range of commercially available lamp systems are available, permitting curing of bond profiles in seconds coupled with a tack-free surface.
2. This adhesive is formulated to cure upon exposure to visible (blue) or UV light. Curing with visible light allows curing of highly filled (up to 80% by weight) grades and curing through UV opaque substrates (such as Polycarbonate or Alumina). Use of visible light provides increased operator safety by eliminating exposure to potentially harmful UV radiation. UV curing is particularly advantageous where a very rapid cure of a section is required.
3. For visible light curing, a light source with a peak output at 470 nm is most efficient. For example, a Luxor 2 or 3 curing lamp delivers an output in excess of 150 mW/cm<sup>2</sup>

at this wavelength, curing in 1 minute to a depth of 12 mm unfilled and 6 mm in filled grades.

4. Packages removed from storage should be allowed to return to ambient temperature before use.
5. A safe yellow light is recommended for visible light initiated grades during handling prior to use. Dimmed light may be used if the adhesive is only being handled for short periods of time.
6. This adhesive contains a secondary thermal cure initiator for shadowed areas, requiring 100°C for 1 hour, 80°C for 2 hours.

## AVAILABILITY

1. This adhesive is available in a variety of syringes, ranging from 3ml to 30ml.

## STORAGE:

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

## Optimal Storage : 5 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

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

## 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 and/or registered trademarks of Henkel and its affiliates in the U.S. and elsewhere.

## Reference 1