

LOCTITE ECCOBOND LUX A4021T

August 2018

PRODUCT DESCRIPTION

LOCTITE ECCOBOND LUX A4021T provides the following product characteristics:

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|----------------------------------|--|
| Technology | Acrylate |
| Color | Pale yellow |
| Cure | Ultraviolet (UV) light, Visible light and Heat cure |
| Product Benefits | <ul style="list-style-type: none"> ● Single Pack ● Photocurable ● Optical grade ● High refractive index ● Low shrinkage ● Good adhesion to glass and steel |
| Application | Component assembly, Opto/Photonics |
| Typical Optic Application | 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 ² | 50 |
| Visible Light: | |
| Visible (Blue light), nm | 470 |
| Light Intensity @ bondline, mW/cm ² | 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 Δ 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, <1.1 dB/cm | |
| 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

- 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.
- 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.
- 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/cm²

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.

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Reference 1