Technical Data Sheet

LOCTITE ECCOBOND LUX OGRFI146T

September 2014

PRODUCT DESCRIPTION

LOCTITE ECCOBOND LUX OGRFI146T provides the following product characteristics:

Technology	Acrylate
Color	Clear
Cure	Ultraviolet (UV)/ visible light and Heat Cure
Product Benefits	• Single component • Photocurable • Optical grade • Low refractive Index • Cures in shadowed areas
Application	Adhesive
Key Substrates	Silicon and Ceramics

LOCTITE ECCOBOND LUX OGRFI146T photocurable adhesive is formulated to enhance productivity in the assembly of optical, fiber optic, and optoelectronic devices. This product also contains a secondary thermal cure mechanism for applications that contain shadowed areas where light is unable to penetrate. The secondary thermal cure can be done in conventional box or convection conveyor ovens.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield , 25 °C, mPa·s (cP):	
Spindle 27, speed 10 rpm	1,250
Work Life @ 25°C, days	91
Shelf Life:	
@ 0 to 5ºC, days	183
@ 25ºC, days	91
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Recommended UV Cure Condition

500 mW/cm² for 8 seconds (or 4,000 mJ/cm²) with min. intensity of 110 mW/cm²

Recommended Visible Cure Condition

600 mW/cm² for 30 seconds (or 18 J/cm²) with min. intensity of 100 mW/cm²

Secondary Thermal Cure Condition

1 hour @ 100°C or
2 hours @ 85°C

UV Fixture Time

UV/Visible Fixture Time, second	1

Tack Free Time

UV/Visible Tack-free Time, seconds	5

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 :

Coefficient of Thermal Expansion :		
Below Tg, ppm/°C		71
Above Tg, ppm/°C		214
Glass Transition Temperature (Tg), °C:		
DMTA		85
DSC		188
Hardness, Shore D		64
Refractive Index:		
@ 589, nm		1.463
@ 830, nm		1.457
@ 1,320, nm		1.452
@ 1,550, nm		1.449
Tensile Modulus, DMTA :		
@ -65 °C	N/mm² (psi)	1,600 (240,000)
@ 25 °C	N/mm² (psi)	650 (94,000)
@ 100 °C	N/mm² (psi)	7.2 (1,100)
@ 150 °C	N/mm² (psi)	3.4 (500)
@ 200 °C	N/mm² (psi)	4.4 (640)
Water Absorption 85°C/85 RH, %		1.5

TYPICAL PERFORMANCE OF CURED MATERIAL

Die Shear Adhesion Alumina to Glass:		
Post Cure:		
@ 25ºC	N/mm² (psi)	20.1 (2,910)
@ 25ºC w/ Silane	N/mm² (psi)	18.3 (2,650)
After 1,000 hrs @ 85ºC/85% RH:		
@ 25ºC	N/mm² (psi)	4.5 (650)
@ 25ºC w/ Silane	N/mm² (psi)	12.3 (1,790)
After 72 hrs PCT, 121ºC @ 100% RH:		
@ ºC	N/mm² (psi)	3.2 (470)
@ ºC w/ Silane	N/mm² (psi)	9.9 (1,440)

GENERAL INFORMATION

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

THAWING:

1. LOCTITE ECCOBOND LUX OGRFI146T is packed and shipped at room temperature.
2. Transfer the syringes from the shipping container to a 0 to 5 °C refrigerator without ANY delays.
3. Freeze-thaw voids can form in the syringes if syringes are repeatedly thawed and refrozen.
4. Allow material to reach room temperature before use.
5. After removing from the freezer, set the syringes to stand vertically while thawing.
6. DO NOT open the package before contents reach ambient temperature.
7. Any moisture that collects on the thawed package should be removed prior to opening the package.

DIRECTIONS FOR USE

1. 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, Alumins, etc). 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.
2. Dispense the desired amount of material and place the part/component into deposit using downward force to achieve desired bondline.
3. For visible light curing, a light source with a peak output of 100 mW/cm² at 470 nm wavelength is recommended. Wide ranges of light systems are available for visible cure, permitting curing of bond profiles in less than a minute. A typical visible cure condition is 600 mW/cm² for 30 seconds or 18 mJ/cm² dose at the adhesive bondline (with a minimum intensity of 100 mW/cm²) .
4. For UV light curing, a source minimum output of 100 mW/cm² at 365 nm wavelength is recommended. Wide ranges of light systems are available for UV cure, permitting curing of bond profiles in seconds, coupled with a tack-free surface. A typical UV cure condition is 500 mW/cm² for 8 seconds or 4,000 mJ/cm² dose at the adhesive bondline (with a minimum intensity of 100 mW/cm²).

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 : 0 to 5 °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

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb
N/mm x 5.71 = lb/in
psi x 145 = N/mm²
MPa = N/mm²
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 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.

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Reference 0.2