

# LOCTITE ECCOBOND UF 3912

February 2018

**PRODUCT DESCRIPTION**

LOCTITE ECCOBOND UF 3912 provides the following product characteristics:

<b>Technology</b>	Epoxy
Appearance	Black liquid
<b>Cure</b>	Heat cure
<b>Application</b>	Encapsulant, Underfill
Filler Weight, %	60
Typical Package Application	Flip chip
Product Benefits	<ul style="list-style-type: none"><li>• One component</li><li>• Halogen free</li><li>• Snap curable</li><li>• Fast flow</li><li>• High Tg</li><li>• Easy rework</li><li>• High fracture toughness</li><li>• Excellent thermal cycle performance</li><li>• Compatible with most Pb-free solders</li><li>• Stable electrical performance under thermal/humidity bias</li></ul>

LOCTITE ECCOBOND UF 3912 underfill is specially designed for flip chip device applications.

**TYPICAL PROPERTIES OF UNCURED MATERIAL**

Viscosity, Brookfield CP51, 20 rpm, 25 °C, mPa·s (cP)	3,500
Thixotropic Index	1
Specific Gravity, g/cc	1.6
Work Life @ 25°C, hours	24
Shelf Life @ -40°C, days	274

Flash Point - See SDS

**TYPICAL CURING PERFORMANCE****Snap Cure Condition**

7 minutes @ 160°C

**Substrate Temperature**

Substrate Temperature, °C 60 to 80

The above cure profile is a guideline recommendation. 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, ppm/°C:

Below Tg	28
Above Tg	105

Glass Transition Temperature (Tg) by TMA, °C 127

Storage Modulus, DMA @ 25°C	N/mm <sup>2</sup> 8,100
(psi)	(1.17×10 <sup>6</sup> )

**GENERAL INFORMATION**

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

**THAWING:**

1. Allow container to reach room temperature before use.
2. After removing from the freezer, set the syringes to stand vertically while thawing.
3. DO NOT re-freeze. Once thawed to 25°C, the adhesive should not be re-frozen.

**STORAGE:**

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

**Optimal Storage : -40 °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:**

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