

# LOCTITE ECCOBOND UF 3912

February 2018

## PRODUCT DESCRIPTION

LOCTITE ECCOBOND UF 3912 provides the following product characteristics:

<b>Technology</b>	Epoxy
<b>Appearance</b>	Black liquid
<b>Cure</b>	Heat cure
<b>Application</b>	Encapsulant, Underfill
<b>Filler Weight, %</b>	60
<b>Typical Package Application</b>	Flip chip
<b>Product Benefits</b>	<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

(°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/mm<sup>2</sup>

MPa = N/mm<sup>2</sup>

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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