

# **LOCTITE ECCOBOND UF 3915**

April 2017

#### PRODUCT DESCRIPTION

LOCTITE ECCOBOND UF 3915 provides the following product characteristics:

Technology	Ероху	
Appearance	Black liquid	
Cure	Snap Cure or Heat cure	
Product Benefits	Halogen free	
	One component	
	Snap curable	
	Fast flow	
	High Tg	
	Easy rework	
	High fracture toughness	
	Excellent thermal cycle performance	
	<ul> <li>Compatible with most Pb-free solders</li> </ul>	
	Stable electrical performance under thermal/humidity bias	
Application	Underfill	
Typical Package Application	WLCSP and Flip chip devices	

LOCTITE ECCOBOND UF 3915 reworkable underfill is specially designed for flip chip device applications.

#### TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield CP51, 25 °C, mPa·s (cP):	
Speed 20 rpm	5,500
Thixotropic Index	1.1
Specific Gravity, Density Cups, g/ml	1.66
Work Life @ 25°C, hours	24
Shelf Life @ -40 °C, days	270
Flash Point - See SDS	

# TYPICAL CURING PERFORMANCE

#### **Snap Cure Schedule**

7 minutes @ 160°C

### **Alternate Cure Schedule**

20 minutes @ 130°C or 10 minutes @ 150°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**

Glass Transition Temperature (Tg) by TMA,  $^{\circ}$ C 125 Coefficient of Thermal Expansion : Below Tg, ppm/ $^{\circ}$ C 25 Above Tg, ppm/ $^{\circ}$ C 100 Storage Modulus, DMA @ 25  $^{\circ}$ C N/mm² 7,600 (psi) (1,102,290) Fracture Toughness K1c, Instron, MPa(m¹²²) 2.2

## **Electrical Properties**

Dielectric Constant / Dissipation Factor:

@ 850 MHz	3.32/0.048
@ 1575 MHz	3.40/0.052
@ 2450 MHz	3.35/0.051
@ 5000 MHz	3.26/0.050

# TYPICAL PERFORMANCE OF CURED MATERIAL

#### **Shear Strength**

Lap Shear Strength:

PCB to PCB N/mm² 10 (psi) (1,465)

#### **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.
- After removing from the freezer, set the syringes to stand vertically while thawing.
- DO NOT re-freeze. Once thawed to °C, the adhesive should not be re-frozen.

#### 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: -45 to -35°C. Storage below -45°C or above -35 °C can adversely affect product properties.

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

 $(^{\circ}C \times 1.8) + 32 = ^{\circ}F$   $kV/mm \times 25.4 = V/mil$  mm / 25.4 = inches  $N \times 0.225 = lb$   $N/mm \times 5.71 = lb/in$   $psi \times 145 = N/mm^2$   $MPa = N/mm^2$   $N \cdot m \times 8.851 = lb \cdot in$   $N \cdot m \times 0.738 = lb \cdot ft$   $N \cdot m \times 0.742 = oz \cdot in$  $mPa \cdot s = cP$ 

#### Disclaimer

#### Note:

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Reference 0.1