

# LOCTITE ECCOBOND UF 8806G

September 2012

## PRODUCT DESCRIPTION

LOCTITE ECCOBOND UF 8806G provides the following product characteristics:

<b>Technology</b>	Cyanate Ester
<b>Appearance</b>	Black
<b>Cure</b>	Heat cure
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>• Excellent flow characteristics for high density arrays</li> <li>• Electrically Insulating</li> <li>• Superior adhesion after moisture testing</li> <li>• Can handle typical gap heights of 1-3 mils</li> <li>• Designed for low alpha and fine pitch applications</li> <li>• Reduced thermal stress between substrate and chip interconnection</li> <li>• Improved flow characteristics</li> </ul>
<b>Application</b>	Underfill
<b>Filler Type</b>	Silica
<b>pH</b>	4.6

LOCTITE ECCOBOND UF 8806G high flow, liquid encapsulant is designed to improve the thermal cycling and reliability performance of ceramic flip chip devices. It is formulated using a proprietary Moisture Resistant Cyanate Ester (MRCE) resin. This product will reduce thermal stress between substrate and chip interconnects. It will form a hard black colored polymer when sufficiently cured. This material is designed to achieve JEDEC Level 1 reliability standards with ceramic substrates.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Thixotropic Index (0.5/5 rpm)	1.0
Viscosity, Brookfield CP51, 25 °C, mPa·s (cP): Speed 5 rpm	4,500
Work Life @ 25°C, hours	24
Shelf Life @ -40°C, days	365
Flash Point - See SDS	

## TYPICAL CURING PERFORMANCE

### Cure Schedule

45 minute ramp to 195°C + 60 minutes @ 195°C

### Alternative Cure Schedule

30 minute ramp to 165°C + 180 minutes @ 165°C

### Substrate Temperature

100°C (80°C - 110°C)

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 ppm/°C:	
Below Tg, ppm/°C	27
Above Tg, ppm/°C	97
Glass Transition Temperature (Tg) by TMA, °C	136
Extractable Ionic Content, @ 100°C ppm:	
Chloride (Cl-)	<10
Sodium (Na+)	<10
Potassium (K+)	<10
Water Extract Conductivity, μmhos/cm	85

## TYPICAL PERFORMANCE OF CURED MATERIAL

### Miscellaneous

Die Shear Strength :

2 x 2 mm Pt/Si die on Ceramic, kg-f @ 25°C	41
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## GENERAL INFORMATION

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

### 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 open the container before contents reach 22°C temperature. Any moisture that collects on the thawed container should be removed prior to opening the container.
4. DO NOT re-freeze. Once thawed to 22°C, the adhesive should not be re-frozen.

### DIRECTIONS FOR USE

1. Thawed adhesive should immediately be placed on dispense equipment for use.
2. If the adhesive is transferred to a final dispensing reservoir, care must be exercised to avoid entrapment of contaminants and/or air into the adhesive.
3. Adhesive must be completely used within the products recommended work life.
4. The substrates should be preheated prior to dispensing in order to ensure even underfill flow under the die. The preheating time depends on the thermal mass and the heating method. Using a thermocouple to measure the actual temperature on top of the substrate near the dispense area is recommended. The recommended substrate temperature is typically 100°C (80 to 110°C).
5. The underfill volume depends on several factors, including die size, gap height, bump density and fillet height. Dispense pattern will primarily depend on bump layout and die size. Dispensing optimization may be necessary in order to produce void-free parts. A 60 to 80% line (1 to 3 passes) centered along the die size is generally recommended.

6. Minimal delay time between passes is recommended to avoid underfill overflow on top of the die (0 to 20 seconds). The recommended needle size is typically 22 to 25 gage.

#### 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: -40 °C. Storage below minus (-)40 °C or greater than minus (-)40 °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.

#### Disclaimer

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