

LOCTITE ECCOBOND AA 03

January 2016

PRODUCT DESCRIPTION

LOCTITE ECCOBOND AA 03 provides the following product characteristics:

Technology	Silicone
Appearance	Gray
Cure	Heat cure
Product Benefits	<ul style="list-style-type: none"> Thermally conductive Ultra-low moisture absorption Low modulus Chemical compatibility with silicone gels High reliability
Application	Lid attach
Filler Type	Boron Nitride
Typical Package Application	Flip Chip BGA

LOCTITE ECCOBOND AA 03 adhesive is designed for thermally enhanced flip chip BGA applications. This material needs to be isolated from uncured epoxy-based resins as interaction will inhibit curing. This adhesive has passed L3/240C for 27X27mm-50X50mm FCBGA, as both lid attach and stiffener ring attach.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Thixotropic Index (0.5/5 rpm)	≥2.5
Viscosity, Brookfield CP51, 25 °C, mPa·s (cP):	
Speed 5 rpm	35,000
Work Life @ 25°C, hours	10
Shelf Life @ -40°C, days	183
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Recommended Curing Conditions

90 minutes @ 100°C + 60 minutes @ 150°C

Alternative Curing Conditions

30 minutes ramp to 175°C plus 30 minutes @ 175 °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 TMA:	
Below Tg, ppm/°C	39
Above Tg, ppm/°C	162
Glass Transition Temperature, °C	49

Tensile Modulus, DMTA :

@ -65 °C	N/mm ² 9,300 (psi) (1,350,000)
@ 25 °C	N/mm ² 4,000 (psi) (580,000)
@ 150 °C	N/mm ² 75 (psi) (10,000)
@ 250 °C	N/mm ² 107 (psi) (15,000)

Extractable Ionic Content, ppm:

Chloride (Cl-)	≤10
Sodium (Na+)	≤10
Potassium (K+)	≤10

Weight Loss @ 300°C, % 0.55

Thermal Resistance@ 25µm, cm² °C/W ≤0.5

TYPICAL PERFORMANCE OF CURED MATERIAL

Die Shear (120x120 mil Si to Ni plated Cu) , kg: ≥8.0

Die Shear Strength vs Temperature:

3x3x0.38mm bare Si die on 0.2mm thick Ni-plated Cu LF:	
@ 25°C, kg	13.5
@ 240°C, kg	2
7.6x7.6x0.38 mm bare Si die on 0.52mm thick Ni-plated Cu LF:	
@ 25°C, kg	66
@ 240°C, kg	14.3

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 25°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 25°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 product's recommended work life.
4. Apply enough adhesive to achieve a 25 to 50 µm wet bondline thickness, dispensed with approximately 25 to 50 % filleting on all sides of the die.
5. Alternate dispense amounts may be used depending on the

application requirements.

6. Star or crossed shaped dispense patterns will yield fewer bondline voids than the matrix style of dispense pattern.

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.

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:

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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