



LOCTITE® ECCOBOND LCM 1000AG-1

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PRODUCT DESCRIPTION

LOCTITE® ECCOBOND LCM 1000AG-1 provides the following product characteristics:

Technology	Epoxy amine system
Appearance	Black liquid paste
Product benefits	• High purity • Low stress, ultra-low warpage • REACH compliance • Robust reliability
Cure	Heat cure
Application	Semiconductor encapsulant
Typical assembly / Package application(s)	• Liquid compression molding for WLP • Over-mold LCM for FO-WLP

LOCTITE® ECCOBOND LCM 1000AG-1 is formulated for use in liquid compression molding process with low stress, exhibiting ultra-low-warpage during wafer-level process, and showing excellent chemical resistance and thermal stability properties.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Rheometer, DHR-2 @ 25°C, 0.158 s ⁻¹ , Pa.s (cP)	800
Thixotropic index, Rheometer, DHR-1 @ 25°C	1.7
Specific gravity, Densometer, g/cm ³	1.92
Filler content, TGA, wt%	84
Filler particle size, µm	
• average	3
• maximum	10
Shelf life @ -40°C, days	365

TYPICAL CURING PERFORMANCE

Liquid compression molding

in-mold-cure (IMC)	300 ~ 600 sec @ 120°C
post-mold-cure (PMC)	1 hour @ 150°C

The above cure profiles are guideline recommendations. These conditions (time and temperature) may vary based on customers' experience and specific application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF CURED MATERIAL

Sample cured 1 hour @ 150°C.

Physical properties

Coefficient of thermal expansion, TMA, ppm/°C	
Below Tg	8
Above Tg	18
Glass transition temperature, TMA, °C	135
Storage modulus, DMA @ 25°C, GPa	19
Extractable ionic content, ppm	
Chloride (Cl ⁻)	1.5
Sodium (Na ⁺)	0.3
Potassium (K ⁺)	< 0.1
Warpage after PMC, 1 hour @ 150°C, µm	
200 µm thick LCM, 8" diameter, 600 µm thick wafer	< 100

GENERAL INFORMATION

Please consult the Safety Data Sheet (SDS) for safe handling information of this product.

Thawing

1. Allow container to reach room temperature before use.
2. After removing from the freezer, set the syringes to stand vertically while thawing, dispense tip down.
3. Thaw times depend on the syringe size.
4. Consult handling guide for more information.
5. 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.
6. DO NOT re-freeze. Once thawed to 25°C, the adhesive should not be re-frozen.

Direction for use

1. Thawed material 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.



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 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 Henkel representative.

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 the specifications of this product.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\mu\text{m} / 25.4 = \text{mil}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

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Reference 1