

LOCTITE ECCOBOND UF 1173

June 2020

PRODUCT DESCRIPTION

LOCTITE ECCOBOND UF 1173 provides the following product characteristics:

Technology	Epoxy
Appearance	Black liquid
Cure	Heat cure
Product Benefits	• One component • Void-free underfill • Low CTE • Long pot life • Dissipates stress away from solder joints
Application	2nd Level Underfill

LOCTITE ECCOBOND UF 1173 is designed to provide a uniform and void-free encapsulant underfill, maximizing the device's temperature cycling capability, distributing stress away from solder connects thus enhancing solder joint reliability in CSP and BGA packages.

LOCTITE ECCOBOND UF 1173 material has been formulated without any reportable REACH SVHCs (current to June 2018) and the product is not CMR classified.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity by Rheometer AR 1000, Pa-s:

@ 10 s ⁻¹	7.5
Thixotropic Index	0.71
Density, g/cm ³	1.69
Pot Life @ 25°C, hours	48
Shelf Life @ -40°C (estimated), days	180
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Cure Schedule

5 minutes @ 150°C

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:

Below Tg, ppm/°C	26
Above Tg, ppm/°C	103
Glass Transition Temperature (Tg) by TMA, °C	160
Storage Modulus, @ 25°C, DMA, MPa	6,000

Electrical Properties

Dielectric Constant / Dissipation Factor :

@ 5 GHz	3.29/0.0179
@ 10 GHz	3.19/0.0176
@ 20 GHz	3.18/0.0191
@ 30 GHz	3.18/0.0197
@ 40 GHz	3.18/0.0243
@ 50 GHz	3.19/0.0360

TYPICAL ENVIRONMENTAL RESISTANCE

Outgassing Properties

Outgassing, NASA Outgassing:

TML, %	0.43
CVCM, %	0.02
WVR, %	0.1

GENERAL INFORMATION

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

THAWING:

1. This product is packed and shipped in dry ice packs to prevent excessive temperature exposure during shipping.
2. Allow material to reach room temperature before use.
3. After removing from the freezer, set the syringes to stand vertically while thawing.
4. Once material has reached room temperature, the adhesive should not be re-refrigerated.

DIRECTIONS FOR USE

1. LOCTITE ECCOBOND UF 1173 can be applied by needle or jet dispense.
2. When applied by jetting, nozzle heating of 50 to 60°C is recommended.
3. For faster flow, board should be heated to 70 to 100°C.

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 +/- 3°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

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

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