

# LOCTITE® ECCOBOND UF 1176

August 2024

## PRODUCT DESCRIPTION

LOCTITE® ECCOBOND UF 1176 provides the following product characteristics:

Technology	Epoxy
Appearance	Black liquid
Product benefits	<ul style="list-style-type: none"> <li>One component</li> <li>Void-free underfill</li> <li>Low CTE</li> <li>Long pot life</li> </ul>
Cure	Heat cure
Application	2nd Level Underfill
Typical application	CSP, BGA

LOCTITE® ECCOBOND UF 1176 underfill is formulated with a very high filler content to provide a uniform and void-free encapsulant underfill, maximizing the device's temperature cycling capability and distribute stress away from solder connects.

LOCTITE® ECCOBOND UF 1176 has good electrical performance under high temperature and high humidity level.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield CP 51, 25°C, mPa.s (cP)	
Speed 20 rpm	13,000
Pot life @ 25°C, (viscosity increase <25%), hours	48
Shelf life @ -20°C, (estimated), days	180

## TYPICAL CURING PERFORMANCE

### Recommended cure condition

10 minutes @ 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

### Physical properties

Coefficient of thermal expansion, TMA, ppm/°C:	
Below Tg	23
Above Tg	84
Glass transition temperature, TMA, °C	152
Storage modulus, DMA, N/mm <sup>2</sup>	
@25°C	10,348
@185°C	3,430

### Adhesion properties

Die shear strength, 3x3 mm die, Kg

On glass	30
On FR4	18

## GENERAL INFORMATION

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

### Thawing

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

### Direction for use

- Thawed material should immediately be placed on dispense equipment for use.
- 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.
- Adhesive must be completely used within the product's recommended work life.
- Alternate dispense amounts may be used depending on the application requirements.
- For optimal flow, board should be heated to 70 to 100°C.

### Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

### Optimal storage: -20°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**

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

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