**PRODUCT DESCRIPTION**

LOCTITE ECCOBOND UF 3808 provides the following product characteristics:

<table>
<thead>
<tr>
<th>Technology</th>
<th>Epoxy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Black liquid</td>
</tr>
<tr>
<td>Components</td>
<td>One-component</td>
</tr>
</tbody>
</table>

**Product Benefits**

- High Tg
- Low CTE
- Reworkable
- Halogen free
- One component
- Room temperature flow capability
- Fast cure at moderate temperatures
- Compatible with most Pb-free solders
- Stable electrical performance in temperature humidity bias

**Cure**

Heat Cure

**Application**

Underfill

**Typical Assembly Applications**

Chip scale packages and BGA

LOCTITE ECCOBOND UF 3808 capillary underfill is designed to cure quickly at low temperatures to minimize stress to other component. When cured, this material provides excellent mechanical properties to protect solder joints during thermal cycling.

**TYPICAL PROPERTIES OF UNCURED MATERIAL**

- Viscosity, Physica, CP50-1, mPa·s (cP):
  - @ 1,000 s⁻¹: 348
  - Specific Gravity: 1.16
  - Pot Life @ 25°C, (25% viscosity increase), days: 3
  - Shelf Life @ -20°C, days: 365
  - Flash Point - See SDS

**TYPICAL CURING PERFORMANCE**

- Cure Schedule
  - ≥8 minutes @ 130°C

- Alternative Curing Conditions
  - 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, ppm/°C:
  - Below Tg: 55
  - Above Tg: 171
- Glass Transition Temperature, (Tg) by TMA, °C: 113
- Storage Modulus, DMA:
  - @ 25°C: 2,610 N/mm² (379,000 psi)

**Electrical Properties**

- Dielectric Constant @ 23°C:
  - @ 1 GHz: 3.19
  - @ 2 GHz: 3.24
- Dissipation Factor @ 23°C:
  - @ 1 GHz: 0.0099
  - @ 2 GHz: 0.0088

**GENERAL INFORMATION**

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

**THAWING:**

1. Typical thaw times are listed as follows:
   - 1 hour for 10 cc syringes
   - 1.5 hours for 30 cc syringes
   - 2 to 3 hours for 55 cc syringes
2. Allow container to reach room temperature before use
3. After removing from the freezer, set the syringes to stand vertically while thawing
4. 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
5. DO NOT re-freeze. Once thawed, the adhesive should not be re-frozen
DIRECTIONS 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.

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 to -15°C. Storage below -40°C or above -15°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

\((^{°C} \times 1.8) + 32 = ^{°F}\)  
\(\text{kV/mm} \times 25.4 = \text{V/mil}\)  
\(\text{mm} / 25.4 = \text{inches}\)  
\(N \times 0.225 = \text{lb/F}\)  
\(N/\text{mm} \times 5.71 = \text{lb/in}\)  
\(\text{psi} \times 145 = N/\text{mm}^2\)  
\(\text{MPa} = N/\text{mm}^2\)  
\(N \times m \times 8.851 = \text{lb-in}\)  
\(N \times m \times 0.736 = \text{lb-ft}\)  
\(N \times \text{mm} \times 0.142 = \text{oz-in}\)  
\(\text{mPa-s} = \text{cP}\)

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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