PRODUCT DESCRIPTION
LOCTITE ABLESTIK 84-1LMI provides the following product characteristics:

<table>
<thead>
<tr>
<th>Technology</th>
<th>Epoxy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Silver</td>
</tr>
<tr>
<td>Cure</td>
<td>Heat cure</td>
</tr>
<tr>
<td>Product Benefits</td>
<td>● Electrically conductive</td>
</tr>
<tr>
<td>Laboratory data for 100% active glass frits</td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td>Die attach</td>
</tr>
<tr>
<td>pH</td>
<td>5.5</td>
</tr>
<tr>
<td>Filler Type</td>
<td>Silver</td>
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</tbody>
</table>

LOCTITE ABLESTIK 84-1LMI die attach adhesive is designed for microelectronic chip bonding applications. This adhesive is ideal for application by automatic dispenser or hand probe.

MIL-STD-883
LOCTITE ABLESTIK 84-1LMI meets the requirements of MIL-STD-883, Method 5011.

TYPICAL PROPERTIES OF UNCURED MATERIAL
Thixotropic Index (0.5/5 rpm) 4.0
Viscosity, Brookfield CP51, 25 °C, mPa-s (cP):
   Speed 5 rpm 30,000
Work Life @ 25°C, days 14
Shelf Life (from date of manufacture):
   @ 5°C, days 91
   @ -10°C, days 183
   @ -40°C, days 365

TYPICAL CURING PERFORMANCE
Cure Schedule
1 hour @ 150°C

Alternate Cure Schedule
2 hours @ 125°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:
      Below Tg, ppm/°C 55
      Above Tg, ppm/°C 150
   Glass Transition Temperature (Tg) by TMA, °C 103
   Thermal Conductivity, W/(m-K) 2.4

Electrical Properties
   Extractable Ionic Content, ppm:
      Chloride (Cl-) ≤20
      Sodium (Na+) ≤20
      Potassium (K+) ≤10
   Water Extract Conductivity, μmhos/cm 10
   Weight Loss @ 300°C, % 0.19

TYPICAL PERFORMANCE OF CURED MATERIAL
   Die Shear Strength:
      2 x 2 mm Si die on Ag/Cu LF @ 25 °C, kg-f 19
   Lap Shear Strength @ 25°C:
      Al to Al N/mm² 12
      (psi) (1,500)

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. Refer to the Syringe Thaw time chart for the thaw time recommendation.
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 to -40°C, the adhesive should not be re-frozen.

<table>
<thead>
<tr>
<th>Syringe Thaw Time, Minutes</th>
<th>Temperature, °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1cc</td>
<td>30</td>
</tr>
<tr>
<td>3cc</td>
<td>30</td>
</tr>
<tr>
<td>10cc</td>
<td>30</td>
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</table>
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. Silver-resin separation may occur if the adhesive is left out at 25 °C beyond the 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 °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
(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa = N/mm²
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

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. 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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Reference 0.4


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<th>Phone Number</th>
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<tbody>
<tr>
<td>Americas</td>
<td>+1.888.943.6535</td>
</tr>
<tr>
<td>Europe</td>
<td>+32.1457.5611</td>
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<tr>
<td>Asia</td>
<td>+86.21.3898.4800</td>
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</tbody>
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