

LOCTITE® ABLESTIK 84-1LMISP4

July 2025

PRODUCT DESCRIPTION

LOCTITE® ABLESTIK 84-1LMISP4 provides the following product characteristics:

| | |
|-------------------------|--|
| Technology | Epoxy |
| Appearance | Silver |
| Filler type | Silver |
| Cure | Heat cure |
| Product benefits | <ul style="list-style-type: none"> • Good workability • Good RBO control on multiple metal surfaces • Excellent electrical and thermal conductivity • Good adhesion to Cu, Ag and rough Cu • Good adhesion to non-BSM and BSM die |
| Application | Conductive die attach paste |
| Application | SOP, SOT, DFN, QFN, QFP |
| Key substrates | Cu, rough Cu and Ag |

LOCTITE® ABLESTIK 84-1LMISP4 electrically conductive die attach adhesive is designed for high reliability packages applications. It provides excellent electrical conductivity to achieve good RDS(on) performance for MOSFET devices. This material offers great adhesion on a wide variety of metal surfaces, including Cu, Ag and kinds of rough Cu lead-frames, and covers wide die size range from small to medium.

TYPICAL PROPERTIES OF UNCURED MATERIAL

| | |
|--|-------|
| Viscosity, Brookfield CP51, 25°C, mPa.s (cP) | |
| Speed 5 rpm | 9,500 |
| Thixotropic index, (0.5/5 rpm) | 5.6 |
| Work life @ 25°C, hours | 24 |
| Shelf life @ -40°C, days | 365 |

TYPICAL CURING PERFORMANCE

Recommended oven cure schedule

30min ramp to 175°C + 60min@175°C, N2 condition

Alternate oven cure schedule

15min ramp to 100°C + 30min@100°C + 20min ramp to 200°C + 60min@200°C, N2 condition

Weight loss on cure

| | |
|------------------------|-----|
| Weight loss on cure, % | 3.2 |
|------------------------|-----|

The above cure profile(s) are guideline recommendations. These cure 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

Cured using recommended oven cure schedule
(30min ramp to 175°C + 60min@175°C, N2 condition)

Physical properties

| | |
|--|-------|
| Glass transition temperature (Tg) by TMA, °C | 37.7 |
| Coefficient of thermal expansion, (CTE) by TMA, ppm/°C | |
| Below Tg | 84 |
| Above Tg | 220 |
| Bulk thermal conductivity, W/(m-K) | 6 |
| Dynamic tensile modulus (DMA), MPa | |
| @25°C | 7,019 |
| @150°C | 692 |
| @250°C | 328 |
| Extractable ionic content, ppm | |
| Chloride | <10 |
| Sodium | <10 |
| Potassium | <10 |

Electrical properties

| | |
|-----------------------------|---------|
| Volume resistivity, ohms-cm | 0.00005 |
|-----------------------------|---------|

Adhesion properties

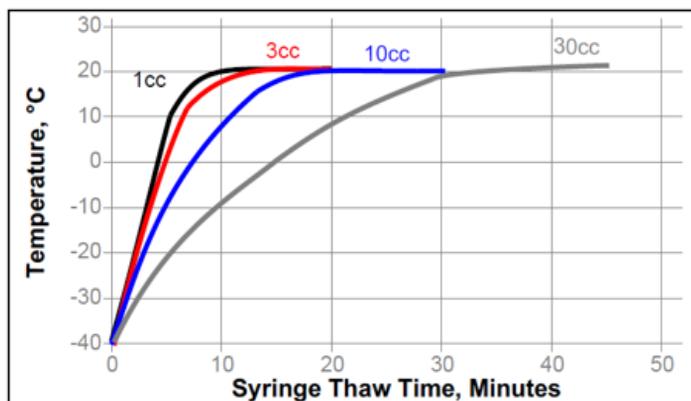
| | |
|---|------|
| Die shear strength, 2x2mm, Si die, kg/f | |
| on Cu LF | |
| @25°C | 14.1 |
| @260°C | 2.1 |
| on Ag LF | |
| @25°C | 14.7 |
| @260°C | 1.82 |

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.
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.



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.
4. Alternate dispense amounts may be used depending on the application requirements.
5. Star or crossed shaped dispense patterns will yield fewer bondline voids than the matrix style of dispense pattern.

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 -40°C or greater than -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 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

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

Disclaimer

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Reference 1

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