

LOCTITE ABLESTIK 2000

May 2014

PRODUCT DESCRIPTION

LOCTITE ABLESTIK 2000 provides the following product characteristics:

Technology	Proprietary Hybrid Chemistry
Appearance	Silver
Cure	Heat cure
Product Benefits	- Pb-free applications - Proprietary hybrid chemistry - Ultra-low moisture absorption - High hot/wet adhesion - Low stress - Fast cure with no voids - Minimal resin bleed
Application	Die attach
Filler Type	Silver

LOCTITE ABLESTIK 2000 electrically conductive die attach adhesive is designed for Pb-free PBGA and Array BGA packaging. This product is able to withstand the high reflow temperatures necessary for Pb-free solders @ 260°C. It is suitable for die sizes up to 12.7 x 12.7 mm.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Thixotropic Index (0.5/5 rpm)	4.3
Viscosity, Brookfield CP51, 25 °C, mPa·s (cP):	
Speed 5 rpm	9,000
Work Life @ 25°C, hours	>24
Shelf Life @ -40°C, days	365
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Cure Schedule

30 minute ramp to 175°C + 15 minutes @ 175°C

Weight Loss

10 x 10 mm Si die on glass slide, % 1.3

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 ppm/°C:	
Below Tg, ppm/°C	65
Above Tg, ppm/°C	200
Glass Transition Temperature (Tg) by TMA, °C	59
Thermal Conductivity @ 121°C, W/(m·K)	1.2

Tensile Modulus, DMTA :

@ 25 °C	N/mm ² 1,517 (psi) (220,000)
@ 150 °C	N/mm ² 159 (psi) (23,000)
@ 250 °C	N/mm ² 193 (psi) (28,000)

Extractable Ionic Content, @ 100°C ppm:

Chloride (Cl ⁻)	<2
Sodium (Na ⁺)	<2
Potassium (K ⁺)	<2

Moisture Absorption @ Saturation, wt. % @ 85°C/85%RH 0.26

Electrical Properties

Volume Resistivity, ohms-cm	0.0005
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TYPICAL PERFORMANCE OF CURED MATERIAL

Miscellaneous

Die Shear Strength

2 x 2 mm Si die on Ag/Cu LF @ 25 °C, kg-f >10

3 x 3 mm Si die on PBGA, kg-f:

@ 25°C	16
@ 150°C	8
@ 250°C	5

Hot/Wet Die Shear Strength @ 265°C

3 X 3 mm, Si die on PBGA solder mask, 3.3

After 85°C/85%RH exposure for 24 hours, kg-f

Chip Warpage vs Chip Size

0.38 mm thick Si die on 0.2 mm Ag/Cu LF @ 25 °C, µm:

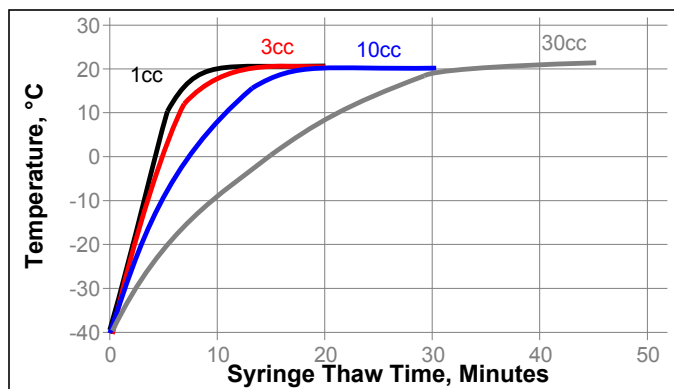
7.6 x 7.6 mm chip size	17
12.7 x 12.7 mm chip size	31

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 22°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 22°C, the adhesive should not be re-frozen.



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 products recommended work life.
4. Silver-resin separation may occur if the adhesive is left out at 22 °C beyond the recommended work life.
5. Apply enough adhesive to achieve a 25 to 50 µm wet bondline thickness, dispensed with approximately 25 to 50 % filleting on all sides of the die.
6. Alternate dispense amounts may be used depending on the application requirements.
7. Star or crossed shaped dispense patterns will yield fewer bondline voids than the matrix style of dispense pattern.

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

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

Disclaimer

Note:

The information provided in this Technical Data Sheet (TDS) including the

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Reference 0.2