

LOCTITE ABLESTIK ABP 84-3JT

December 2017

PRODUCT DESCRIPTION

LOCTITE ABLESTIK ABP 84-3JT provides the following product characteristics:

Technology	BMI Hybrid
Appearance	Light ivory liquid
Cure	Heat cure
Product Benefits	• Non-conductive • Insulating • Good adhesion to Cu and Ag • No resin bleed-out • Snap curable
Application	Semiconductor, Die attach
Key Substrates	Silver and Copper
Typical Package Application	SOP, SOT, QFN and DFN

LOCTITE ABLESTIK ABP 84-3JT die attach adhesive is designed for high reliability packaging applications. It is formulated with a moderate modulus and high adhesion at wirebond temperatures making the material suitable for use on copper wire bonding applications where die shift issues during processing should be avoided. It contains 1 mil spacers for better bondline and stress control.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield, 25 °C, mPa·s (cP):	
Speed 5 rpm	10,900
Thixotropic Index (0.5/5 rpm)	4.4
Work Life @ 25°C, days	3
Shelf Life @ -40°C (from date of manufacture), 365 days	
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Recommended Cure Schedule

30 minute ramp to 175°C + 60 minutes @ 175°C in N2 oven

Alternate Cure Schedule

30 minute ramp to 200°C + 30 minutes @ 200°C in N2 oven

Recommended Snap Cure Schedule

Zone	1	2	3	4	5	6	7
Temp per zone	160°C	180°C	200°C	220°C	220°C	220°C	220°C

Total Time: 3 to 5 minutes

Weight Loss on Cure

Weight Loss on Cure, %	3.4
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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

Glass Transition Temperature (Tg) by TMA, °C	56
Coefficient of Thermal Expansion :	
Below Tg, ppm/°C	63
Above Tg, ppm/°C	117
Thermal Conductivity, W/(m·K)	0.6
Extractable Ionic Content, ppm:	
Chloride (Cl-)	<10
Sodium (Na+)	<10
Potassium (K+)	<10
Linear Shrinkage, %	2.4
DMA Modulus @ °C:	
@ 25°C	N/mm ² 2,950 (psi) (427,861)
@ 150°C	N/mm ² 589 (psi) (85,427)
@ 250°C	N/mm ² 200 (psi) (29,007)

Electrical Properties

Volume Resistivity@ 500 Volts, ohms-cm	1.5×10 ¹⁶
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TYPICAL PERFORMANCE OF CURED MATERIAL

Shear Strength

Die Shear Strength:

2 x 2 mm Si die on Cu, kg-f:	
@ 25°C	17
@ 250°C	4.2
2 x 2 mm Si die on Ag, kg-f:	
@ 25°C	17.3
@ 250°C	2.1

GENERAL INFORMATION

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

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. 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.
4. DO NOT re-freeze. Once thawed to -40°C, the adhesive should not be re-frozen.
5. Some ABLESTIK products are shipped in a special "barrier packaging" configuration. This package has a one-inch foam barrier insert between the dry ice and the syringe boxes. The purpose of the barrier package is to keep the material in the syringes from becoming too cold (-80°C), thus minimizing freeze thaw void formation.

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. Apply enough adhesive to achieve a 50 µm wet bondline thickness, dispensed with approximately 25 to 50 % filleting on all sides of the die.
5. Alternate dispense amounts may be used depending on the application requirements.
6. 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

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

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