

LOCTITE ABLESTIK ABP 8303A

August 2020

PRODUCT DESCRIPTION

LOCTITE ABLESTIK ABP 8303A provides the following product characteristics:

Technology	BMI Hybrid
Appearance	Silver paste
Cure	Heat cure
Application	Component assembly, Conductive die attach paste
Product Benefits	<ul style="list-style-type: none"> One component Low outgassing Minimal RBO High die shear strength Low stress Ideal for large die sizes High reliability
Typical Package Application(s)	QFP, QFN and other metal leadframe packaging
Key Substrates	Cu, Ag or PPF

LOCTITE ABLESTIK ABP 8303A silver filled, conductive die attach adhesive is recommended for use in bonding integrated circuits and components to metal substrates. Its moderate modulus, high adhesion and low stress enable robust bonding of medium/large sized dice on a wide variety of metal surfaces, including Cu, Ag and PPF.

This product is particularly suitable for packages in which tight control of resin bleed out is required. The material is hydrophobic and stable at high temperatures.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Thixotropic Index (0.5/5 rpm)	4.6
Viscosity, Brookfield, 25 °C, mPa·s (cP):	
Speed 5 rpm	10,500
Work Life @ 25°C, hours	24
Shelf Life @ -40°C (from date of manufacture), days	365
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Recommended Curing Conditions

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

Weight Loss

Weight Loss on Cure, %	2.8
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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	30
Coefficient of Thermal Expansion, :	
Below Tg, ppm/°C	70
Above Tg, ppm/°C	180
Extractable Ionic Content, ppm:	
Chloride (Cl-)	<10
Sodium (Na+)	<10
Potassium (K+)	<10
Moisture Absorption, %	0.3
DMA Modulus :	
@ 25°C	GPa 1.8 (N/mm ²) (1,800) (psi) (261,000)
@ 260°C	GPa 0.14 (N/mm ²) (140) (psi) (20,300)
Bulk Thermal Conductivity, W/(m·K)	1.5
Electrical Properties	
Volume Resistivity, ohms-cm	0.06
Bond Joint Resistance, Au to Au, ohms	0.0012

TYPICAL PERFORMANCE OF CURED MATERIAL

Die Shear Strength, kg-f:

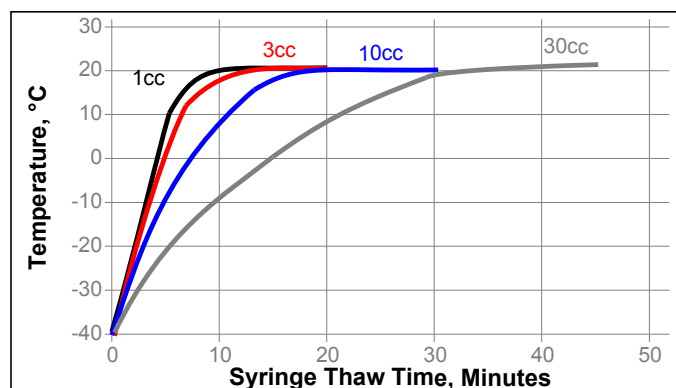
Si die on Cu LF:	
2 x 2 mm die size @ 25 °C	7
5 x 5 mm die size @ 260 °C	9
Si die on Ag LF:	
2 x 2 die size @ 25 °C	8
5 x 5 die size @ 260 °C	11
Si die on PPF LF:	
2 x 2 die size @ 25 °C	7.5
5 x 5 die size @ 260 °C	9

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. 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.

**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. Silver-resin separation may occur if the adhesive is left out at room temperature, beyond the recommended work life.
5. Apply enough adhesive to achieve a 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

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

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. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

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