

LOCTITE ABLESTIK 8509

October 2012

PRODUCT DESCRIPTION

LOCTITE ABLESTIK 8509 provides the following product characteristics:

Technology	Epoxy
Appearance	Silver
Cure	Heat cure
Product Benefits	<ul style="list-style-type: none"> Electrically conductive Box oven fast cure Excellent dispensability, minimal tailing and stringing Reduced cure time with minimal voiding Excellent delamination resistance after moisture exposure
Application	Die attach
Filler Type	Silver
Substrates	Bare laminate, Solder mask, Nickel surfaces and Copper oxide
Typical Package Application	BGA

LOCTITE ABLESTIK 8509 die attach adhesive has been formulated for use in high throughput die attach applications. Low outgassing components used allow for reduced cure time with minimal voiding in the bondline. It is formulated for excellent anti-delamination performance in JEDEC moisture-resistance tests.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Thixotropic Index (0.5/5 rpm)	5.7
Viscosity, Brookfield CP51, 25 °C, mPa·s (cP):	
Speed 5 rpm	8,700
Work Life @ 25°C, hours	24
Shelf Life @ -40°C (from date of manufacture), days	365
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Cure Schedule

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

Alternative Cure Schedule

30 minute ramp to 150°C + 15 minutes @ 150°C

Weight Loss on Cure

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, TMA expansion mode:

Below Tg, ppm/°C 80

Above Tg, ppm/°C 170

Glass Transition Temperature, TMA penetration, °C 40

Thermal Conductivity @ 121°C, C-matic 1.2

Conductance Tester, W/(m·K)

Tensile Modulus, DMTA :

@ -65 °C N/mm² 5,100
(psi) (740,000)

@ 25 °C N/mm² 3,800
(psi) (550,000)

@ 150 °C N/mm² 120
(psi) (17,000)

@ 250 °C N/mm² 120
(psi) (17,000)

Extractable Ionic Content, ppm:

Chloride (Cl-) 9

Sodium (Na+) N/D

Potassium (K+) 1

Water Extract Conductivity, µmhos/cm 60

Moisture Absorption @ Saturation, after 85°C/85% RH exposure, % 0.5

Electrical Properties

Bond Joint Resistance, ohm 0.0007

TYPICAL PERFORMANCE OF CURED MATERIAL

Die Shear Strength @ 25°C :

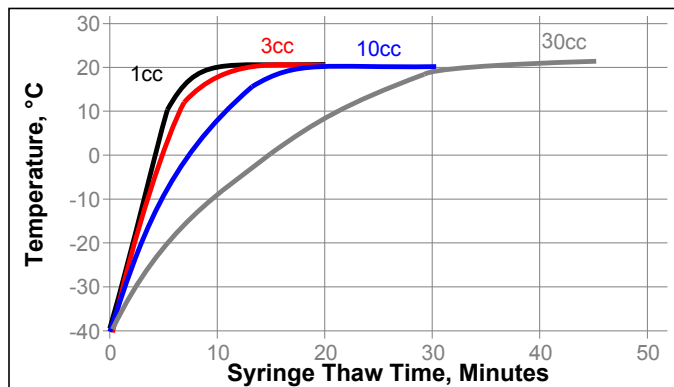
2 X 2mm (80 x 80mil) Si die on Ag/Cu LF, kg-f/die 20

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. 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 25°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 product's recommended work life.
4. 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.
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

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

Disclaimer

Note:

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

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