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Technical Data Sheet

LOCTITE ABLESTIK 8322A

August 2012

PRODUCT DESCRIPTION

LOCTITE ABLESTIK 8322A provides the following product characteristics:

Technology	Epoxy
Appearance	Silver
Cure	Heat cure
Filler Type	Silver
Product Benefits	• Snap curable • Fast cure capability • Minimal resin bleed • Electrically conductive • Low condensable volatiles • Suitable for large device bonding • Greater resistance to delamination • Engineered for accurate bondline control • Excellent dispensability, minimal tailing and stringing
Application	Die attach
pH	6.4

LOCTITE ABLESTIK 8322A adhesive is designed for medium die attach applications. LOCTITE ABLESTIK 8322A die attach adhesive incorporates improvements in epoxy resin and adhesion technology to maintain significant bond strength after exposure to elevated temperatures and humidity.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Thixotropic Index (0.5/5 rpm)	≥4.0
Viscosity, Brookfield CP51, 25 °C, mPa·s (cP):	
Speed 5 rpm	9,000
Work Life @ 25°C, hours	24
Shelf Life @ -40°C (from date of manufacture), days	365

TYPICAL CURING PERFORMANCE

Snap Cure Schedule

Zone #	1	2	3	4	5	6	7	Time
Temp °C	175	160	160	160	175	190	250	60 sec

Note: N2 flow: 3 liters/minute
N2 PreHeat Temp: 250°C

Alternate Cure Schedule

30 minutes @ 175°C

Actual cure duration will vary depending on the heat-up rate of leadframe magazine to 175°C

Weight Loss on Cure

10 x 10 mm Si die on glass slide, %	0.8

Data generated using alternate cure schedule

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 :		
Below Tg, ppm/°C		65
Above Tg, ppm/°C		135
Glass Transition Temperature (Tg) by TMA, °C		30
Thermal Conductivity @ 121°C, W/(m-K)		0.7
Tensile Modulus, DMTA :		
@ -65 °C	N/mm² (psi)	1,800 (260,000)
@ 25 °C	N/mm² (psi)	1,600 (240,000)
@ 150 °C	N/mm² (psi)	11 (1,600)
@ 250 °C	N/mm² (psi)	11 (1,600)
Extractable Ionic Content, @ 100°C ppm:		
Chloride (Cl-)		<20
Sodium (Na+)		<10
Potassium (K+)		<5
Water Extract Conductivity, µmhos/cm		95
Weight Loss @ 300ºC, %		0.7
Moisture Absorption @ Saturation, wt.% @ 85°C/85°RH		0.75

Electrical Properties

Volume Resistivity, ohms-cm	2.4
Bond Joint Resistance, ohms/0.5 sq.in.:	
Cu/Cu joint @ 5 x 5 mm, 25µm bondline	≤0.005

TYPICAL PERFORMANCE OF CURED MATERIAL

Die Shear Strength:

2 X 2 mm Si die, psi,

Substrate	
Ag/Cu LF	2000

@ 25ºC, kg-f

Snap Cured	Oven Cured
9.3	12

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3 X 3 mm Si die, kg-f,
85ºC/85% RH exposure for 168 hours
Snap Cured

Substrate	@25°C	@200°C
Ag/Cu LF	7.4	0.5
Bare Cu LF	7.1	0.6
Pd/Ni/Cu LF	5.9	0.3

3 X 3 mm Si die, kg-f,
After 85ºC/85% RH exposure for 168 hours
Oven Cured

Substrate	@25°C	@200°C
Ag/Cu LF	13	1.5

Die Shear Strength vs Temperature:

3 X 3 mm Si die, kg-f,
Snap Cured

Substrate	@25°C	@200°C	@250°C
Ag/Cu LF	11	0.8	0.8
Bare Cu LF	9.4	0.8	0.6
Pd/Ni/Cu LF	9.0	0.4	< 0.1

3 X 3 mm Si die, kg-f,
Oven Cured

Substrate	@25°C	@200°C	@250°C
Ag/Cu LF	22	1.9	1.7

Chip Warpage vs Chip Size:

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

Chip Size:	Snap Cured	Oven Cured
7.6 x 7.6mm	1.2	3.9
10.2 x 10.2mm	1.8	4.8
12.7 x 12.7mm	4.1	14

Chip Warpage vs Post Cure Thermal Process:

12.7 x 12.7 x 0.38 mm Si die on 0.2 mm thick leadframe, µm
Snap Cured

Leadframe	Post Cure	+ Wirebond (1 min @ 250ºC)	+Post Mold Bake (4 hrs @ 175ºC)
Ag/Cu	4.1	4.1	5.2
Bare Cu	7.3	9.9	14

12.7 x 12.7 x 0.38 mm Si die on 0.2 mm thick leadframe, µm
Oven Cured

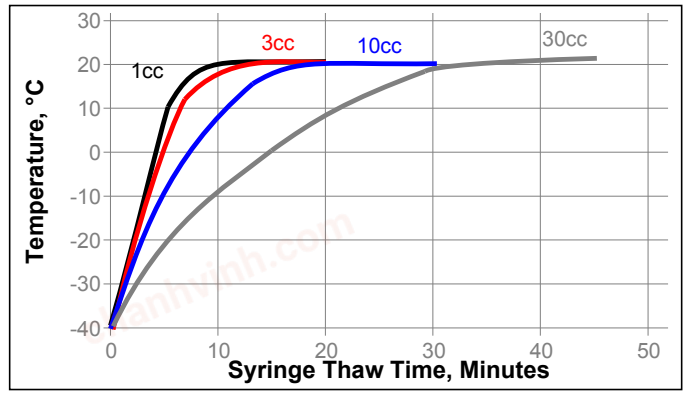
Leadframe	Post Cure	+ Wirebond (1 min @ 250ºC)	+Post Mold Bake (4 hrs @ 175ºC)
Ag/Cu LF	14	11	12
Bare Cu LF	18	14	18

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 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 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 room temperature, 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.

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Conversions
(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb
N/mm x 5.71 = lb/in
psi x 145 = N/mm²
MPa = N/mm²
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = 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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Reference 1