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LOCTITE

Technical Data Sheet

LOCTITE ABLESTIK 2100A

August 2012

PRODUCT DESCRIPTION

LOCTITE ABLESTIK 2100A provides the following product characteristics:

Technology	Proprietary Hybrid Chemistry
Appearance	Silver
Cure	Heat cure
Product Benefits	• High hot/wet adhesion • Low stress • Ultra-low moisture absorption • Pb-free applications • Excellent dispensing characteristics • Low bleed • Fast cure capability
Application	Die attach
Filler Type	Silver
Substrates	PBGA and BGA

LOCTITE ABLESTIK 2100A die attach adhesive is designed for Pb-free array 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)	5.3
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

TYPICAL CURING PERFORMANCE

Cure Schedule

30 minute ramp to 175°C + 15 minutes @ 175°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 ppm/°C:		
Below Tg, ppm/°C		65
Above Tg, ppm/°C		200
Glass Transition Temperature (Tg) by TMA, °C		60
Thermal Conductivity @ 121°C, W/(m-K)		1.2
Tensile Modulus, DMTA :		
@ -65 °C	N/mm² (psi)	3,172 (460,000)
@ 25 °C	N/mm² (psi)	1,517 (220,000)
@ 150 °C	N/mm² (psi)	172 (25,000)
@ 200 °C	N/mm² (psi)	152 (22,000)
@ 250 °C	N/mm² (psi)	234 (34,000)
Extractable Ionic Content, @ 100°C ppm:		
Chloride (Cl-)		<10
Sodium (Na+)		<10
Potassium (K+)		<10
Moisture Absorption @ Saturation, wt.% @ 85°C/85°RH		0.27

Electrical Properties

Volume Resistivity, ohms-cm	0.05

TYPICAL PERFORMANCE OF CURED MATERIAL

Miscellaneous

Die Shear Strength

2 X 2 mm,Si die on Ag/Cu leadframe, kg-f @ 25 °C: 9.5

Die Shear Strength vs Temperature, kg-f

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

Substrate	@25°C	@200°C	@250°C
PBGA solder mask	16	5	3.6

Hot/Wet Die Shear Strength

3 X 3 mm, Si die, kg-f

After 85°C/85%RH exposure for 48 hours

Substrate	@250°C
PBGA solder mask	3.5

Chip Warpage vs Chip Size

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

Chip Size:	Warpage:
7.6 x 7.6mm	6
12.7 x 12.7mm	17

GENERAL INFORMATION

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

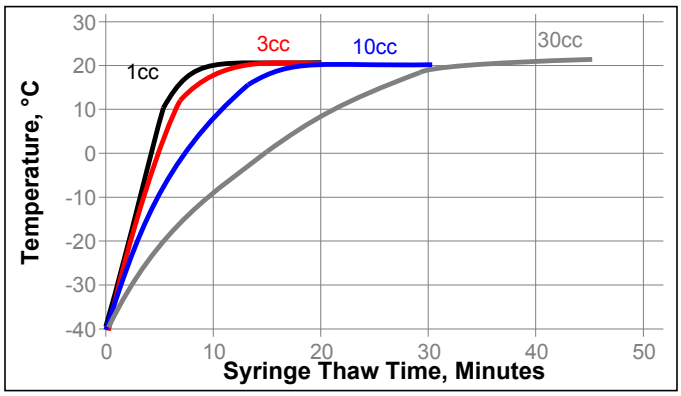
THAWING:

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.

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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 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.

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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