Technical Data Sheet

LOCTITE ABLESTIK 8900NC

April 2014

PRODUCT DESCRIPTION

LOCTITE ABLESTIK 8900NC provides the following product characteristics:

Technology	Epoxy
Appearance	Yellow
Filler Type	PTFE
Cure	Heat cure
Product Benefits	• Fast cure • Snap curable • High strength • Non-conductive • Low resin bleed • Low voiding during cure • Moderately stress absorbing • Use for small to medium package sizes • Excellent dispensability, minimal tailing and stringing
Application	Die attach
Key Substrates	Bare Copper, Ag plated Cu leadframes and Pd plated Cu leadframes

LOCTITE ABLESTIK 8900NC die attach adhesive has been formulated for use in high throughput die attach applications. Actual performance will depend on die size, aspect ratio and package design.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Thixotropic Index (0.5/5 rpm)	5.9
Viscosity, Brookfield CP51, 25 °C, mPa·s (cP):	
Speed 5 rpm	10,000
Work Life @ 25°C, hours	24
Shelf Life @ -40°C, year	1
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Weight Loss on Cure

Weight Loss on Cure, %	2.1

Recommended Cure Schedule

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

Snap Cure Schedule

Zone No.	1	2	3	4	5	6	7	Time
Temp °C	160	185	200	200	220	220	220	1-2 min

Note: N2 flow: 15 liters/minute
N2 PreHeat Temp: 150ºC

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:		
Below Tg, ppm/°C		65
Above Tg, ppm/°C		162
Glass Transition Temperature (Tg) by TMA, °C		19
Thermal Conductivity , W/(m-K)		0.3
Tensile Modulus, DMTA :		
@ 25 °C	N/mm² (psi)	1,310 (190,000)
@ 150 °C	N/mm² (psi)	117 (17,000)
@ 250 °C	N/mm² (psi)	62 (9,000)
Extractable Ionic Content, @ 100°C for 24 hours, ppm:		
Chloride (Cl-)		≤20
Sodium (Na+)		≤10
Potassium (K+)		≤10
Water Extract Conductivity, µmhos/cm		105
Weight Loss @ 300ºC, %		1.58

Electrical Properties

Volume Resistivity, ohm-cm	2.3×10^{13}

TYPICAL PERFORMANCE OF CURED MATERIAL

Die Shear Strength:

2 X 2 mm Si die, kg-f,

Substrate	@25°C
Ag/Cu leadframe	13.0
Cu leadframe	12.5
Alloy 42 leadframe	13.8
Ni/Pd leadframe	13.0
Au/Flash leadframe	12.1

7.5 X 7.5 mm Si die, kg-f,
@ 250ºC

Substrate	Post Cure	Post Mold	24 hrs @ 85º/85% RH
Ag/Cu LF	8.1	10.9	3.2
Cu LF	4.2	3.3	4.0
Alloy 42 LF	12.0	11.2	5.1
Ni/Pd LF	3.4	9.4	2.8

12.5 X 12.5 mm Si die, kg-f,
@ 250ºC

Substrate	Post Cure	Post Mold	24 hrs @ 85º/85% RH
Ag/Cu LF	20.4	14.8	11.3
Cu LF	30.6	17.5	11.3
Alloy 42 LF	29.1	30.0	13.8
Ni/Pd LF	3.8	14.4	2.7

Die Shear Strength vs Temperature:
3 X 3 mm Si die, kg-f,

Substrate	@ RT	@200°C	@250°C
Ag/Cu LF	24.1	2.9	2.5
Cu LF	22.2	2.7	1.4
Alloy 42 LF	25	2.4	1.4
Ni/Pd LF	22.3	1.9	1.5
Au/Flash LF	21.8	1.7	1.0

Chip Warpage :
7.5 X 7.5 mm Si die, µm

Substrate	Post Cure	Post Mold Bake (4 hrs @ 175ºC)
Ag/Cu LF	9.6	10.1
Cu LF	10.9	10.6
Alloy 42	3.5	1.3
Ni/Pd LF	10.5	9.9

12.5 X 12.5 mm Si die, µm

Substrate	Post Cure	Post Mold
Ag/Cu LF	46.7	47.6
Cu LF	45.4	46.8
Alloy 42 LF	5.4	3.8
Ni/Pd LF	45.9	47.4

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 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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Reference 1

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