Technical Data Sheet

LOCTITE® ABLESTIK ABP 8900NC-1B1

November 2023

PRODUCT DESCRIPTION

LOCTITE® ABLESTIK ABP 8900NC-1B1 provides the following product characteristics:

Technology	Epoxy
Appearance	Yellow
Filler type	PTFE
Cure	Heat cure; Snap cure
Product benefits	• Fast cure • Snap curable • High strength • Controlled bondline thickness • Non-conductive • Low resin bleed • Moderate stress absorbing • Excellent dispensability, minimal tailing and stringing
Application	Semiconductor pastes; Non-conductive die attach paste
Key substrates	Bare copper, Ag plated Cu leadframes; Pd plated Cu leadframes

LOCTITE® ABLESTIK ABP 8900NC-1B1 is designed for high throughput die attach applications. It is specially designed for use in small to medium package sizes.

LOCTITE® ABLESTIK ABP 8900NC-1B1 is formulated with spacers close to 20 to 25 µm. It is the spacer control version of LOCTITE® ABLESTIK 8900NC. Actual performance will depend on die size, aspect ratio and package design.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield CP51 @ 25°C, mPa·s (cP)	
Speed 5 rpm	12,500
Thixotropic index, (0.5/5 rpm)	5.9
Work life @ 25ºC, hours	24
Shelf life @ -40°C, days	365

TYPICAL CURING PERFORMANCE

Weight loss on cure

Weight loss on cure, %	2.1

Recommended cure condition

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	165	200	200	220	220	220	1-2 min

Note: N_2 flow: 15 liters/minute
N_2 Preheat temp: 150°C

The above cure profile are guideline recommendations. These conditions (time and temperature) may vary based on customers' experience and specific 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/ºC	65
Above Tg, ppm/ºC	162
Glass transition temperature, TMA, °C	19
Tensile modulus, DMTA	
@ 25°C, N/mm^2	1,310
@ 150°C, N/mm^2	117
@ 250°C, N/mm^2	62
Extractable ionic content, @100°C for 24hours	
Chloride (Cl-), ppm	≤20
Sodium (Na+), ppm	≤10
Potassium (K+)	≤10
Water extract conductivity, µmhos/cm	105
Weight loss @ 300ºC, %	1.58

Thermal properties

Thermal conductivity, W/(m-K)	0.3

Electrical properties

Volume resistivity, ohm-cm	2.3x10^{13}

Adhesion properties

Die Shear Strength

2 x 2 mm Si Die @ 25ºC, kg-f

Substrate	
on Ag/Cu leadframe	13.0
on Cu leadframe	12.5
on Alloy 42 leadframe	13.8
on Ni/Pd leadframe	13.0
on Au/Flash leadframe	12.1

7.5 x 7.5 mm Si Die @ 250ºC, kg-f

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 @ 250ºC, kg-f

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	@ 200ºC	@ 250ºC
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 LF	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	47.9
Cu LF	45.4	46.8
Alloy 42 LF	5.4	3.8
Ni/Pd LF	45.9	47.4

GENERAL INFORMATION

Please consult the Safety Data Sheet (SDS) for safe handling information of this product.

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.

Direction 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.

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 -40°C or greater than -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 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 Henkel representative.

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 the specifications of this product.

Conversions

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

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Reference 1