

LOCTITE ABLESTIK 2600K

August 2014

PRODUCT DESCRIPTION

LOCTITE ABLESTIK 2600K provides the following product characteristics:

Technology	Thermal Management
Appearance	Silver
Cure	Heat cure
Product Benefits	<ul style="list-style-type: none"> • High thermal conductivity • Good dispensability • Thin bondline • Low moisture uptake • Low extractable ionics • Wire bondable at 250°C • Low stress • Excellent anti-delamination properties • Yields consistent dot sizes with minimal or no tailing
Application	Die attach
Filler Type	Silver
pH	5.8
Typical Package Application	High power devices and Heat sink attach

LOCTITE ABLESTIK 2600K adhesive is designed for thermal management applications requiring high heat extraction from the die. This adhesive uses a unique suspension system containing silver, thermoplastic and thermoset resin particles suspended in a solvent carrier. Once the material is fully cured and the solvent is evaporated, the adhesive has an extremely high silver loading. LOCTITE ABLESTIK 2600K adhesive provides very low thermal resistance between chip to case, nearing solder and eutectic-type materials.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Thixotropic Index (0.5/5 rpm)	≥3.5
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
Cure Schedule

30 minute ramp from 100°C to 200°C +
15 minutes @ 200°C

A longer dwell time at the lower temperature is NOT recommended for this material.

Alternative Cure Schedule

30 minute ramp from 25°C to 175°C +
1 hour @ 175°C

Recommended Snap Cure Schedule

Contact your Technical Service representative for recommended profile

Weight Loss on Cure

10 x 10 mm Si die on glass slide, %	9.9
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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	36
Glass Transition Temperature (Tg) by TMA, °C	68
Thermal Conductivity, W/(m-K)	20
Tensile Modulus, DMTA :	
@ -65 °C	N/mm ² 4,300 (psi) (623,660)
@ 25 °C	N/mm ² 3,700 (psi) (536,640)
@ 150 °C	N/mm ² 230 (psi) (33,360)
@ 200 °C	N/mm ² 220 (psi) (31,910)

Extractable Ionic Content, @ 100°C ppm:

Chloride (Cl-)	≤10
Sodium (Na+)	≤10
Potassium (K+)	≤5
Water Extract Conductivity, μmhos/cm	15
Weight Loss @ 300°C, %	0.5
Moisture Absorption @ Saturation, wt.% @ 85°C/85%RH	@ 0.1

Electrical Properties

Volume Resistivity, ohms-cm	0.0005
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TYPICAL PERFORMANCE OF CURED MATERIAL
Miscellaneous

Die Shear Strength

2 X 2 mm Si die, kg-f,

Substrate	@25°C
Ag/Cu leadframe	≥3.5

3 X 3 mm Si die, kg-f,

Cured at the Recommended Cure Schedule

Substrate	@25°C	@200°C	@250°C
Ag/Cu LF	8.3	1.0	0.8
Bare Cu LF	6.3	0.9	0.7
Pd/Ni/Cu LF	6.3	0.7	0.5

3 X 3 mm Si die, kg-f,

Cured at the Alternative Cure Schedule

Substrate	@25°C	@200°C	@250°C
Ag/Cu LF	6.5	1.2	0.8
Bare Cu LF	6.6	0.6	0.7
Pd/Ni/Cu LF	5.6	0.9	0.7

3 X 3 mm Si die, kg-f,

After 85°C/85% RH exposure for 168 hours

Cured at the Recommended Cure Schedule

Substrate	@25°C	@200°C
Ag/Cu LF	4.5	0.7
Bare Cu LF	7.8	0.6
Pd/Ni/Cu LF	5.5	0.4

Chip Warpage vs Chip Size

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

Cured at the Recommended Cure Schedule

Chip Size:	Warpage:
7.6 x 7.6mm	7
10.2 x 10.2mm	16

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

Cured at the Alternative Cure Schedule

Chip Size:	Warpage:
7.6 x 7.6mm	9
10.2 x 10.2mm	18

Chip Warpage vs Post Cure Thermal Process

7.6 x 7.6 x 0.38 mm Si die on 0.2 mm thick Leadframe, µm

Cured at the Recommended Cure Schedule

Leadframe	Post Cure	+ Wirebond (1 min @ 250°C)	+Post Mold Bake (4 hrs @ 175°C)
Ag/Cu LF	7	7	11
Bare Cu LF	9	9	11

7.6 x 7.6 x 0.38 mm Si die on 0.2 mm thick Leadframe, µm

Cured at the Alternative Cure Schedule

Leadframe	Post Cure	+ Wirebond (1 min @ 250°C)	Post Mold Bake (4 hrs @ 175°C)
Ag/Cu LF	9	10	11

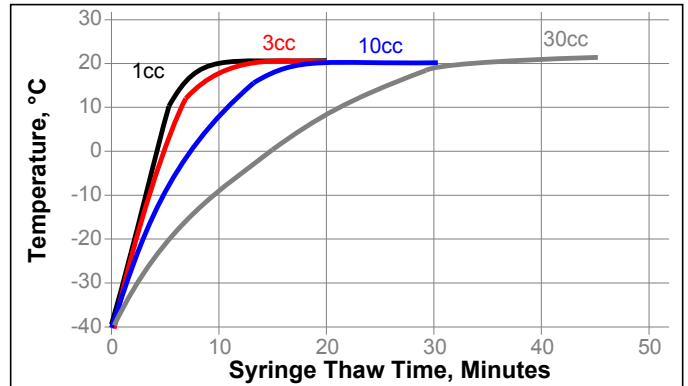
GENERAL INFORMATION

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

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

This adhesive is a unique suspension system that contains polymer and conductive particles in a solvent carrier. These particles can sometimes agglomerate and could make dispensing difficult for some applications. Due to the unique rheology of this adhesive, clogging of longer dispense tubes may occur due to particle packing. Use of short dispense tubes is recommended.

For consistent and uniform dispensing, a 457mm (18 mil) or greater ID needle is suggested for this adhesive.

Solvent bleed-out that appears after dispensing will volatilize during the oven cure process. Once it volatilizes, it will not redeposit onto the leadframes. For best results, our recommended cure profile is suggested.

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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