

LOCTITE ABLESTIK 2600BT

December 2016

PRODUCT DESCRIPTION

LOCTITE ABLESTIK 2600BT provides the following product characteristics:

Technology	Thermal Management
Appearance	Silver
Cure	Heat cure
Product Benefits	- High thermal conductivity - Improved dispensability - Improved spreadability - Yields consistent dot sizes with minimal or no tailing
Application	Die attach
Filler Type	Silver
pH	3.4
Typical Package Application	High power devices and Discrete devices

LOCTITE ABLESTIK 2600BT adhesive is designed for thermal management applications requiring high heat extraction from the die. This adhesive uses a unique suspension system containing silver and resin particles suspended in solvent carrier. Once the material is fully cured and the solvent is evaporated, the adhesive has an extremely high silver loading. LOCTITE ABLESTIK 2600BT 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	7,000
Work Life @ 25°C, hours	24
Shelf Life @ -40°C (from date of manufacture), days	365

TYPICAL CURING PERFORMANCE

Cure Schedule

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

Alternative Cure Schedule

30 minute ramp to 175°C + 60 minutes @ 175°C

Weight Loss on Cure

10 x 10 mm Si die on glass slide, %	14.8
-------------------------------------	------

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

Glass Transition Temperature (Tg) by TMA, °C	41
--	----

Coefficient of Thermal Expansion :

Below Tg, ppm/°C	40
Above Tg, ppm/°C	70

Thermal Conductivity, W/(m·K)

20

Tensile Modulus, DMTA :

@ -65 °C	N/mm ²	4,200
	(psi)	(610,000)
@ 25 °C	N/mm ²	4,100
	(psi)	(600,000)
@ 150 °C	N/mm ²	320
	(psi)	(46,000)
@ 250 °C	N/mm ²	190
	(psi)	(28,000)

Extractable Ionic Content, @ 100°C ppm:

Chloride (Cl ⁻)	<10
Sodium (Na ⁺)	<10
Potassium (K ⁺)	<10
Water Extract Conductivity, µmhos/cm	160
Moisture Absorption @ Saturation, wt. % @ 85°C/85%RH	0.14

Electrical Properties

Volume Resistivity, ohms-cm	0.001
-----------------------------	-------

TYPICAL PERFORMANCE OF CURED MATERIAL

Miscellaneous

Die Shear Strength

2 X 2 mm Si die, kg-f,

Substrate	@25°C
Ag/Cu leadframe	5.4

2 X 2 mm Si die, kg-f,

Substrate	@ RT
Ag/Cu leadframe	5.8 ± 0.8
Cu leadframe	5.2 ± 0.2
Ni/Pd leadframe	5.0 ± 1.3

3 X 3 mm Si die, kg-f,

Substrate	@25°C	@200°C	@250°C
Ag/Cu LF	10.0	1.4	1.2

3 X 3 mm Si die, kg-f,

Substrate	@ RT	@200°C	@250°C
Ag/Cu LF	11.1 ± 2.8	1.9 ± 0.1	1.4 ± 0.2
Cu LF	8.5 ± 2.4	1.5 ± 0.2	1.0 ± 0.1
Ni/Pd LF	11.0 ± 1.9	2.0 ± 0.2	1.4 ± 0.3

Chip Warpage, µm

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

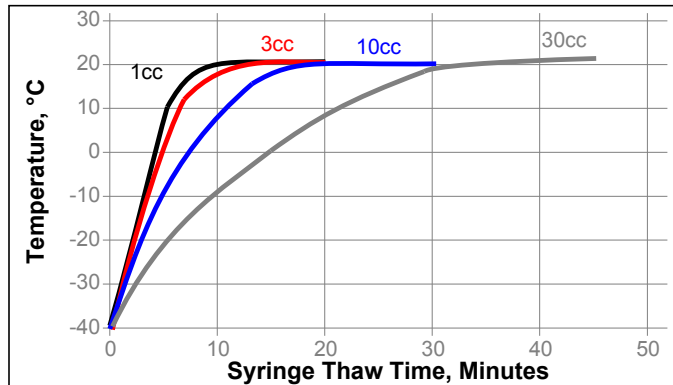
Chip Size:	Warpage:
7.6 x 7.6mm	9.8

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.

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

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{psi} \times 145 = \text{N/mm}^2$

$\text{MPa} = \text{N/mm}^2$
 $\text{N} \cdot \text{m} \times 8.851 = \text{lb} \cdot \text{in}$
 $\text{N} \cdot \text{m} \times 0.738 = \text{lb} \cdot \text{ft}$
 $\text{N} \cdot \text{mm} \times 0.142 = \text{oz} \cdot \text{in}$
 $\text{mPa} \cdot \text{s} = \text{cP}$

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.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

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. 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.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, Resin Technology Group, Inc., or Henkel Canada Corporation, the following disclaimer is applicable:

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage: [Except as otherwise noted] All trademarks in this document are trademarks and/or registered trademarks of Henkel and its affiliates in the U.S. and elsewhere.

Reference 1