

# LOCTITE ABLESTIK ABP 8068TA

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## PRODUCT DESCRIPTION

LOCTITE ABLESTIK ABP 8068TA provides the following product characteristics:

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Technology</b>                  | Semi-sintering                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Appearance</b>                  | Grey Liquid                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Filler Type</b>                 | Silver                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Cure</b>                        | Heat cure                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Product Benefits</b>            | <ul style="list-style-type: none"> <li>• One component</li> <li>• Dispensable</li> <li>• Printable</li> <li>• Excellent workability</li> <li>• Low sintering temperature</li> <li>• Good sintering properties when used on Ag, PPF, Au and Cu substrates</li> <li>• High thermal stability</li> <li>• Good toughness</li> <li>• High reliability</li> <li>• Solder replacement</li> <li>• Void-free bondline</li> </ul> |
| <b>Application</b>                 | Semiconductor, Conductive adhesive                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Typical Package Application</b> | QFN, LGA, HBLED                                                                                                                                                                                                                                                                                                                                                                                                         |

LOCTITE ABLESTIK ABP 8068TA is a semi-sintering die attach adhesive designed for semiconductor packages requiring high thermal and electrical conductivity. This material's epoxy assisted sintering formulation is designed to provide high adhesion, high thermal and low stress properties which are essential for thermal and reliability performances of high end power packages. The thermal performance of LOCTITE ABLESTIK ABP 8068TA is comparable to a solder paste material. In conventional box oven curing, it will cure at 1 hour at 200°C or 175°C.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

|                                                |       |
|------------------------------------------------|-------|
| Thixotropic Index (0.5/5 rpm)                  | 6.0   |
| 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   |
| Open time, hours                               | 2     |
| Flash Point - See SDS                          |       |

## TYPICAL CURING PERFORMANCE

### Cure Schedule

For the die size <5 x 5 mm

- 20 minutes ramp from 25°C to 130°C, hold for 30 to 60 minutes; 15 minutes ramp to 200°C, hold for 60 minutes in N2 or air oven

For the die size >5 x 5 mm

- 20 minutes ramp from 25°C to 130°C, hold for 120 minutes; 15 minutes ramp to 200°C, hold for 60 minutes in N2 or air oven

### Alternate Cure Schedule

Suitable for Ag, Au and PPF substrates

- 20 minutes ramp from 25°C to 130°C, hold for 30 minutes; 10 minutes ramp to 175°C, hold for 60 minutes in N2 or air oven

### Weight Loss on Cure

Weight Loss on Cure, % -4.0

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

Dynamic Tensile Modulus, DMA:

|         |                   |                         |
|---------|-------------------|-------------------------|
| @ -65°C | N/mm <sup>2</sup> | 15,800                  |
|         | (psi)             | (2.29×10 <sup>6</sup> ) |
| @ 25°C  | N/mm <sup>2</sup> | 11,800                  |
|         | (psi)             | (1.71×10 <sup>6</sup> ) |
| @ 150°C | N/mm <sup>2</sup> | 2,100                   |
|         | (psi)             | (305,000)               |
| @ 250°C | N/mm <sup>2</sup> | 1,500                   |
|         | (psi)             | (218,000)               |

|                                               |      |
|-----------------------------------------------|------|
| Coefficient of Thermal Expansion, TMA, ppm/°C | 54   |
| Thermal Conductivity, W/(m·K)                 | 110  |
| Moisture Absorption, %                        | 0.26 |
| Extractable Ionic Content, :                  |      |
| Chloride (Cl-), ppm                           | 35   |
| Sodium (Na+), ppm                             | 3    |
| Potassium (K+), ppm                           | 3    |

**Electrical Properties**

Volume Resistivity, ohm-cm  $9.00 \times 10^{-06}$

**TYPICAL PERFORMANCE OF CURED MATERIAL****Thermal Properties**

In-package Thermal Resistance:

7 x 7 mm<sup>2</sup> QFN and 2.5 x 2.5 mm<sup>2</sup> Ag BSM die, K/W:  
 on Ag 0.504  
 on Cu 0.505  
 on PPF 0.499

**Shear Strength**

Die Shear Strength @ 260 °C:

1 x 1 mm die, Kg:  
 on Ag 1.12  
 on Cu 0.9  
 on PPF 1.22

2 x 2 mm die, Kg:  
 on Ag 7.3  
 on Cu 4.4  
 on PPF 7.2

3 x 3 mm die, Kg:  
 on Ag 13.1  
 on Cu 10.2  
 on PPF 11.7

5 x 5 mm die, Kg:  
 on Ag 20.2  
 on Cu 17.9  
 on PPF 15.9

Die Shear Strength @ 260 °C, after Parr bomb:

1 x 1 mm die, Kg:  
 on Ag 0.99  
 on Cu 0.64  
 on PPF 1.09

2 x 2 mm die, Kg:  
 on Ag 6.9  
 on Cu 4.6  
 on PPF 6.4

3 x 3 mm die, Kg:  
 on Ag 14.5  
 on Cu 13.5  
 on PPF 11.4

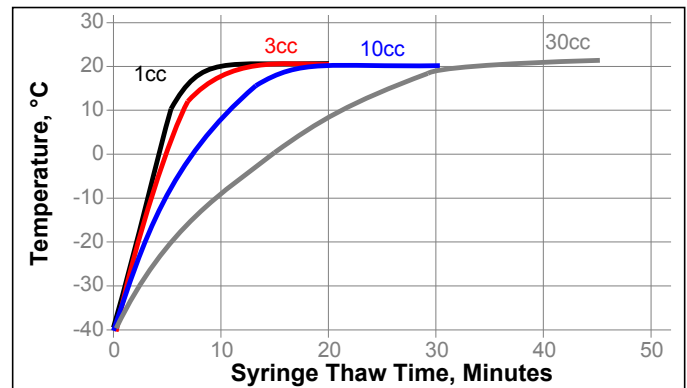
5 x 5 mm die, Kg:  
 on Ag 19.4  
 on Cu 20.8  
 on PPF 15.6

**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 25°C, the adhesive should not be re-frozen.

**DIRECTIONS 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. Bondline thickness guideline
 

|                                                    |          |
|----------------------------------------------------|----------|
| Die Size ≤ 3 x 3 mm <sup>2</sup> , BLT control, μm | 10 to 25 |
| Die Size > 3 x 3 mm <sup>2</sup> , BLT control, μm | 20 to 50 |

The above BLTs are guideline recommendations. Optimal BLT may vary based on customers' experience and their application requirements as well as customer's package design, die dimension and cure profile.

**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**

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.

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