

# LOCTITE ABLESTIK 3280T

August 2012

## PRODUCT DESCRIPTION

LOCTITE ABLESTIK 3280T provides the following product characteristics:

|                         |                                                                                                                                                                       |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Technology</b>       | Acrylate                                                                                                                                                              |
| <b>Appearance</b>       | Silver                                                                                                                                                                |
| <b>Cure</b>             | Heat cure                                                                                                                                                             |
| <b>Product Benefits</b> | <ul style="list-style-type: none"> <li>Improved MRT levels</li> <li>Good adhesion to Cu, Ag and PPF</li> <li>Snap curable</li> <li>Electrically conductive</li> </ul> |
| <b>Application</b>      | Die attach                                                                                                                                                            |
| <b>Filler Type</b>      | Silver                                                                                                                                                                |
| <b>pH</b>               | 3.6                                                                                                                                                                   |
| <b>Substrates</b>       | Copper, Silver and PPF                                                                                                                                                |

LOCTITE ABLESTIK 3280T die attach adhesive is designed for high reliability packaging applications. It offers improved JEDEC performance on packages with die sizes <100 mil.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Thixotropic Index (0.5/5 rpm)  $\geq 4.0$

Viscosity, Brookfield CP51, 25 °C, mPa·s (cP):

Speed 5 rpm 9,000

Work Life @ 25°C, hours 24

Shelf Life @ °C (from date of manufacture), days 365

## TYPICAL CURING PERFORMANCE

### Cure Schedule

30 minute ramp to 175°C + 15 minutes @ 175°C in N<sub>2</sub>  
(Recommended oxygen levels is <1%)

### Snap Cure Schedule

| Zone #  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | Total Time |
|---------|-----|-----|-----|-----|-----|-----|-----|------------|
| Temp °C | 140 | 150 | 200 | 220 | 220 | 220 | 220 | 60 sec     |

Note: N<sub>2</sub> PreHeat Temp: 150°C

### Weight Loss on Cure

10 x 10 mm Si die on glass slide, % 6.8

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

Coefficient of Thermal Expansion :

Below T<sub>g</sub>, ppm/°C 83

|                                                         |                                            |
|---------------------------------------------------------|--------------------------------------------|
| Above T <sub>g</sub> , ppm/°C                           | 165                                        |
| Glass Transition Temperature, Tan $\Delta$ Max, °C      | 52                                         |
| Tensile Modulus, DMTA :                                 |                                            |
| @ -65 °C                                                | N/mm <sup>2</sup> 6,337<br>(psi) (919,000) |
| @ 25 °C                                                 | N/mm <sup>2</sup> 1,310<br>(psi) (191,000) |
| @ 150 °C                                                | N/mm <sup>2</sup> 121<br>(psi) (17,000)    |
| @ 250 °C                                                | N/mm <sup>2</sup> 121<br>(psi) (17,000)    |
| Extractable Ionic Content, @ 100°C ppm:                 |                                            |
| Chloride (Cl <sup>-</sup> )                             | <20                                        |
| Sodium (Na <sup>+</sup> )                               | <15                                        |
| Potassium (K <sup>+</sup> )                             | <15                                        |
| Water Extract Conductivity, $\mu$ mhos/cm               | 18                                         |
| Moisture Absorption @ Saturation, wt.% @ 0.2 85°C/85%RH |                                            |

## Electrical Properties

|                             |       |
|-----------------------------|-------|
| Volume Resistivity, ohms-cm | 0.003 |
| Bond Joint Resistance, ohms | 0.002 |

## TYPICAL PERFORMANCE OF CURED MATERIAL

### Miscellaneous

Die Shear Strength

2 X 2 mm Si die, kg-f,

| Substrate       | @25°C | @200°C | @250°C |
|-----------------|-------|--------|--------|
| Ag/Cu leadframe | 6.2   | 2.2    | 1.9    |

5 X 5 mm Si die, kg-f,

| Substrate       | @25°C |
|-----------------|-------|
| Ag/Cu leadframe | 11    |

Chip Warpage,  $\mu$ m

0.38 mm thick Si die on 0.2 mm thick Ag/Cu LF @ 25°C,  $\mu$ m

| Chip Size:     | Warpage: |
|----------------|----------|
| 7.6 x 7.6 mm   | 5.9      |
| 12.7 X 12.7 mm | 23.6     |

## GENERAL INFORMATION

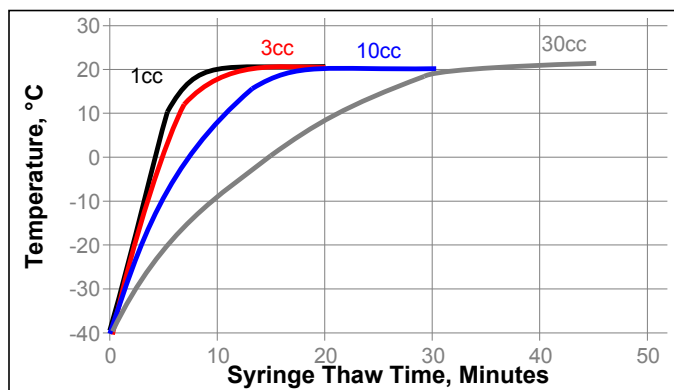
For safe handling information on this product, consult the Material Safety Data Sheet, (MSDS).

## 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. 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.

- DO NOT re-freeze. Once thawed to -40°C, the adhesive should not be re-frozen.



#### DIRECTIONS FOR USE

- Thawed adhesive should immediately be placed on dispense equipment for use.
- 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.
- Adhesive must be completely used within the product's recommended work life.
- Silver-resin separation may occur if the adhesive is left out at room temperature, beyond the recommended work life.
- 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.
- Alternate dispense amounts may be used depending on the application requirements.
- 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

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$   
 $\text{kV/mm} \times 25.4 = \text{V/mil}$   
 $\text{mm} / 25.4 = \text{inches}$   
 $\text{N} \times 0.225 = \text{lb}$   
 $\text{N/mm} \times 5.71 = \text{lb/in}$   
 $\text{psi} \times 145 = \text{N/mm}^2$   
 $\text{MPa} = \text{N/mm}^2$   
 $\text{N} \cdot \text{m} \times 8.851 = \text{lb} \cdot \text{in}$   
 $\text{N} \cdot \text{m} \times 0.738 = \text{lb} \cdot \text{ft}$   
 $\text{N} \cdot \text{mm} \times 0.142 = \text{oz} \cdot \text{in}$   
 $\text{mPa} \cdot \text{s} = \text{cP}$

#### Disclaimer

##### Note:

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#### Reference 1