

# LOCTITE ABLESTIK 8387B

January 2020

## PRODUCT DESCRIPTION

LOCTITE ABLESTIK 8387B provides the following product characteristics:

|                                    |                                                                                                                                          |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Technology</b>                  | Epoxy                                                                                                                                    |
| <b>Appearance</b>                  | Black                                                                                                                                    |
| <b>Cure</b>                        | Heat cure                                                                                                                                |
| <b>Product Benefits</b>            | <ul style="list-style-type: none"> <li>Non-conductive</li> <li>Fast cure</li> <li>Black pigmentation for blocking stray light</li> </ul> |
| <b>Application</b>                 | Die attach                                                                                                                               |
| <b>Typical Package Application</b> | Optoelectronic devices                                                                                                                   |

LOCTITE ABLESTIK 8387B non-conductive die attach adhesive has been formulated for use in high throughput die attach applications. This adhesive can be fast cured using directed heat energy or hot plate curing techniques. In conventional box or convection conveyor oven curing, it will cure at temperatures as low as 100°C.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

|                                                     |       |
|-----------------------------------------------------|-------|
| Thixotropic Index (0.5/5 rpm)                       | ≥4.5  |
| Viscosity, Brookfield CP51, 25 °C, mPa·s (cP):      |       |
| Speed 5 rpm                                         | 9,500 |
| Work Life @ 25°C, hours                             | 48    |
| Shelf Life @ -40°C (from date of manufacture), days | 365   |

## TYPICAL CURING PERFORMANCE

### Cure Schedule

2 minutes @ 150°C

### Alternate Cure Schedule 1

30 minutes @ 100°C

### Alternate Cure Schedule 2

60 minutes @ 120°C

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                             | 94   |
| Above Tg, ppm/°C                             | 165  |
| Glass Transition Temperature (Tg) by TMA, °C | 96   |
| Extractable Ionic Content, @ 100°C:          |      |
| Chloride (Cl-)                               | <300 |
| Sodium (Na+)                                 | <10  |
| Potassium (K+)                               | <5   |

### Tensile Modulus, DMTA :

|          |                                            |
|----------|--------------------------------------------|
| @ -65 °C | N/mm <sup>2</sup> 2,840<br>(psi) (411,000) |
| @ 25 °C  | N/mm <sup>2</sup> 1,400<br>(psi) (203,000) |
| @ 100 °C | N/mm <sup>2</sup> 580<br>(psi) (84,000)    |
| @ 150 °C | N/mm <sup>2</sup> 77<br>(psi) (11,000)     |
| @ 200 °C | N/mm <sup>2</sup> 59<br>(psi) (8,500)      |
| @ 250 °C | N/mm <sup>2</sup> 53<br>(psi) (7,700)      |

Water Extract Conductivity, μmhos/cm 190

## TYPICAL PERFORMANCE OF CURED MATERIAL

### Miscellaneous

#### Die Shear Strength

2 x 2 mm Si die on T2 FR4 LF:

|        |                                       |
|--------|---------------------------------------|
| @ 25°C | N/mm <sup>2</sup> 27<br>(psi) (3,900) |
|--------|---------------------------------------|

3 x 3 mm Si die @ 25°C:

|             |                                         |
|-------------|-----------------------------------------|
| on Ag/Cu LF | N/mm <sup>2</sup> 28.1<br>(psi) (4,100) |
| on Cu LF    | N/mm <sup>2</sup> 30.5<br>(psi) (4,400) |

12.7 x 12.7 mm Si die on Cu LF:

|         |                                      |
|---------|--------------------------------------|
| @ 250°C | N/mm <sup>2</sup> 1.9<br>(psi) (270) |
|---------|--------------------------------------|

#### Chip Warpage @ 25 °C vs Chip Size

12.7 x 12.7 mm, 0.38 mm thick Si die on Cu LF, μm 35

## GENERAL INFORMATION

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

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