

# LOCTITE ABLESTIK 285 CAT 11

October 2014

## PRODUCT DESCRIPTION

LOCTITE ABLESTIK 285 CAT 11 provides the following product characteristics:

|  |   |
|--|---|
| <b>Technology</b>                        | Epoxy   |
| Appearance (Resin)                       | Black   |
| Mix Ratio, by weight - Material:Catalyst | 100 : 4.0   |
| Mix Ratio, by Volume - Material:Catalyst | 100 : 9.9   |
| Product Benefits                         | <ul style="list-style-type: none"> <li>• Thermally conductive</li> <li>• Non-sag</li> <li>• Thixotropic</li> <li>• Resin versatility</li> <li>• Low CTE</li> <li>• Long pot life</li> <li>• Good chemical resistance</li> <li>• Good physical and chemical properties at elevated temperatures</li> </ul> |
| <b>Cure</b>                              | Heat cure   |
| <b>Application</b>                       | Thermally conductive adhesive   |
| Operating Temperature                    | -55 to +155 °C  |
| Typical Assembly Applications            | Bonding metals and ceramic substrates in heat sink applications   |

LOCTITE ABLESTIK 285 CAT 11 adhesive is designed for assembly applications that require thermal management. It is also recommended for low stress bonding applications.

LOCTITE ABLESTIK 285 CAT 11 can be used with a variety of catalysts. For more information on mixed properties when used with other available catalysts, please contact your local technical service representative for assistance and recommendations.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

### Part A Properties 285

|                             |     |
|-----------------------------|-----|
| Density , g/cm <sup>3</sup> | 2.4 |
| Shelf Life @ 25°C, months   | 12  |
| Flash Point - See SDS       |     |

### Part B Properties CAT 11

|                               |    |
|-------------------------------|----|
| Viscosity @ 65 °C, mPa·s (cP) | 50 |
| Flash Point - See SDS         |    |

### Mixed Properties

|   |      |
|---|------|
| Density , g/cm <sup>3</sup>             | 2.27 |
| Working Time, 100 g mass, @ 25°C, hours | 4    |
| Flash Point - See SDS                   |      |

## TYPICAL CURING PERFORMANCE

### Cure Schedule

|                          |
|--------------------------|
| 8 to 16 hours @ 80°C or  |
| 2 to 4 hours @ 100°C or  |
| 30 to 60 minutes @ 120°C |

For optimum performance, follow the initial cure with a post cure of 2 to 4 hours at the highest expected use temperature.

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 , ASTM D3386, 10 <sup>-6</sup> /°C | 29   |
| Glass Transition Temperature, ASTM D3418, °C                        | 112  |
| Thermal Conductivity, ASTM D-2214, W/(m·K)                          | 1.44 |

### Electrical Properties:

|                                       |                    |
|---------------------------------------|--------------------|
| Volume Resistivity, ASTM D257, ohm-cm | 1×10 <sup>15</sup> |
| Dielectric Strength, ASTM D149, kV/mm | 17.7               |
| Dielectric Constant @ 1MHz, ASTM D150 | 5.8                |
| Dissipation Factor @ 1MHz, ASTM D150  | 0.02               |

### Outgassing Properties:

|   |      |
|---|------|
| Outgassing , per NASA Reference Publication 1124, ASTM E 595: |      |
| Sample cured for 8 hours @ 82°C                               |      |
| TML, %  | 0.28 |
| CVCM  | 0.01 |

## TYPICAL PERFORMANCE OF CURED MATERIAL

Tensile Lap Shear Strength , ASTM D1002:

|                       |                   |         |  |
|-----------------------|-------------------|---------|--|
| Aluminum to aluminum: |                   |         |  |
| @ -55°C               | N/mm <sup>2</sup> | 12.4    |  |
|                       | (psi)             | (1,800) |  |
| @ 25°C                | N/mm <sup>2</sup> | 14.5    |  |
|                       | (psi)             | (2,100) |  |
| @ 100°C               | N/mm <sup>2</sup> | 9.7     |  |
|                       | (psi)             | (1,400) |  |

## GENERAL INFORMATION

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

**DIRECTIONS FOR USE**

1. Certain resins and hardeners are prone to crystallization. If crystallization does occur, warm the contents of the shipping container to 50 to 60°C until all crystals have dissolved. Shipping container must be loosely covered during the warming stage to prevent any pressure build-up.
2. Allow contents to cool to room temperature before continuing.
3. Complete cleaning of the substrates should be performed to remove contamination such as oxide layers, dust, moisture, salt and oils which can cause poor adhesion or corrosion in a bonded part.
4. Some separation of components is common during shipping and storage. For this reason, it is recommended that the contents of the shipping container be thoroughly mixed prior to use.
5. Power mixing is preferred to ensure a homogeneous product.
6. Accurately weigh resin and hardener into a clean container in the recommended ratio. Weighing apparatus having an accuracy in proportion to the amounts being weighed should be used.
7. Blend components by hand, using a kneading motion, for 2 to 3 minutes and scrape the bottom and sides of the mixing container frequently to produce a uniform mixture.
8. If possible, power mix for an additional 2 to 3 minutes. Avoid high mixing speeds. This can entrap excessive amounts of air. It can also cause overheating of the mixture, resulting in reduced working life.
9. Apply adhesive to all surfaces to be bonded and join together.
10. In most applications only contact pressure is required.

**Conversions**

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

**Storage**

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

**Optimal Storage : 25 °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.

**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.

## 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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## Reference 0.1