

# LOCTITE ABLESTIK FS 849-TI

August 2012

## PRODUCT DESCRIPTION

LOCTITE ABLESTIK FS 849-TI provides the following product characteristics:

<b>Technology</b>	Proprietary Hybrid Chemistry
<b>Appearance</b>	Silver
<b>Cure</b>	Heat cure
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>• High thermal conductivity</li> <li>• Low electrical resistance</li> <li>• Medium modulus</li> <li>• Low outgassing</li> </ul>
<b>Application</b>	Die attach
<b>Filler Type</b>	Silver

LOCTITE ABLESTIK FS 849-TI is designed for power applications. This material is a medium modulus adhesive suited for a wide variety of die sizes where thermal and electrical conductivity are needed in a high reliability package.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Thixotropic Index (0.5/5 rpm)	5.2
Viscosity, Brookfield CP51, 25 °C, mPa·s (cP):	
Speed 5 rpm	9,500
Work Life @ 25°C, hours	24
Shelf Life @ -40°C, days	365
Flash Point - See SDS	

## TYPICAL CURING PERFORMANCE

### Cure Schedule

15 minute ramp to 175°C + 30 minutes @ 175°C in N<sub>2</sub>

### Weight Loss on Cure

By TMA 2.9

The above drying profile is a guideline recommendation. Conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer drying equipment, oven loading and actual oven temperatures.

## TYPICAL PROPERTIES OF CURED MATERIAL

### Physical Properties

Coefficient of Thermal Expansion, ppm/°C:	
Below T <sub>g</sub> , ppm/°C	44
Above T <sub>g</sub> , ppm/°C	155
Glass Transition Temperature (T <sub>g</sub> ) by TMA, °C	211
Thermal Conductivity, W/(m·K)	7.8
Tensile Modulus, DMTA :	
@ 25 °C	N/mm <sup>2</sup> 7,802 (psi) (1,131,290)
@ 150 °C	N/mm <sup>2</sup> 1,510 (psi) (219,010)
@ 250 °C	N/mm <sup>2</sup> 1,070 (psi) (155,190)
Moisture Absorption @ Saturation, wt.% @ 85°C/85°RH	0.24

## Electrical Properties

Volume Resistivity, ohms-cm	0.00002
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## TYPICAL PERFORMANCE OF CURED MATERIAL

### Miscellaneous

Die Shear Strength @ 260°C

Si die on TQFP Ag substrate:

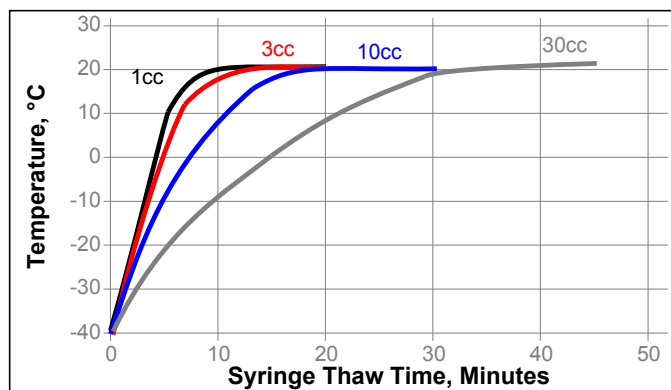
3 x 3mm	3 x 6.5mm	7.6 x 7.6mm
4.1	7.3	16.4

## 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 22°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 22°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. Silver-resin separation may occur if the adhesive is left out at room temperature, beyond the recommended work life.
5. 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.

6. Alternate dispense amounts may be used depending on the application requirements.
7. 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

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

#### 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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