

# LOCTITE ABLESTIK ECF 564AHF

November 2019

**PRODUCT DESCRIPTION**

LOCTITE ABLESTIK ECF 564AHF provides the following product characteristics:

|                                    |  |
|------------------------------------|--|
| <b>Technology</b>                  | Epoxy Film   |
| <b>Appearance</b>                  | Silver   |
| <b>Cure</b>                        | Heat cure  |
| <b>Product Benefits</b>            | <ul style="list-style-type: none"> <li>Electrically conductive</li> <li>Low outgassing</li> <li>Isotropic electrical conductivity</li> </ul> |
| <b>Application</b>                 | Assembly   |
| <b>Filler Type</b>                 | Silver   |
| <b>Carrier Type</b>                | Glass fabric   |
| <b>pH</b>                          | 6.0  |
| <b>Typical Package Application</b> | Hybrid packages  |

LOCTITE ABLESTIK ECF 564AHF adhesive film is designed for use in hybrid packages where outgassing and ionic contamination must be kept to a minimum. This material is the highest flow version of the ABLESTIK ECF 564A series.

**MIL-STD-883C**

LOCTITE ABLESTIK ECF 564AHF meets the requirements of MIL-STD-883C, Method 5011.

**TYPICAL PROPERTIES OF UNCURED MATERIAL**

|   |     |
|---|-----|
| Work Life @ 25°C, days                              | 3   |
| Shelf Life @ -40°C (from date of manufacture), days | 365 |

**TYPICAL CURING PERFORMANCE Cure Schedule**

2 hours @ 150°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 :**

|   |                     |
|---|---------------------|
| Water Extract Conductivity, $\mu\text{mhos/cm}$           | 5                   |
| Glass Transition Temperature (T <sub>g</sub> ) by TMA, °C | 122                 |
| Coefficient of Thermal Expansion, TMA:                    |                     |
| Below T <sub>g</sub> , in/in/°C                           | $80 \times 10^{-6}$ |
| Above T <sub>g</sub> , in/in/°C                           | $33 \times 10^{-5}$ |
| Extractable Ionic Content, :                              |                     |
| Chloride (Cl <sup>-</sup> )                               | 5                   |
| Sodium (Na <sup>+</sup> )                                 | 5                   |
| Potassium (K <sup>+</sup> )                               | N/D                 |
| Weight Loss @ 300°C, TGA, %                               | 0.15                |

Thermal Conductivity @ 121°C, BTU ft<sup>-1</sup> hr<sup>-10</sup> °F<sup>-1</sup> 3.0

**Electrical Properties:**

Volume Resistivity, ohms-cm 0.0004  
 Electrical Resistance Measured through gold joints, 0.0005 ohm/0.5 sq. in.

**TYPICAL PERFORMANCE OF CURED MATERIAL**
**Lap Shear Strength :**

|          |                                       |
|----------|---------------------------------------|
| Al to Al | N/mm <sup>2</sup> 17<br>(psi) (2,500) |
| Au to Au | N/mm <sup>2</sup> 20<br>(psi) (2,900) |

**Die Shear Strength:**

@ 25°C N/mm<sup>2</sup> 36  
(psi) (5,300)

**TYPICAL ENVIRONMENTAL RESISTANCE**
**Outgassing Properties**

Outgassing, NASA Outgassing:  
 TML, % 0.3  
 CVCM, % <0.01  
 WVR, % 0.25

**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. 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.
3. DO NOT re-freeze. Once thawed, the adhesive should not be re-frozen.

**DIRECTIONS FOR USE**

1. Clean all surfaces to be bonded.
2. Precut adhesive to the same size as, or slightly smaller than, the substrate.
3. Place in position in the package (header).
4. Place in a preheated oven at 150°C for 4 minutes to allow removal of absorbed moisture and traces of retained solvent.
5. If no clamping pressure is used during the curing, mount the substrate either while hot or after cooling to ambient.

6. Place on a heating block at 150°C.
7. Press or scrub the substrate until an acceptable fillet is obtained.
8. Place in pre-heated oven and cure at the recommended cure schedule.
9. If clamping pressure is used during cure, mount the substrate either while hot or after cooling to ambient. Apply spring loaded clamp to provide continuous pressure of 10psi during the cure cycle. Place in pre-heated oven and cure at the recommended cure schedule.

#### AVAILABILITY

1. LOCTITE ABLESTIK ECF 564AHF adhesive is available in sheet stock or die cut preforms.
2. This material is only available with 5011 certification.

#### 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.

LOCTITE ABLESTIK ECF 564AHF adhesive may be stored up to 1 year at -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

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

#### 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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Reference 0.2