

# LOCTITE<sup>®</sup> ABLESTIK CF 3350

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**PRODUCT DESCRIPTION**

LOCTITE<sup>®</sup> ABLESTIK CF 3350 provides the following product characteristics:

<b>Technology</b>	Epoxy Film
<b>Appearance</b>	Gray Tan
<b>Cure</b>	Heat cure
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>• High electrical conductivity</li> <li>• High thermal conductivity</li> <li>• Uniform bondline adhesion</li> <li>• Custom preforms available</li> <li>• Adhesion with flexibility</li> <li>• Void-free bondline</li> <li>• Clean, easy application with no waste</li> <li>• Even heat dissipation</li> <li>• Provides electrical continuity</li> <li>• Minimum thermal resistance to heat sink</li> <li>• Passes NASA outgassing</li> </ul>
<b>Application</b>	Assembly
<b>Filler Type</b>	Silver
<b>Operating Temperature</b>	-40 to 160 °C
<b>Thickness</b>	2 or 4 mils (±0.5 mils)
<b>Carrier Type</b>	Polyester
<b>Typical Assembly Applications</b>	Circuit board materials, Metal backplanes and Heatsinks
<b>Substrates</b>	Fluoropolymer circuits, Ceramic circuits, Copper, brass, Kovar and Aluminum
<b>pH</b>	6.0

LOCTITE<sup>®</sup> ABLESTIK CF 3350 film adhesive is formulated for electrical, thermal and mechanical assembly applications. The combination of adhesive properties ensures reliable RF ground plane performance.

LOCTITE<sup>®</sup> ABLESTIK CF 3350 passes NASA outgassing standards.

**MIL-STD-883**

LOCTITE<sup>®</sup> ABLESTIK CF 3350 meets the requirements of MIL-STD-883, Method 5011.

**TYPICAL PROPERTIES OF UNCURED MATERIAL**

Work Life @ 25°C, months	3
Shelf Life @ 5°C (from date of manufacture), months	9
Peak Exotherm Temperature, DSC,	177.5°C ± 5°C
Ramp Rate=10°C/	
Flash Point - See SDS	

**TYPICAL CURING PERFORMANCE**
**Cure Schedule**

30 minutes @ 150°C

**Alternate Cure Schedule**

10 minutes @ 175°C or  
 50 minutes @ 137°C or  
 120 minutes @ 125°C

**Cure Pressure**

5 to 60 psi

Cure pressure may vary depending on the materials being bonded and their size.

All temperatures are measured at the adhesive and do not include ramp-up time.

The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and specific 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, TMA:

Below Tg, 10 <sup>-6</sup> /°C	65
Above Tg, 10 <sup>-6</sup> /°C	150

Glass Transition Temperature, DMA, °C 90

Thermal Conductivity, W/(m·K) 7

Thermal Resistance for 1sq cm area @ 10 psi assembly pressure:

50µm bondline, °C/W	0.15
100µm bondline, °C/W	0.23

Storage Modulus, DMA:

@ -40 °C	N/mm <sup>2</sup>	4,000
	(psi)	(580,151)
@ 0 °C	N/mm <sup>2</sup>	3,000
	(psi)	(435,113)
@ 25 °C	N/mm <sup>2</sup>	2,400
	(psi)	(348,090)
@ 100 °C	N/mm <sup>2</sup>	680
	(psi)	(98,625)
@ 150 °C	N/mm <sup>2</sup>	60
	(psi)	(8,702)

Extractable Ionic Content, :

Chloride (Cl <sup>-</sup> )	50
Sodium (Na <sup>+</sup> )	30
Potassium (K <sup>+</sup> )	5

**Electrical Properties**

Volume Resistivity, ohm-cm @ 25°C 0.0002

**TYPICAL PERFORMANCE OF CURED MATERIAL****Miscellaneous**

Tensile Lap Shear Strength (psi):

4 mil thickness, @ 25°C

Substrate		
Aluminum to aluminum		3,400
Gold to Gold		3,500

**GENERAL INFORMATION**

Please consult the Safety Data Sheet (SDS) for safe handling information of this product.

**THAWING:**

1. Allow container to reach room temperature before use.
2. 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.

**Surface Preparation**

1. Proper preparation of substrates is critical to optimize epoxy adhesive flow and adhesion. The substrate water contact angle (WCA) is a good indicator of the capillary forces that drive resin flow and adhesion. Henkel recommends industry standards of <50° for substrate WCA. This allows the epoxy resin to better wet the substrate. Users may want to establish the precise relationship between WCA and product performance for their specific application.

2. Substrate surface chemistry is impacted by the entire substrate supply chain including supplier manufacturing methods, packaging, handling, plasma treatment, storage conditions, exposure to environment, and subsequent cleaning steps.

**DIRECTIONS FOR USE**

1. While substrate cleaning is not mandatory, wiping with an organic solvent (e.g. isopropanol) is recommended to remove any oils that might interfere with the bonding process.
2. Pressure needs to be applied during cure to promote proper wetting of substrate surfaces.
3. Common industry practices to apply pressure include the use of spring clamps, lamination presses, dead weights and vacuum bagging.
4. The technique to apply pressure will vary by application and customer preference.
5. For large surface area applications, a load distribution material is recommended between one of the pressure plates and the bonding part in order to equalize the applied pressure over the entire area.
6. After fixturing, the parts are then cured at an elevated temperature.
7. The specified temperatures and times refer to the bondline values. It should be noted that large mass assemblies will take longer time to achieve bondline temperatures.
8. LOCTITE® ABLESTIK CF 3350 becomes brittle at temperatures below -5°C. If material goes below this temperature, it should be handled gently. Entire package should be warmed to room temperature before opening. This will minimize the possibility of fracturing in the brittle state or allowing condensation to collect on the product.
9. Storage of uncured film at temperatures above +5°C may reduce shelf life.
10. Storage below -5°C causes the uncured film to be brittle, and there is risk of cracking while handling at these low temperatures.

**Not for product specifications**

The technical data contained herein are intended as reference only. Please contact your local Henkel representative for assistance and recommendations on the specifications of this product.

**Storage**

Store in original, tightly covered containers in clean, dry areas. Storage information may be indicated on the product container labeling. Usable shelf life may vary depending on method of application and storage conditions

**Optimal Storage : 5 °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 Henkel 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**

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. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

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