

LOCTITE® ABLESTIK CF 3350

March 2021

PRODUCT DESCRIPTION

LOCTITE® ABLESTIK CF 3350 provides the following product characteristics:

Technology	Epoxy Film
Appearance	Gray Tan
Cure	Heat cure
Product Benefits	• High electrical conductivity • High thermal conductivity • Uniform bondline adhesion • Custom preforms available • Adhesion with flexibility • Void-free bondline • Clean, easy application with no waste • Even heat dissipation • Provides electrical continuity • Minimum thermal resistance to heat sink • Passes NASA outgassing
Application	Assembly
Filler Type	Silver
Operating Temperature	-40 to 160 °C
Thickness	2 or 4 mils (±0.5 mils)
Carrier Type	Polyester
Typical Assembly Applications	Circuit board materials, Metal backplanes and Heatsinks
Substrates	Fluoropolymer circuits, Ceramic circuits, Copper, brass, Kovar and Aluminum
pH	6.0

LOCTITE® 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® ABLESTIK CF 3350 passes NASA outgassing standards.

MIL-STD-883

LOCTITE® 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 T _g , 10 ⁻⁶ /°C	65
Above T _g , 10 ⁻⁶ /°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 ²	4,000
	(psi)	(580,151)
@ 0 °C	N/mm ²	3,000
	(psi)	(435,113)
@ 25 °C	N/mm ²	2,400
	(psi)	(348,090)
@ 100 °C	N/mm ²	680
	(psi)	(98,625)
@ 150 °C	N/mm ²	60
	(psi)	(8,702)

Extractable Ionic Content, :

Chloride (Cl ⁻)	50
Sodium (Na ⁺)	30
Potassium (K ⁺)	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.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

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. 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.

In case products are delivered by Henkel Corporation, or Henkel Canada Corporation, the following disclaimer is applicable:

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 6