



# ABLEFILM<sup>®</sup> 5025E<sup>™</sup>

May 2009

## PRODUCT DESCRIPTION

ABLEFILM<sup>®</sup> 5025E<sup>™</sup> 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>• Thin, uniform bondline</li> <li>• Provides RF/EMI shielding</li> <li>• Electrically conductive in x, y, z axes</li> <li>• Excellent electrical and thermal conductivity</li> </ul>
<b>Application</b>	Die attach
<b>Thickness</b>	2 to 6 mils
<b>Filler Type</b>	Silver
<b>Typical Package Application</b>	Microwave circuitry and Heat sink attach
<b>pH</b>	6.0

ABLEFILM<sup>®</sup> 5025E<sup>™</sup> unsupported epoxy adhesive film is ideal for bonding "hot" devices onto heat sinks in applications where electrical insulation is not required.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Work Life @ 25°C, months	3
Shelf Life @ 5°C (from date of manufacture), months	6

## TYPICAL CURING PERFORMANCE

### Cure Schedule

30 minutes @ 150°C

### Alternative Cure Schedule

2 hours @ 125°C

### Weight Loss on Cure

10 x 10 mm Si die on glass slide, %	0.15
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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 :	
Below Tg, ppm/°C	65
Above Tg, ppm/°C	150

Glass Transition Temperature (Tg) by TMA, °C	90
Thermal Conductivity @ 121°C, W/mK	6.5
<b>Tensile Modulus, DMTA :</b>	
@ -65 °C	N/mm <sup>2</sup> 5,400 (psi) (790,000)
@ 25 °C	N/mm <sup>2</sup> 3,700 (psi) (530,000)
@ 150 °C	N/mm <sup>2</sup> 49 (psi) (7,100)
@ 250 °C	N/mm <sup>2</sup> 28 (psi) (4,000)
<b>Extractable Ionic Content, @ 100°C ppm:</b>	
Chloride (Cl-)	50
Sodium (Na+)	30
Potassium (K+)	5
Water Extract Conductivity, µmhos/cm	15
Moisture Absorption @ Saturation, wt.% @ 85°C/85%RH	0.5

### Electrical Properties:

Volume Resistivity, ohms-cm	≤0.0005
Bond Joint Resistance, ohms/0.5 sq inch	<0.002

## TYPICAL PERFORMANCE OF CURED MATERIAL

### Die Shear Strength:

2 X 2 mm Si die, kg-f,

Substrate	@25°C
Ag/Cu leadframe	13

### Lap Shear Strength, psi:

Substrate	LSS
Al to Al	≥2000

## GENERAL INFORMATION

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

### THAWING:

1. It is recommended that the film be kept in its original packaging and should be handled with care. Any unnecessary external force to the box or the film itself such as bending and/or flexing should be avoided.

It is recommended that the film be thawed to room temperature in its original packaging. The recommended thawing time is: 6 hours minimum @ +5 to 25°C.



**DIRECTIONS FOR USE**

1. ABLEFILM® 5025E™ adhesive film is unsupported.
2. Handle carefully to avoid any stretching or flexing when frozen.
3. It may be helpful during handling to keep at least one sheet of release paper attached.
4. Preheat surface to be bonded to approximately 45°C.
5. Remove release paper from one side of the adhesive film.
6. Apply film to one of the bonding surfaces.
7. Remove any trapped air by pressing on the surface.
8. Allow device to cool to room temperature.
9. Remove the release paper from the other side of the adhesive film. Attach the remaining adherend.
10. Apply spring loaded clamp or dead weight to provide continuous pressure of at least 2 to 10 psi during cure cycle.
11. Place assembly in a preheated oven and cure at the recommended cure schedule.

**NOTE:** This adhesive film is not recommended for use on bare aluminum surfaces. Poor ohmic contact will result.

**AVAILABILITY**

1. ABLEFILM® 5025E™ adhesive is available in die cut preforms or sheet stock.
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.

**Optimal Storage: 5°C. Storage below 5°C or greater than 5°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**

(°C x 1.8) + 32 = °F  
 kV/mm x 25.4 = V/mil  
 mm / 25.4 = inches  
 N x 0.225 = lb  
 N/mm x 5.71 = lb/in  
 N/mm<sup>2</sup> x 145 = psi  
 MPa x 145 = psi  
 N·m x 8.851 = lb·in  
 N·m x 0.738 = lb·ft  
 N·mm x 0.142 = oz·in  
 mPa·s = cP

**Note**

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.

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Reference 0.3