Technical Data Sheet

ABLESTIK 2200

Formerly Ablebond 2200

July 2009

PRODUCT DESCRIPTION

ABLEBOND® 2200 provides the following product characteristics:

Technology	Proprietary Hybrid Chemistry
Appearance	Silver
Cure	Heat cure
pH	4.8
Product Benefits	• Low stress • Snap curable • Improved JEDEC performance • Excellent hot/wet adhesion to metal leadframes • Low moisture absorption • Solvent-free formulation • Low modulus • Contains Ag spacers for improved bondline control
Application	Die attach
Filler Type	Silver

ABLEBOND® 2200 electrically conductive die attach adhesive is designed for high reliability leadframe packaging applications .

TYPICAL PROPERTIES OF UNCURED MATERIAL

Thixotropic Index (0.5/5 rpm)	4.8
Viscosity, Brookfield CP51, 25 °C, mPa·s (cP):	
Speed 5 rpm	9,000
Work Life @ 25°C, hours	24
Shelf Life @ -40°C (from date of manufacture), year	1

TYPICAL CURING PERFORMANCE

Cure Schedule

Fast Cure Oven: 30 minutes @ 175°C

Alternative Cure Schedule

Hot Plate Spot Cure: 30 seconds @ 200°C

Recommended Snap Cure Condition

Zone No.	1	2	3	4	5	6	7	Total Time
Temp °C	165	185	200	220	220	220	220	60 sec

Note: N2 Flow: 10 liters/ minute @ 150°C

Weight Loss on Cure

10 x 10 mm Si die on glass slide, %	1.7

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		66
Above Tg, ppm/°C		290
Glass Transition Temperature (Tg) by TMA, °C		-15
Thermal Conductivity, W/mK		2.0
Tensile Modulus, DMTA :		
@ -65 °C	N/mm² (psi)	2,600 (370,000)
@ 25 °C	N/mm² (psi)	170 (24,000)
@ 150 °C	N/mm² (psi)	81 (12,000)
@ 250 °C	N/mm² (psi)	120 (17,000)

Extractable Ionic Content, @ 100°C ppm:	
Chloride (Cl-)	<5
Sodium (Na+)	<5
Potassium (K+)	<5
Water Extract Conductivity, µmhos/cm	26
Weight Loss @ 300ºC, %	1.4
Moisture Absorption @ Saturation, wt.% @ 85°C/85°RH	0.24

Electrical Properties:

Volume Resistivity, ohms-cm:	
Oven Cured	0.001
Snap Cured	0.0005

TYPICAL PERFORMANCE OF CURED MATERIAL

Die Shear Strength:

2 X 2 mm Si die, kg-f,

Substrate	@25°C
Ag/Cu leadframe	7.0

Die Shear Strength vs Temperature, kg-f:

3 X 3 mm Si die, kg-f,

Substrate	@25°C	@150°C	@200°C	@250°C
Ag/Cu LF	12	7.0	6.2	4.7

Die Shear Strength vs Temperature:

3 X 3 mm Si die, kg-f,

85ºC/85% RH exposure for 168 hours

Substrate	@25°C	@150°C	@200°C	@250°C
Ag/Cu LF	16	6.2	6.2	5.6

Chip Warpage vs Chip Size:
12.7 x 12.7 x 0.38 mm Si die on 0.2 mm thick Ag/Cu leadframe @ 25°C, µm

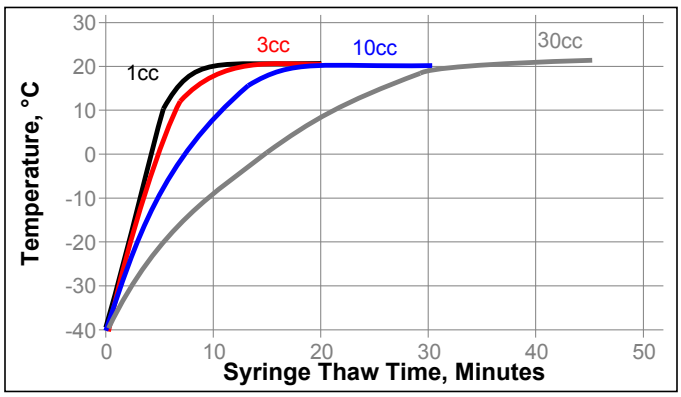
Condition:	Temp Exposure	Warpage:
Post Cure		15
+ Wirebond	1 minute @ 250ºC	18
+ Post Mold Bake	4 hours @ 175ºC	18

GENERAL INFORMATION

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

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 25°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 -40°C, the adhesive should not be re-frozen.



DIRECTIONS FOR USE

1. Thawed adhesive should be immediately 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 products recommended work life of 24 hours.
4. Silver-resin separation may occur if the adhesive is left out at 25°C 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 that 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
(°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/mm² 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

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Reference 0.2