Ablestik
a National Starch & Chemical Company ICI

ABLEBOND® 2815A

THERMALLY CONDUCTIVE DIE ATTACH ADHESIVE

DESCRIPTION

ABLEBOND® 2815A die attach adhesive offers high thermal conductivity to minimize thermal resistance between the chip and substrate. This adhesive is designed to provide improved workability for applications requiring high heat extraction from die.

FEATURES

- Excellent thermal and electrical conductivity
- Good dispensability and good fillet formation
- Good performance on Ag/Cu leadframes
- Low moisture absorption

Typical Uncured Properties	***ABLEBOND 2815A***	***Test Description***	***Test Method***
Filler Type	Silver		
Viscosity @ 25ºC	8000 cP	Brookfield CP51 @ 5 rpm	ATM-0018
Thixotropic Index	5.6	Viscosity @ 0.5/Viscosity @ 5 rpm	ATM-0089
Work Life @ 25ºC	24 hours	25% increase in viscosity @ RT	ATM-0087
Est Storage Life @ -40ºC	1 year		ATM-0068
Cure Process Data	***ABLEBOND 2815A***	***Test Description***	***Test Method***
Weight Loss on Cure	6.8%	10 x 10 mm Si die on glass slide	ATM-0031
Recommended Cure Condition	30 min ramp RT to 200ºC + 30 min @ 200ºC in N_2 oven		
PHYSIOCHEMICAL PROPERTIES - Post Cure	***ABLEBOND 2815A***	***Test Description***	***Test Method***
Ionics: Chloride Sodium Potassium	< 10 ppm < 10 ppm < 10 ppm	Teflon flask, 5 gm sample/20-40 mesh, 50 gm DI water, 100ºC for 24 hours	ATM-0007
Water Extract Conductivity	70 µmhos/cm	Conductometer	ATM-0044
pH	3.5	pH meter	ATM-0002
Glass Transition Temperature	63ºC	TMA penetration mode	ATM-0058
Coefficient of Thermal Expansion Below Tg Above Tg	 64 ppm/ºC 122 ppm/ºC	TMA expansion mode	ATM-0055

Typical properties are not intended for use as specification limits. If you need to write a specification, ask for our Standard Release Specification. This is a developmental product that has been converted to high volume manufacturing and is being monitored for process stability. During this monitoring period, certain properties may be adjusted slightly.

PHYSIOCHEMICAL PROPERTIES - Post Cure	ABLEBOND 2815A	Test Description	Test Method
Dynamic Tensile Modulus @-65ºC @ 25ºC @ 150ºC @ 250ºC	9900 MPa (1,400,000 psi) 5700 MPa (830,000 psi) 1800 MPa (260,000 psi) 1600 MPa (230,000 psi)	Dynamic mechanical thermal analysis (DMTA) using <0.5mm thick sample	ATM-0112
Moisture Absorption @ Saturation	0.24%	Dynamic vapor sorption after 85ºC/ 85% RH exposure	ATM-0093
THERMAL/ELECTRICAL PROPERTIES - Post Cure	**ABLEBOND 2815A**	**Test Description**	**Test Method**
Thermal Conductivity	20 W/mK	Laser Flash	ATM-0116
Volume Resistivity	0.00004 ohm-cm	4-point probe	ATM-0020
Bond Joint Resistance	0.0002ohms	200 x 200 mil Cu/Cu, 6.4 µm bondline thickness	ATM-0032
MECHANICAL PROPERTIES - Post Cure	**ABLEBOND 2815A**	**Test Description**	**Test Method**
Die Shear Strength @ 25ºC	5.8 kg_f/die	2 x 2mm (80 x 80 mil) Si die on Ag/Cu leadframe	ATM-0052
Die Shear Strength (kg_f/die) vs. Temperature	@25ºC: 12.3 @200ºC: 4.0 @250ºC: 3.4	3 x 3 mm (120 x 120 mil) Si die on Ag/Cu leadframe	ATM-0052
Chip Warpage @ 25ºC vs. Chip Size	Chip Size / Warpage: 7.6x7.6mm (300 x 300 mil): 9.7 µm 12.7x12.7mm (500x500mil): 37.6 µm	0.38mm (15mil) thick Si die on 0.2mm thick Ag/Cu LF	ATM-0059

APPLICATION GUIDELINES

SHIPMENT

This Ablestik product is packed and shipped in dry ice at –80ºC. Inside every dry ice shipment of Ablestik's products is a small packet containing the ABLECUBE. This is a small blue cube which retains its shape at –40ºC. If the ABLECUBE is exposed to temperatures higher than –40ºC, the cube will melt.

Please check the state of the ABLECUBE to ensure the integrity of the shipment. If the ABLECUBE has melted upon Receiving inspection, place the entire shipment in a –40ºC freezer and contact your Ablestik Customer Service or Sales Representative.

UNPACKING

Transfer the syringes from the dry ice to a –40ºC freezer without ANY delays. Freeze-thaw voids will form in the syringes if the syringes are repeatedly thawed and refrozen.

STORAGE

This Ablestik product must be stored at –40ºC. The shelf life of the material is only valid when the material has been stored at the specified storage condition. Incorrect storage conditions will degrade the performance of the material in both handling (e.g. dispensing or screen printing) and final cured properties.

THAWING

Allow the container to reach room temperature before use. After removing from the freezer, set the syringes to stand vertically while thawing. Refer to the Syringe Thaw Time chart for the thaw time recommendation.

DO NOT open the container before contents reach ambient temperature. Any moisture that collects on the thawed container should be removed prior to opening the container.

DO NOT re-freeze. Once thawed to room temperature, the adhesive should not be re-frozen.

ADHESIVE APPLICATION

Thawed adhesive should be immediately placed on dispense equipment for use. 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.

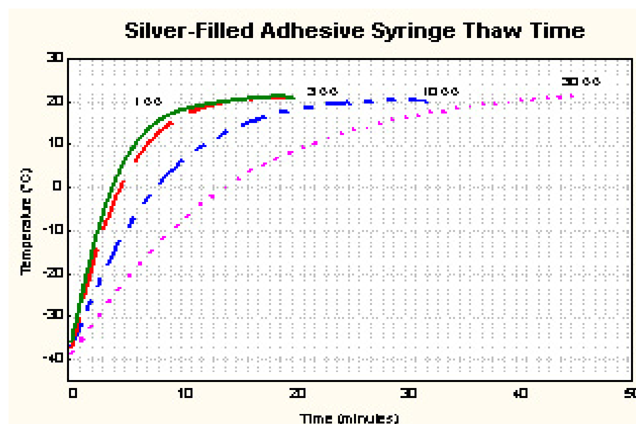
Adhesive must be completely used within the product's recommended work life of 24 hours.

Apply enough adhesive to achieve a 25-50 µm (1-2 mil) wet bondline thickness, dispensed with approximately 25% - 50% filleting on all sides of the die. Alternate dispense amounts may be used depending on the application requirements. Star or crossed shaped dispense patterns will yield fewer bondline voids than the matrix style of dispense pattern.

Contact your Ablestik Technical Service Department for detailed recommendation on adhesive application, including dispensing.

AVAILABILITY

ABLEBOND® adhesives are packaged in syringes or jars per customer specification. Available package sizes range from 1cc to 30cc and 1 ounce to 1 pound. For details, refer to the Ablestik Standard Package Data Set or contact your Customer Service Representative.



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The information given and the recommendations made herein are believed to be accurate but no guarantee of their accuracy is made. In every case we recommend that purchasers before using any product conduct their own tests to determine whether the product is suitable for their particular purposes under their own operating conditions. No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without the authority from the owner of this patent. These materials are not designed or manufactured for implantation in the human body. Approval from FDA for such use as part of any product to be implanted in the human body has NOT been sought nor received. We also expect purchasers to use our products in accordance with the guiding principles of the American Chemistry Council's Responsible Care® program.