Ablestik a National Starch & Chemical Company

ABLEBOND® 8200C

ELECTRICALLY CONDUCTIVE DIE ATTACH ADHESIVE

DESCRIPTION

ABLEBOND® 8200C low bleed die attach adhesive is designed for small and medium sized dies across a variety of leadframes including PPF, Cu and Ag. This electrically conductive adhesive offers improved JEDEC performance on QFN type packages.

ABLEBOND 8200C adhesive is a new version of the RP-751 series that provides improved MRT on silver and pre-plated leadframe.

FEATURES

- HIgh electrical conductivity
- Excellent adhesion to silver and pre-plated leadframe
- Oven and snap curable

Typical Uncured Properties	8200C	Test Description	Test Method
Filler Type	Silver		
Viscosity @ 25ºC	11,500 cP	Brookfield CP51 @ 5 rpm	ATM-0018
Thixotropic Index	5.0	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	8200C	Test Description	Test Method
Weight Loss on Cure	7%	10 x 10 mm Si die on glass slide	ATM-0031
Recommended Cure Condition	30 minutes ramp to 175ºC + 15 minutes @ 175ºC		
Snap Cure Profile			

Zone Number	1	2	3	4	5	6	7	Time
Temp ºC	140	150	160	200	220	220	220	120 sec
N_2 Flow	10 liters/minute @ 150ºC							

Physiochemical Properties - Post Cure		8200C	Test Description	Test Method
Ionics	Chloride	< 10 ppm	Teflon flask 5 gm sample / 20-40 mesh 50 gm DI water 100ºC for 24 hours	ATM-0007
	Sodium	< 10 ppm		
	Potassium	< 10 ppm		
Weight Loss @ 300ºC		1%	Thermogravimetric Analysis	ATM-0073

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 Pilot 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.

8200C

Physiochemical Properties - Post Cure	8200C	Test Description	Test Method
Glass Transition Temperature	190ºC	Dynamic mechanical thermal analysis	ATM-0112
Coefficient of Thermal Expansion	Below Tg: 60 ppm/ºC Above Tg: 130 ppm/ºC	TMA expansion mode	ATM-0055
Dynamic Tensile Modulus	@ 25ºC: 4630 MPa (670,000 psi) @ 150ºC: 1170 MPa (170,000 psi) @ 250ºC: 780 MPa (110,000 psi)	Dynamic mechanical thermal analysis using < 0.5mm thick sample	ATM-0112
Moisture Absorption @ Saturation	0.20%	Dynamic vapor sorption after 85ºC/ 85% RH exposure	ATM-0093
Thermal/Electrical Properties- Post Cure	**8200C**	**Test Description**	**Test Method**
Volume Resistivity	0.00017 ohm-cm	4-point probe	ATM-0020
Thermal Conductivity	1.2 W/mK	Laser Flash	ATM-0116
Mechanical Properties- Post Cure	**8200C**	**Test Description**	**Test Method**
Die Shear Strength (kg_f/die) vs. Temperature	@25ºC: 19.1 kg	3 x 3 mm (120 x 120 mil) Si die on SPCLF	ATM-0052
Chip Warpage @ 25ºC vs. Chip Size	Chip Size: 7.6x7.6mm (300 x 300 mil) Warpage: 16 µm	0.38mm (15mil) thick Si die on 0.2mm Ag/Cu LF	ATM-0059
Chip Warpage	Post Dia Attach Cure: 6.7 µm Post Mold Bake (4 hrs @ 175ºC): 10.9 µm		ATM-0059

APPLICATION GUIDELINES

SHIPMENT

This Ablestik product is packed and shipped in dry ice at -80°C. 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 -40°C. If the ABLECUBE is exposed to temperatures higher than -40°C, 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 -40°C freezer and contact your Ablestik Customer Service or Sales Representative.

UNPACKING

Transfer the syringes from the dry ice to a -40°C 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 -40°C. 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 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 cross shaped dispense patterns will yield fewer bondline voids than the matrix style of dispense pattern.

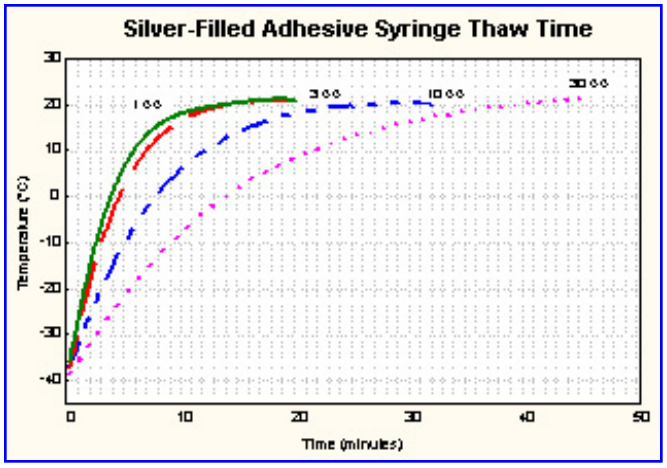
Contact Ablestik Technical Service Department for detailed recommendation on adhesive application, including dispensing.

CURE

This adhesive can be cured in box or in-line ovens. The recommended box oven cure temperature for this adhesive is 175°C.

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.



CAUTION: This product may cause skin irritation in sensitive persons. Avoid skin contact. If contact does occur, wash area immediately with soap and water. Please refer to the Material Safety Data Sheet for more details.

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20021 Susana Road, Rancho Dominguez, CA 90221
(310) 764-4600 Fax (310) 764-2545 Customer Service Fax (310) 764-1783
For a technical contact nearest you, visit
www.ablestik.com

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.