



# 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

<i>Typical Uncured Properties</i>	<i>8200C</i>	<i>Test Description</i>	<i>Test Method</i>																																
Filler Type	Silver																																		
Viscosity @ 25°C	11,500 cP	Brookfield CP51 @ 5 rpm	ATM-0018																																
Thixotropic Index	5.0	Viscosity @ 0.5/Viscosity @ 5 rpm	ATM-0089																																
Work Life @ 25°C	24 hours	25% increase in viscosity @ RT	ATM-0087																																
Est. Storage Life @ -40°C	1 year		ATM-0068																																
<i>Cure Process Data</i>	<i>8200C</i>	<i>Test Description</i>	<i>Test Method</i>																																
Weight Loss on Cure	7%	10 x 10 mm Si die on glass slide	ATM-0031																																
Recommended Cure Condition	30 minutes ramp to 175°C + 15 minutes @ 175°C																																		
Snap Cure Profile	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Zone Number</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Temp °C</td> <td>140</td> <td>150</td> <td>160</td> <td>200</td> <td>220</td> <td>220</td> <td>220</td> <td>120 sec</td> </tr> <tr> <td style="text-align: center;">N<sub>2</sub> Flow</td> <td colspan="8" style="text-align: center;">10 liters/minute @ 150°C</td> </tr> </tbody> </table>								Zone Number	1	2	3	4	5	6	7	Time	Temp °C	140	150	160	200	220	220	220	120 sec	N <sub>2</sub> Flow	10 liters/minute @ 150°C							
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<i>Physiochemical Properties - Post Cure</i>	<i>8200C</i>	<i>Test Description</i>	<i>Test Method</i>																																
Ionic Chloride	< 10 ppm	Teflon flask 5 gm sample / 20-40 mesh 50 gm DI water 100°C for 24 hours	ATM-0007																																
Sodium	< 10 ppm																																		
Potassium	< 10 ppm																																		
Weight Loss @ 300°C	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.

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

### 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.

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### 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  $\mu\text{m}$  (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.

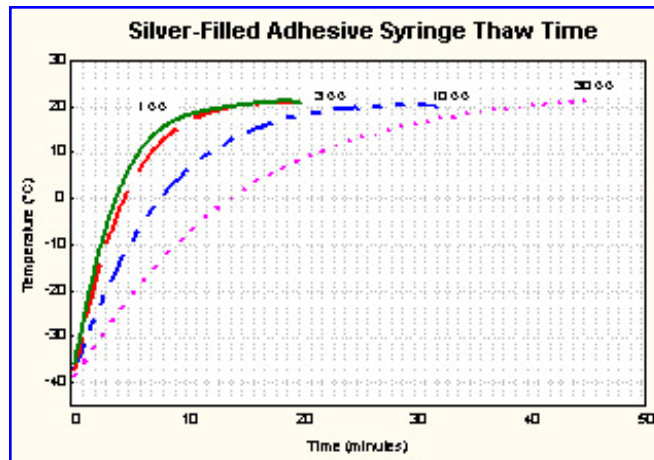
Contact Ablestik Technical Service Department for detailed recommendation on adhesive application, including dispensing.

### 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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For a technical contact nearest you, visit

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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.