brewer science
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BrewerBOND® 220

Temporary Wafer Bonding Material

BrewerBOND® 220 temporary wafer bonding material is an organic coating that enables back-end-of-line (BEOL) processing of ultrathin wafers using standard semiconductor equipment. This product improves throughput, simplifies cleaning, and shortens processing time.

KEY MARKET SECTORS

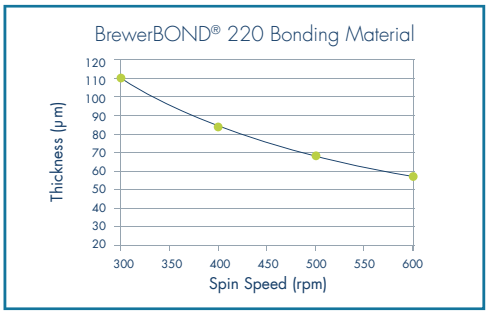
- 3-D wafer-level packaging
- MEMS
- Compound semiconductor

BENEFITS

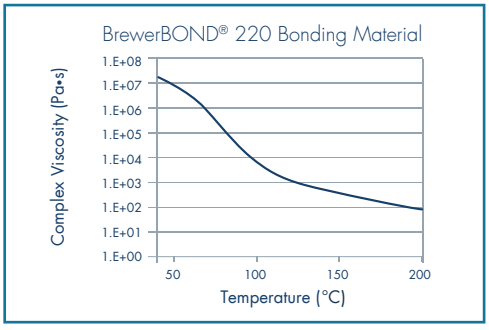
- Enables backside temperature processing at 200°C – 240°C
- Enables slide debonding with low force
- Enables minimal device wafer bowing during processes
- Up to 160-µm film possible with a single coat and customized spin process

PROCESSING

Spin Speed Curve Data



Melt Viscosity



Viscosity (Brookfield) =1480 cP at 37.8°C

T_d (TGA*) = 254°C (Air)
* IPC-TM-650 2.4.24.6 (2% Loss)

T_g (DSC) = 50.1°C

BrewerBOND® 220 Bonding Material Coating Parameters (8" substrate)

Static dispense in center of wafer

Spin Speed	See spin speed curve provided for thickness target
Acceleration	500 rpm/s
Spin Time	30 s

Spin Coating and Hot Plate Baking Processes

		Coat			Bake - temp, time (°C, min)		
Material	**thickness**	**spin (rpm)**	**accel (rpm/s)**	**time (s)**	**bake 1**	**bake 2**	**bake 3**
BrewerBOND® 220	~50 µm	650	500	30	80, 3	180, 3	220, 3
BrewerBOND® 220	~100 µm	350	500	30	80, 5	130, 5	220, 7

**all bake conditions proximity*

Bonding Process (8" wafer)

Temperature	130°C
Time	2 min
Vacuum	5 mbar
Force	2100 N

Process can be optimized for higher-temperature bonding and using various wafer sizes.

Slide Debonding Process (8" wafer)

Temperature	2 min
Force	4 lb
Speed	2 mm/s

Can be debonded at temperatures as low as 150°C.

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