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## Silicon Materials Site/150mm wafers

### Material Properties

Parameter	Characteristic	ASTM Control Method
Type/Dopant	P, Boron N, Phosphorous N, Antimony N, Arsenic	F42
Orientations	<100>, <111> slice off orientations per customer's specifications	F26
Oxygen Content	Intrinsic Custom tolerances per customer's specification	F1188
Carbon Content	< 0.5 ppmA	F1391
Resistivity ranges		F84
- P, Boron	0.001 - 50 ohm cm	
- N, Phosphorous	0.1 - 40 ohm cm	
- N, Antimony	0.005 - 0.025 ohm cm	
- N, Arsenic	< 0.005 ohm cm	

### Mechanical Properties

Parameter	Prime	Monitor/ Test A	Test	ASTM Method
Diameter				F613
- Nominal	150	150	150	
- Tolerance	. 0.2	. 0.5	. 0.5	
Thickness (.m)				F533
- Nominal	675, 1000	675, 1000	675, 1000	
- Tolerance	. 15, 20	. 25	. 50	
TTV (.m)	<= 6	<= 8	<= 15	F657
Bow (.m)	< 30	< 40	< 60	F657
Wrap (.m)	< 30	< 40	< 60	F657
Edge Rounding	Compliant with ASTM F928-86			F928
Primary/Secondary Flats	Compliant with SEMI M1 Standard per customer requirement			F26, F671

### Surface Quality

Parameter	Prime	Monitor/ Test A	Test	ASTM Method
<b>Front Side Criteria</b>				
Contamination, Particles @ >0.3 .m	<= 10	<= 30	<= 30	F523
Haze	None	None	None	F523
Pits	None	None	None	F523
Orange peel	None	None	None	F523

Saw Marks, striations	None	None	None	F523
<b>Back Side Criteria</b>				
Cracks, crowsfeet, saw marks, stains	None	None	None	F523
Surface condition	Caustic or acid etched			F523

