Commercial Poly-Silicon Specifications

Illustration

- Here are the specification for poly-silicon from one of the worlds largest suppliers, **Wacker Siltronic** as they appear in the Internet in Nov. **2000**.
  - *Notice*: The "**w** " or "**a**" behind the concentration denotes **w** eigth or **a**tomic parts per **m = million**, **b = billion** , **t = trillion**.

PolySilicon

PolySilicon for Crucible Growing			
Chip Size		mm	5 - 45 / 20 - 65 / 20 - 150
Surface			smooth, etched
Surface Metal Concentration	Monitor: Iron	pptw	< 500
Bulk Element Concentration	Donors (P, As, Sb)	ppta	< 150
	Acceptors (B, Al)	ppta	< 50
	Carbon	ppba	< 100
PolySilicon Ingots for Float Zone Growing			
Ingot Length		mm	600 -1,850
Diameter		mm	90 - 105 / 118 - 135 / 135 - 154
Surface			smooth, etched
Bulk Element Concentration	Donors (P, As, Sb)	ppta	< 300
	Acceptors (B, Al)	ppta	< 100
	Carbon	ppba	< 200
PolySilicon Ingots for Crucible Growing			
Ingot Length		mm	320 - 980
Diameter		mm	90 - 115 / 115 - 135
Surface			smooth, etched
Bulk Element Concentration	Donors (P, As, Sb)	ppta	< 300
	Acceptors (B, Al)	ppta	< 100
	Carbon	ppba	< 200
Solar Grade PolySilicon for Crucible Growing/Casting			
Chip Size		mm	0 - 15 / 5 - 160
Bulk Element Concentration	Donors (P, As, Sb)	ppta	< 300
	Acceptors (B, Al)	ppta	< 100
	Carbon	ppba	< 200
Cleaning			none

- Here some productio information:
  - According to "Solid State Technlogy" July **2005**, the productio numbers are as follows:
    - Total production 2005: **26.000.000 kg**; about **2/3** for miocroelectronics, **1/3** for photovoltaics.
    - Expected production 2006: **29.000.000 kg**.
  - Expected shortfalls:
    - 2005: **4.000.000 kg**
    - 2006: **6.000.000 kg**.
    - 2007: **12.000.000 kg**.
    - 2008: **20.000 000 kg**.
  - The expected shortfalls result to a large extent from a growthrate of **30 %** for photovoltaics and from technical and financial difficulties to crank up püroduction at a high reate. However, alternative processes solar **Si** production are expected to come on-line in 2006.