

Commercial Poly-Silicon Specifications

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**eigh or **a**tomic parts per **m** = million, **b** = billion, **t** = trillion.

Illustration

PolySilicon			
PolySilicon for Crucible Growing			
Chip Size		mm	5 - 45 / 20 - 65 / 20 - 150
Surface			smooth, etched
Surface Metal Concentration	Monitor: Iron	pptw	< 500
	Donors (P, As, Sb)	ppta	< 150
Bulk Element Concentration	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 production information:

- According to "Solid State Technology" July **2005**, the production numbers are as follows:
 - Total production **2005: 26.000.000 kg**; about **2/3** for microelectronics, **1/3** for photovoltaics.
 - Expected production **2006: 29.000.000 kg**.
- Right now (end of **2007**) there is a tremendous shortage of poly **Si** because the solar cell industry grows so fast, that poly **Si** production cannot keep pace, see also the [link](#).
- 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 growth growthrate of **40 %** for photovoltaics and from technical and financial difficulties to crank up production at a high rate. However, alternative processes for solar **Si** production are expected to come on-line in **2006**..