

## 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

<b>PolySilicon</b>			
<b>PolySilicon for Crucible Growing</b>			
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
<b>PolySilicon Ingots for Float Zone Growing</b>			
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
<b>PolySilicon Ingots for Crucible Growing</b>			
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
<b>Solar Grade PolySilicon for Crucible Growing/Casting</b>			
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 püduction at a high reate. However, alternative processes solar **Si** production are expected to come on-line in 2006.