



Poly Silicon and BSG Etching

Poly Silicon and BSG Etch for TOPCon Manufacturing

The Alkaline Poly-Si and BSG Etching Inline System achieves a perfect cleaning of the sunny side for n and p-doped polysilicon and Boron glass removal.

Details

The Alkaline Poly-Si and BSG Etching Inline System combines several process steps in a modular system. On the one hand the front side polysilicon warp around on the wafer generated during the poly-Si process is unilaterally isolated from the front side of the wafer followed by a boron or phosphorous glass removal.

With the Poly-Si and BSG Etching Inline System, SCHMID has a perfect solution for cleaning the front side of a TOPCon cell prior to passivation and anti-reflection coating in its portfolio with lowest chemical consumption.

Due to the inline concept an outstanding wafer to wafer uniformity is achieved along with the capability to process wafer thicknesses down to $100\mu\text{m}$. In addition, processing at about $80\text{ }^{\circ}\text{C}$ ensures a high etching rate and thus a small footprint of the system. During both the poly-Si removal and doped glass removal the rear poly-Si and tunnel oxide is protected by the water mask developed and patented by SCHMID. Special transport rollers ensure that the chemistry comes into contact exclusively with the frontside, thus reducing the chemistry consumption. In addition, all processes are running in one system reducing the required number of systems, automation and avoids the usage of cassettes.

Technical Data

Throughput (M12):

- 5,000 wafers/h (5 tracks)
- 10,000 wafers/h (10 tracks)
- Further throughputs configurable

Wafer size:

- M2 – M12 mm

Breakage rate:

- $< 0.05\%$

Process media:

- HF
- KOH
- Additive

Benefits

- Significantly lower chemistry costs
- Ready for M12 with thickness down to $100\mu\text{m}$
- Single side poly-Si etch along with doped glass etching
- Patented water mask
- Stable process without cooling unit
- Shortest maintenance times due to good accessibility and easy cleaning

