

A study of optimum growth rate on Continuous Czochralski process

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Recently, photovoltaic industry needs a new design of Czochralski(Cz) process for higher productivity with reasonable energy consumption as well as solar cell's efficiency. If the process uses the large size reactor for increasing productivity, it is possible to produce a 12-inch, rather than the 8-inch in recent Si-ingot industry which produces the ingot for solar cell.

Also the Continuous Czochralski(CCz) process method can maximize to increase the productivity. We also can achieve maximum productivity with minimum consumption of electricity energy. So, we simulated the CCz process with 12-inch ingot process condition.

We have found optimal growth rate, for measuring productivity by comparing each growth rate the interface shape, von-mises stress, G_n (temperature gradient in the direction of vertical), power consumption. This study will contribute to the improvement of the productivity in the real solar cell industry.