

## **Studies of Reduction Metal Impurity in Residual Melt by Czochralski Method**

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**Abstract :** Manufacturing cost reduction is becoming more important due to excessive oversupply of Single crystalline ingot in recent solar market. Many companies are carrying out extensive research to grow more than one Single crystalline ingot in one batch to reduce manufacturing cost. However what most companies are finding difficult in this process is the effect on ingot due to increasing levels of impurities. Every ingot leaves a certain amount of melt after it is fully grown. This is the impurity that lowers the ingot quality. This impurity increase in the batch after second, third and more are grown subsequently in one batch. In order to solve this problem, the experiment to remove the residual melt in high temperature of hot zone was performed and succeeded. Theoretical average metal concentration of second ingot by new method was calculated and compared to it by conventional method.

**Keywords :** single crystal, solar cell, metal impurity, Ingot

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