

# O<sub>i</sub> and C<sub>s</sub> Impurities Study on the Edge of Si-mc Ingot for Photovoltaic Applications

Fayssal Boufelghab, Y. CHETTATE, S. BELHOUSSE

**Abstract:** The objective of this work is determining the substitutional carbon ([C<sub>s</sub>]) and interstitial oxygen ([O<sub>i</sub>]) concentrations in the edge of the multicrystalline silicon ingot (mc-Si) for photovoltaic applications obtained by the heat exchanger method (HEM). Some calculations of [C<sub>s</sub>] and [O<sub>i</sub>] was obtain by the Fourier Transform InfraRed spectroscopy (FTIR). The results obtained for [C<sub>s</sub>] give an increase of bottom-up of the ingot: 130 ppm to 150 ppm. The results obtained for the [O<sub>i</sub>] give constant concentrations throughout the edge of the ingot with an author of concentration 325 ppm.

**Keywords :** Crystallization, mc-Si, HEM, FTIR, [C<sub>s</sub>], [O<sub>i</sub>]