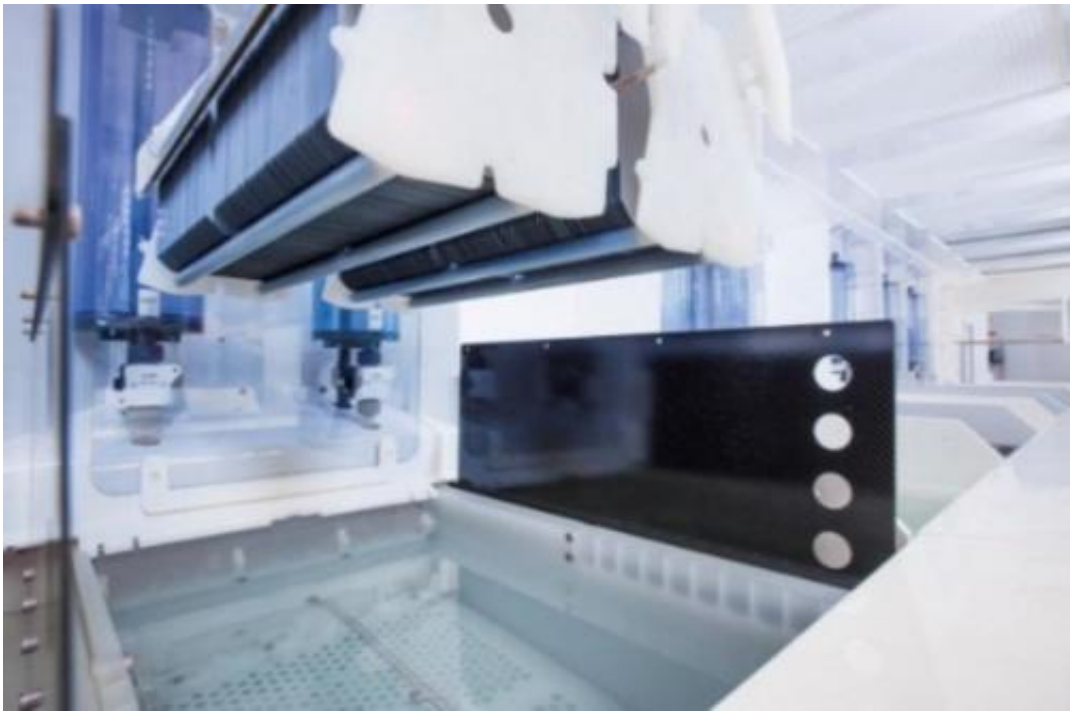
Imec, RENA develop a new low-cost texturing process for high efficiency PERC solar cells

September 22 2014



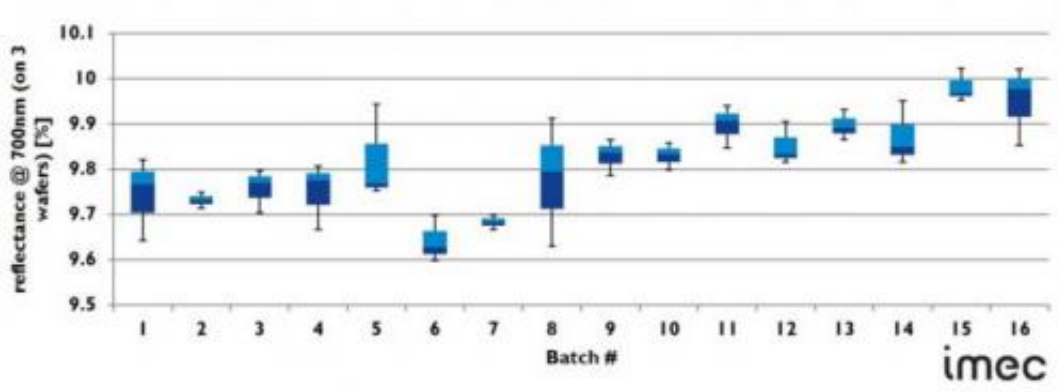
RENA BatchTex N process tank

At this week's European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC 2014, nanoelectronics research center imec, and RENA, a leading supplier for wet chemical production tools, present a novel isopropyl-alcohol (IPA)-free process for the texturing of Cz-Si wafers for high-efficiency silicon solar cell manufacturing at low cost.

The process uses monoTEX F, RENA's next generation texturing additive, instead of the currently used industrial additive IPA. In contrast monoTEX F is a moderating and wetting agent that behaves almost "linear" towards changes in process temperature and alkali concentration and operates at temperatures far below its boiling point . It will thus not evaporate, resulting in stable concentration of ratios in the etching mixture during the texturing process step. As a result, monoTEX F based texturing simplifies the texturing of Cz-Silicon wafers, widens the texturing process window, and increases texturing bath lifetime (i.e. more wafers can be processed in a single texturing bath compared to state-of-the-art IPA-based texturing).

"When applying this novel monoTEX F-based texturing in our Si PV pilot line to process large area (156x156 mm2) PERC-type solar cells, we achieved excellent conversion efficiencies well above 21%, ," stated Dr. Joachim John, R&D project manager at imec. "We are confident that RENA's monoTEX F-based texturing process is an excellent candidate to be considered for next generation high volume Cz-silicon solar cell manufacturing."

"We are very happy that in a first class institution like imec one can take advantage of our texturing agent monoTEX F. The achieved uniformity and reflection data from imec are consistent with mass production data," Dr. Jürgen Schweckendiek, R&D project manager at RENA, pointed out.



Reflectance of cz-wafers processed with monoTEX F based texturing chemistry, measured at 700 nm. As guidance 9.9 % @ 700 nm = 11.31 AWR

Provided by IMEC

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