

Triple-A: All Atmospheric Absorber formation for CIGS and CZTS

Publieke samenvatting / Public summary

Aanleiding

Presently, the only type of thin film PV that rivals the efficiency of crystalline silicon, is CIGS (20,3% efficiency record, >13,5% in production). When it is produced at sufficiently low cost, CIGS will gain an increasing share of the world-wide PV market, as it also offers additional promise for ease of integration and improved aesthetics.

Doelstelling

Large scale production at lower cost can be achieved by avoiding presently used vacuum processing steps (like sputtering and evaporation), by reduction of process time, and by preventing the use of hazardous materials. Therefore, a fast All Atmospheric Absorber formation process, compatible for roll to roll production, is being developed for CIGS, by combination of electrochemical deposition with rapid thermal processing. This project will focus on characterization of such CIGS absorber layers to shed more light on details of the formation process. For reference, atmospheric processing of vacuum-sputtered CIG precursors will be studied because this precursor route is presently dominant in industrial production.

Korte omschrijving

In recent years, it has been found that another kesterite material, CZTS, shows promising results as a PV absorber material (>11% efficiency record). It provides the additional advantage over CIGS that possibly scarce or costly elements like Indium and

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Algemene informatie / General information

Penvoerder / Secretariat
Smit Ovens B.V.

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Gallium can be replaced by Zinc and Tin. Main focus of this project is to explore the All Atmospheric Absorber approach for formation of CZTS, making use of the insights obtained in the same type of processing of CIGS, and thus targeting at low cost, roll to roll compatible processing of these abundantly available source materials to produce absorber materials with improved efficiency. Also here, sputtered layers will be used as a reference, and focus of process development will be on electrochemically deposited and solution processed CZT(S) precursors.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

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