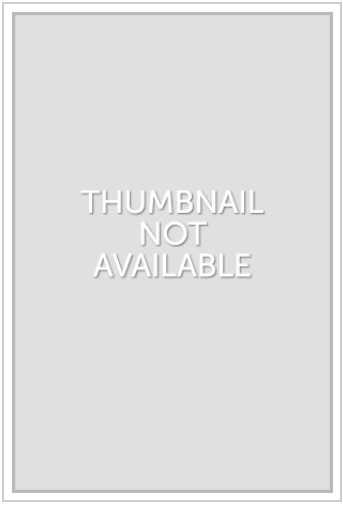

Liquid-Phase Deposition of Cis Thin Layers: Final Report

By National Renewable Energy Laboratory (NREL)

Bibliogov, United States, 2012. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.The goal of this project was to fabricate single-phase CIS (a-Cu-In-Se, stoichiometric composition: CuInSe2) thin films for photovoltaic applications from a liquid phase - a Cu-In-Se melt of appropriate composition. This approach of liquid-phase deposition (LPD) is based on the new phase diagram we have established for Cu-In-Se, the first complete equilibrium phase diagram of this system. The liquidus projection exhibits four composition fields in which the primary solid phase, i.e., the first solid material that forms on cooling down from an entirely liquid state, is a-CuInSe2. Remarkably, none of the four composition fields is anywhere near the stoichiometric composition (CuInSe2) of a-CuInSe2. The results demonstrate that the proposed technique is indeed capable of producing films with a particularly large grain size and a correspondingly low density of grain boundaries. To obtain films sufficiently thin for solar cell applications and with a sufficiently smooth surface, it is advantageous to employ a sliding boat mechanism. Future work on liquid-phase deposition of CIS should focus on the interaction between the melt and the substrate surface, the resulting CIS interfaces, the...

Reviews

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