Atmospheric Pressure Chemical Vapor Deposition and Jet Vapor Deposition of CdTe for High Efficiency Thin Film PV Devices

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 *****.ITN’s three-year project, Atmospheric Pressure Chemical Vapor Deposition (APCVD) of CdTe for High Efficiency Thin Film PV Devices, had the overall objectives of improving thin-film CdTe PV manufacturing technology and increasing CdTe PV device power-conversion efficiency. CdTe deposition by APCVD employs the same reaction chemistry as has been used to deposit 16-efficient CdTe PV films, i.e., close-spaced sublimation, but employs forced convection rather than diffusion as a mechanism of mass transport. Tasks of the APCVD program center on demonstration of APCVD of CdTe films, discovery of fundamental mass-transport parameters, application of established engineering principles to the deposition of CdTe films, and verification of reactor design principles that could be used to design high-throughput, high-yield manufacturing equipment. Additional tasks relate to improved device measurement and characterization procedures that can lead to a more fundamental understanding of CdTe PV device operation, and ultimately, to higher device conversion efficiency and greater stability. Under the APCVD program, device analysis goes beyond conventional one-dimensional device characterization and analysis toward two-dimensional measurements and modeling.

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