CdTe DEPOSITION PROCESS FOR SOLAR MODULES

MATERIALS

Low-temperature deposition process for the production of cadmium and telluride thin films that offers a fiftyfold reduction in production costs of CdTe photovoltaic solar cells.

TECHNOLOGY TYPE

Thin Films
Energy Harvesting
Solar Power

STAGE OF DEVELOPMENT

- Bench prototype developed.

- Ongoing research to optimize thin film quality and uniformity.

IP PROTECTION

U.S. Utility Patent Pending
Methods for Creating Cadmium Telluride (CdTe) and Related Alloy Film
US20170352775A1

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Reference Number: U-6114

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TECHNOLOGY SUMMARY

Cadmium telluride (CdTe) films have become the leading alternative to polycrystalline silicon, which is used in photovoltaic (PV) technology, because CdTe offers similar efficiencies, but uses more abundant raw materials. Current CdTe films, however, have significant fabrication costs that result in high effective price per watt of CdTe based photovoltaics.

University of Utah researchers have developed a novel, low-temperature CdTe thin film deposition process to reduce CdTe manufacturing costs. The process is carried out at room temperature, with atmospheric pressure, using a spin coater to alternately deposit cadmium and tellurium onto a substrate. Standard rinse and thermal annealing processes follow deposition to improve crystalline quality. This process streamlines manufacturing of solar modules, maintaining efficiency while decreasing fabrication costs.

FEATURES AND BENEFITS

- Reduces manufacturing costs for solar cell absorber layers by $.01 to $.02 per watt.
- Enables large-scale production of high-functioning, low cost CdTe photovoltaic cells.

RECENT PUBLICATIONS

doi: [10.1088/2053-1591/aa993e](https://doi.org/10.1088/2053-1591/aa993e)

INVENTOR PROFILE

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