NREL
NATIONAL RENEWABLE ENERGY LABORATORY

CdTe Feedstock Development and Validation

Cooperative Research and Development Final Report

CRADA Number: CRD-08-00280

NREL Technical Contact: David Albin

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Cooperative Research and Development Final Report

In accordance with Requirements set forth in Article XI.A(3) of the CRADA document, this document is the final CRADA report, including a list of Subject Inventions, to be forwarded to the Office of Science and Technical Information as part of the commitment to the public to demonstrate results of federally funded research.

CRADA number: 08-00280

CRADA Title: CdTe Feedstock Development and Validation

Parties to the Agreement: Redlen

Joint Work Statement Funding Table showing DOE commitment:

Estimated Costs	**NREL** Shared Resources
Year 1	$ 50,000.00
Year 2	$ 00.00
Year 3	$ 00.00
TOTALS	$ 50,000.00

Abstract of CRADA work:

The goal of this work was to evaluate different CdTe feedstock formulations (feedstock provided by Redlen) to determine if they would significantly improve CdTe performance with ancillary benefits associated with whether changes in feedstock would affect CdTe cell processing and possibly reliability of cells. Feedstock also included attempts to intentionally dope the CdTe with pre-selected elements.

Summary of Research Results:

A total of 78 cells consisting of 11 intentionally modified Redlen compositions and NREL “std” CdTe were fabricated with moderate changes to baseline cell fabrication procedures at NREL. Feedstock compositions were evaluated in 4 different “experiments” with controls provided by cells made using NREL “std” material. Reports were submitted to Redlen at the conclusion of each experiment. Some modifications in CdTe cell processing in conjunction with certain Redlen materials of “interest” yielded exceptionally high J_{sc} values relative to controls (1-2 mA/cm^2 improvement) with corresponding increases in performance. The major finding is that feedstock chemistry (both stoichiometry as well as intentional doping) affects cell performance with some changes appearing to be beneficial. Further work is substantiated.

Subject Inventions listing:

No inventions were filed during the period of performance even though results strongly indicate that feedstock composition can impact cell performance.

Report Date: 2/11/2011 Responsible Technical Contact at Alliance/NREL: Dave Albin

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