

Solar America Board for Codes and Standards



CRYSTALLINE SILICON TERRESTRIAL PHOTOVOLTAIC CELLS –

Supply Chain Procurement
Specification Guideline

Govindasamy TamizhMani
Arizona State University
Photovoltaic Reliability Laboratory

Crystalline Silicon Terrestrial Photovoltaic Cells – Supply Chain Procurement Specification Guideline

Study Report Overview

This overview summarizes a new study report produced by the Solar America Board for Codes and Standards that presents a supply-chain procurement specification guideline for crystalline silicon terrestrial photovoltaic cells. The report explains why there is an urgent need for a photovoltaic (PV) cell standard of this kind to deal with the supply-chain procurement specification. The full report develops, in detail, a proposed standard to address this need and describes the proposed format and content of the standard which has been developed to follow the format of ASTM standards but can be easily adapted to the formats of other standards, such as SEMI, IEEE and IEC.

Why the Report is Important

A large portion of module qualification failures are related to the failure of the cell itself. Since most module manufacturers provide a warranty exceeding 20 years, it is imperative for them to ensure that their modules work for decades to come. A cell procurement specification standard will give procurement testing information on the cells for the benefit of the module and cell manufacturers increasing assurance that long-term reliability will be met.

Issue

The technical committees of various standards organizations, including ASTM (E44-09), IEEE (SCC21) and IEC (TC82), have developed a large number of photovoltaic (PV) standards for modules and systems. Only very few industry standards, however, have been developed for physical and reliability parameters related to individual solar cells. Cell-level standards developed thus far have been limited to those that deal only with performance-measurements issues. They exclude issues faced by the module manufacturers during the stages of procurement of cells from the cell manufacturers and production of modules based on the procured cells.

Solar America Board for Codes and Standards Recommendation

This study report:

- recommends a thorough discussion, by an appropriate standard's committee, of the content of the proposed standard
- requests comments from the stakeholders, especially the cell and module manufacturers
- recommends the development of additional supply-chain specification standards for the other module components such as encapsulant, backsheets, junction boxes, cables, glass substrates and framing material.



Key Findings of the Report

In this study, a proposed content for a potential standard entitled “Crystalline Silicon Terrestrial Photovoltaic Cells –Supply Chain Procurement Specification Guideline” has been developed and presented. The purpose of each section in the proposed standard is explained. For the dimensional and other key characterizations of a solar cell, due to the absence of dedicated cell characterization standards, the proposed standard relies on and refers to several silicon wafer standards (SEMI standards developed for the electronic industry). There is a need to develop dedicated standards specific to solar cells and solar cell wafers so that both cell and module manufacturers can use them for the development / procurement of solar cells.

For More Information Contact:

Larry Sherwood, Solar ABCs Project Administrator
Larry@sherwoodassociates.com, 303-413-8028

Download the Full Report:

www.solarabcs.org/cellprocurement

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A Report from the Solar America Board for Codes and Standards

The Solar America Board for Codes and Standards (Solar ABCs) is a collaborative effort among experts to formally gather and prioritize input from the broad spectrum of solar photovoltaic stakeholders including policy makers, manufacturers, installers, and consumers resulting in coordinated recommendations to codes and standards making bodies for existing and new solar technologies. The U.S. Department of Energy funds Solar ABCs as part of its commitment to facilitate wide-spread adoption of safe, reliable, and cost-effective solar technologies.

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