

Minutes of the fifth meeting of the industrial council for independent module tests - focus on thin-film - 05/28/2009 - Intersolar Munich

Attending:

Jürgen Arp (Abastrial)	Bengt Jäckel (Q-Cells)
Martin Mack (aleo solar AG)	Thomas Block (Schott Solar)
Torsten Wiesner (aleo solar AG)	Klaus Schäfer (Sharp Electronics)
Tom Clarius (Avancis)	Volker Hartmann (Signet Solar)
Willi Ernst (CentroSolar - Biohaus)	Stefan Haupt (SolarWorld)
Roland Scholz (CiS Forschungsinstitut für Mikrosensorik und Photovoltaik GmbH)	Jonas Malmström (Solibro GmbH)
Ralf Siebert, (Conergy AG)	Frank Zetzsche (Sulfurcell)
Ralf Haselhuhn (DGS)	Heidrun Krautz (Sunfilm)
Stefan Danek (IBC Solar AG)	Andreas Cox (TÜV Rheinland)
Jörg Kienzle (Inventux Technologie AG)	Willi Vaaßen (TÜV Rheinland)
Niklas Papatnasiou (Inventux Technologie AG)	Timo Bauer (Würth Solar)
Michael Obieglo (Meier Solar Solutions)	Jürgen Bärwinkel (VDE Prüf- und Zertifizierungsinstitut)
Paul Grunow (PI Photovoltaik-Institut Berlin AG)	Axel Schwalm (VDE Prüf- und Zertifizierungsinstitut)
Carsten Kühler (PI Photovoltaik-Institut Berlin AG)	Hans-Dieter Mohring (ZSW)
Simon Koch (PI Photovoltaik-Institut Berlin AG)	Karl-Heinz Remmers, Christian Dürschner, Eva Schubert, Jens Quednow und André Pfeiffer (Solarpraxis AG)

- I. Opening remarks by André Pfeiffer, assignment of project management by André Pfeiffer to Jens Quednow (Solarpraxis AG)
- II. Presentation of the current test criteria for thin-film modules by Mr Vaaßen and Mr Cox (TÜV Rheinland) with discussion

Five modules are needed, one of which as a reference and spare module.

All modules will undergo initial checks; four of them, the accessibility test. Then, two of the modules will undergo 200 temperature cycles; another two, the damp heat test for 1000 hours; and one of each pair will then undergo an additional damp heat test for 500 hours. Afterwards, the modules will be stabilized according to manufacturer specifications for subsequent outdoor measurements. Stabilization is considered attained if the deviation is less than two percent for two measured cycles.

The mechanical load is tested as in the standard at 2 x 2400 and 1 x 5400 Pa for modules that the manufacturer has approved this load for and for attachment equipment that the manufacturer has approved this load for (worst case).

A vote was taken on whether mechanical loads were to be tested after the damp heat test for 1000 hours or 1500 hours, and the decision was to conduct the test after 1500 hours.

Different test procedures were specified for different materials (thin-film/crystalline). For example, current test to be flowing through crystalline panels to detect flaws, which is not the case for thin film. Although the tests are different, comparisons have to be made possible.

An agreement was reached to test **weak light response** by means of a spectral receiver in the lab under 200 W/m². The measurement errors will be calculated and included.

Flexible modules will only be tested on final products (substrates).

All of the participants agreed to **include environmental impact**. In practice, however, it is difficult to come up with an exact assessment of individual modules and the entire production process.

Therefore, an agreement was reached to include DIN ISO 14 001 certification in the "soft" criteria.

The remaining 20 percent of the soft criteria (total weighting five percent) is divided across the items specified. The same is true for the three open test criteria for crystalline modules. Photovoltaik and pv magazine will have to discuss the issue of environmental impact when presenting the results.

III. Concluding remarks by Jens Quednow

Summary of test criteria for thin-film modules and closing remarks.