



Organic PV

Technical University of Denmark

Polymer solar cell processing facility

Location of the infrastructure:	Roskilde, Denmark		
Contact person:	Suren Gevorgyan	Phone:	+45 4677 5482
		Email:	surg@dtu.dk

Objectives:	Processing organic PV in polymer solar cells; Roll-to-Roll printing and coating
Main features:	<p>Risø DTU has developed a set of dedicated facilities for processing of organic photovoltaics (OPV) in form of polymer solar cells:</p> <ol style="list-style-type: none">1. Glove box processing lines including coating and metallisation techniques for controlled atmosphere fabrication of test cells. Cells fabricated in a standardised layout may be tested using rapid solar test platform.2. Roll-to-Roll printing and coating machinery for processing of flexible polymer solar cells. Slot die coating of users own active layer materials in a standard configuration using a simplified coating procedure and machinery [described in Dam HF.; Krebs FC., Simple roll coater with variable coating and temperature control for printed polymer solar cells, SOLAR ENERGY MATERIALS AND SOLAR CELLS 97(SI), 191-196 (2012)]. Full functional solar cells can be processed and tested. <p>Users get access to test their own materials formulation for flexible solar cells through manufacturing at in-house developed equipment for rapid processing and rapid testing of solar cells that are one-of-a-kind. In particular, users get access to unique know-how on processing solar cells, to help users make formulations apt for coating.</p> <p>The processing facilities are integral parts of a research and development lab for polymer solar cells spanning materials synthesis, “Advanced characterisations for OPV”, and solar cell testing facilities (offered as a separate TNA facility). The research comprises all aspects of developing, utilising and characterising polymer solar cells.</p>
Limitations or constraints:	The cells are printed in a standardised layout on a substrate of width 100mm and 1m length.
Typical services or results:	Enable users to fabricate cells in a standardised layout using their own materials and to test and compare cells to results generated under the same conditions and fabrication history
Examples of research projects:	<ul style="list-style-type: none">• developing protocols for lifetime test of OPV, protocols for fast screening of materials and elucidate degradation mechanisms• developing protocols for lifetime test of OPV and protocols for fast screening of materials formulations for R2R coating