**OPV**

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**Polymer solar cell processing facility**

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<th>Location of the infrastructure:</th>
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**Objectives:**
- Cell and module encapsulation

**Main features:**

The polymer solar cell processing facility is organized in the following three main installations:

1. **Encapsulation unit for cell and module encapsulation.** This line comprises vacuum laminator, autoclave, and moulds, tools and vacuum pumps for resin transfer moulding (RTM) and resin infusion process. This installation and equipments are set-up for thermoplastic and thermoset polymer processing. On the other hand, sol-gel laboratory and plasma polymerisation equipments are available for hybrid organic-inorganic coating development for glass-free flexible encapsulation layers.

![Vacuum laminator](image)

2. **Solution processing unit for the deposition of polymeric solutions and polymer-hole conductor dispersions, as well as metallic meshes.** This line is composed by semiautomatic screen-printing machine, spin-coating equipment and lifts for controlled dipping process.

3. **Electrochemical synthesis unit for inorganic semiconductor synthesis and conducting polymer synthesis.** This unit includes anodizing cells, equipment for electrodeposition through ionic liquids, and electropolymerisation cells. All equipments include a monitoring system and allow working in inert environments. They are placed in a 100,000 class clean-room operated under ISO 14644 and US Federal Standard 209D. Moreover, a Glove Box is available in the clean room if the material handling and synthesis conditions require its use.

**Limitations or constraints:**
- Vacuum laminator: modules up to 60x60cm

**Typical services or results:**
The infrastructure is mainly focused on the development of lightweight and flexible/geometry adaptable encapsulation systems.

**Examples of research projects:**
- Development of flexible encapsulation systems
- Manufacturing of curved modules on fiber reinforced composite materials

**Last update:** Oct 2011