



OPV

TECNALIA

Polymer solar cell processing facility

Location of the infrastructure: San Sebastian, Spain

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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.



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