



1 PV module samples with coppery fabric layer for building integration, showing a smooth appearance and a power loss of only about 20%_{rel.}

2, 3 Semi-transparent fabric with customized print, to be placed as additional layer in a common PV module. The power loss caused by the fabric layer is in the range of 10-30%_{rel.} depending on the fabric density.

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INDIVIDUAL DESIGNS FOR BIPV MODULES

Along with the massive cost reduction for solar cells, building integration of PV (BIPV) is becoming more and more attractive. On the other hand, solar electricity production on building skins is increasingly required in public tenders.

In the building envelope, modules have to meet a variety of expectations, always including appearance and electric yield. When choosing envelope materials, planners expect a wide range of colors and patterns with no visibility for technical product details and only minor impact on system yield potential.

Aesthetics and Performance

Fraunhofer ISE addresses this challenge. We support product design by precisely assessing module power and yield potentials for different material options, colors and patterns. This comprises all optical and thermal effects relevant in operation conditions, for instance including the oblique incidence prevalent in vertical façades.

Sampling, Testing and Demonstration

In our Module-TEC – Module Technology Evaluation Center we are able to manufacture up to full size samples in small batches on industrial equipment. We also support process transfer to module manufacturers.

Samples are fully characterized in our leading Callab PV Modules. Product reliability according to standards and customized procedures are verified in our TestLab PV Modules. Based on comprehensive product data, we provide electric yield simulations using validated, in-house developed tools.

Our Services for Customized BIPV Module Development

- material characterization
- sample manufacturing
- characterization and testing in accredited labs
- yield simulation and monitoring
- support for transfer into module production

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