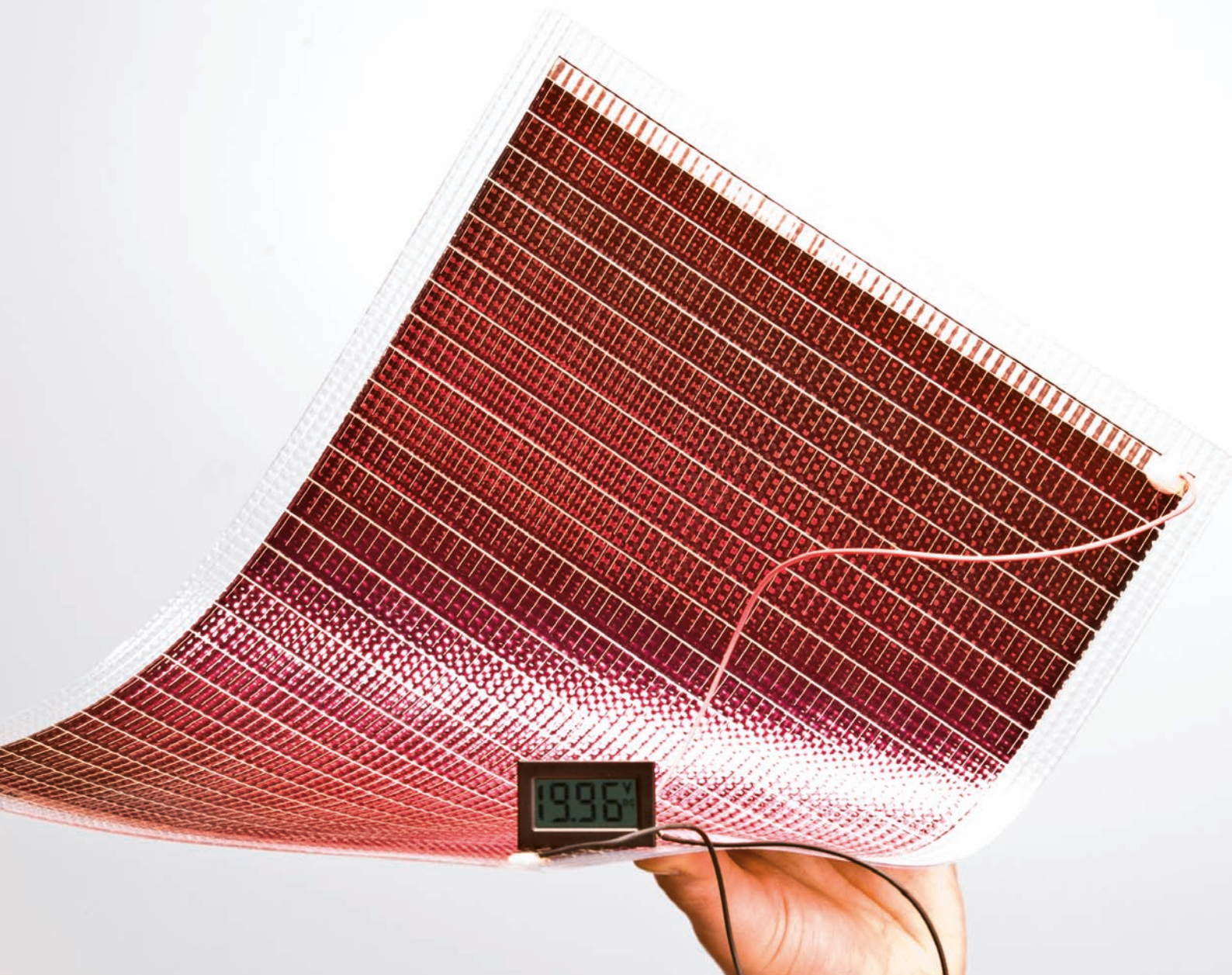
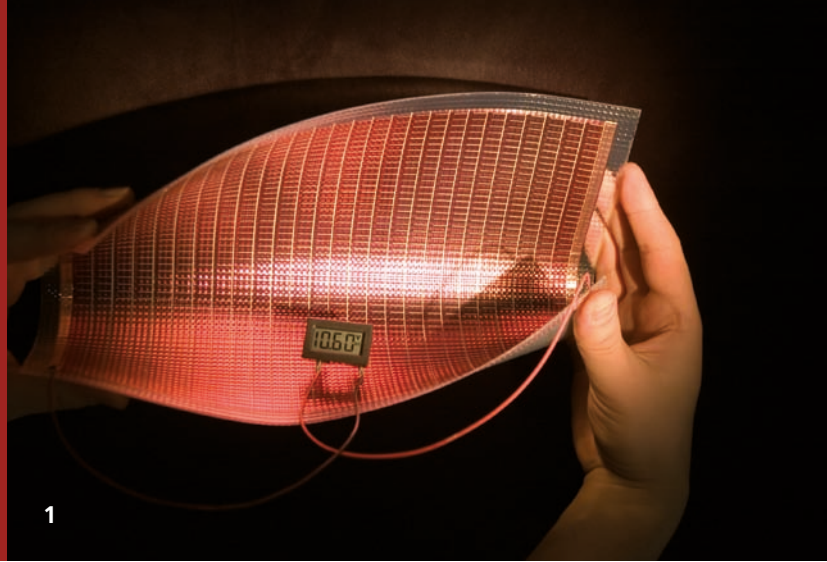


FLEXIBLE SOLAR CELLS BACK CONTACTS FOR POLYMER FILMS



FLEXIBLE SOLAR CELLS BACK CONTACTS FOR POLYMER FILMS



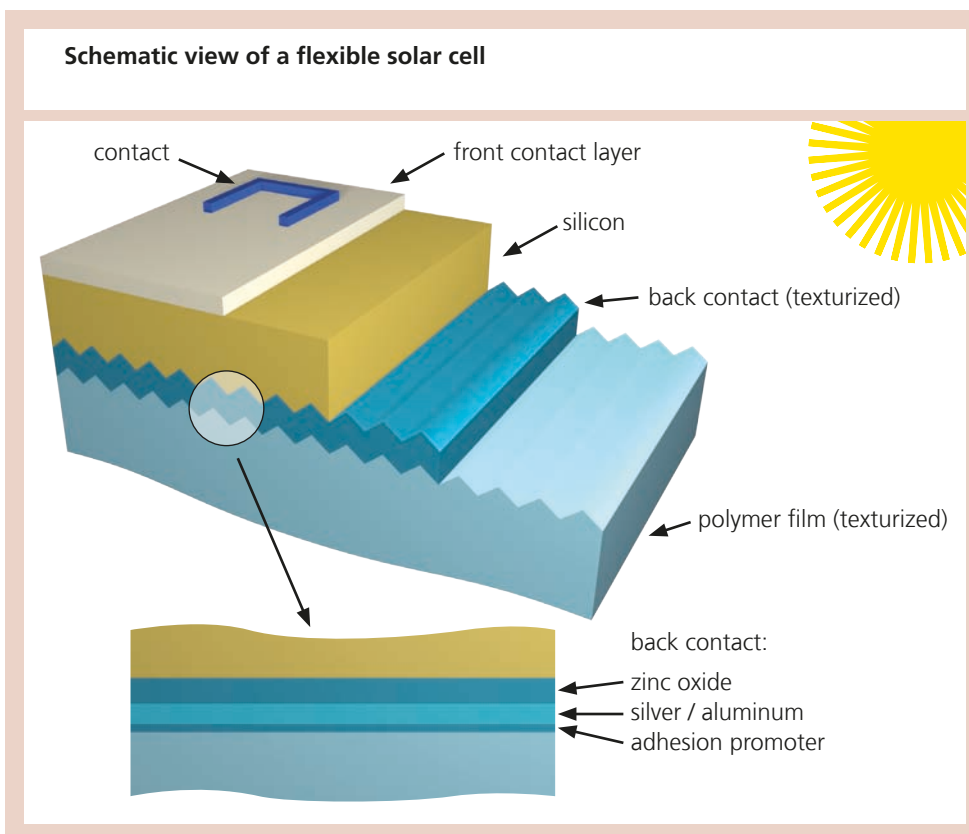
BACK CONTACTS FOR SILICON-BASED POLYMER SOLAR CELLS

The development of equipment and processes for cost-effective roll-to-roll production of high-efficiency thin-film modules, involving microcrystalline and amorphous silicon, was the aim of the European project FLEXCELLENCE.

The focus of the Fraunhofer FEP in this project was the roll-to-roll preparation of high quality back reflectors stacks made from silver (alternatively: aluminum) and zinc oxide (at roll width between 200 and 600 mm). The back contact is deposited on a structured surface and has two main functions: it should conduct the current at low loss, and it should reflect the remaining light, which passed the solar cell without being absorbed, back into the cell. Vacuum roll-to-roll coating continues to be the most efficient way to coat flexible materials like polymer foils.

The Fraunhofer FEP as a worldwide leader in R&D for vacuum coating of flexible materials commands advanced technologies such as pulse magnetron sputtering, (Magnetron-) PECVD, plasma-activated evaporation, plasma and ion surface treatment and in-line optical monitoring. The back contact of the flexible solar cell exemplifies the successful deposition of a thin metallic layer for photovoltaic applications. Other applications for our technologies are innovative products such as displays, packaging, flexible circuit boards, anti-counterfeiting labels and batteries.

1 Flexible solar cell, manufactured in the frame of the European program FLEXCELLENCE (2005-2008)



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European program
FLEXCELLENCE