

World record: 13.4 % conversion efficiency in solar cells on plastic film

Leipzig-based Solarion AG reaches new efficiency level

A new record efficiency of 13.4% for Copper-Indium-Gallium-Diselenide solar cells (CIGS) on a plastic substrate produced on an industrial roll-to-roll system had been recorded by Solarion AG from Leipzig, Germany. The record cells do not employ anti-reflective coating. The result has been independently verified by the Fraunhofer Institute for Solar Energy Systems (ISE) in Freiburg, Germany.

„This achievement shows that our proprietary ion beam technology for the production of flexible solar cells not only uses less raw materials and energy, but also reaches high conversion efficiencies,“ commented Alexander Braun, CTO of Solarion AG. „This result is not only a world record efficiency for flexible CIGS solar cells manufactured on a plastic substrate in an industrial roll-to-roll coating process, but is also the highest efficiency for any thin film solar cell on a flexible polymer substrate from a roll-to-roll process, regardless of the absorber material,“ Braun explains further.

The patented ion beam process for producing the CIGS absorber developed by Solarion AG allows the reduction of process temperature and thus the use of a flexible polymer substrate. „The combination of a low-cost polymer substrate, the ion beam technology and a roll-to-roll production process allows us to reduce manufacturing costs significantly,“ explains Karsten Otte, CEO of Solarion AG. The flexibility and high efficiency of these solar cells opens up new large-volume applications. For example, such solar modules can be integrated directly into building systems for roofing and facade solutions. Moreover, modules with flexible CIGS solar cells can also be used for standard photovoltaic applications.

About Solarion

The company Solarion AG is developing, producing and offering high-efficient and low-cost thin-film solar modules using Copper-Indium-Gallium-Diselenide (CIGS).

Solarion's technology is based on a proprietary ion-beam assisted deposition of the CIGS absorber in a roll-to-roll process. The advantages of this technology are its low deposition temperature, improved solar cell efficiency, higher process speed as well as lower energy and material costs. The utilization of a flexible carrier enables new fields of photovoltaic applications.

Solarion was founded in 2000 in Leipzig, Germany, and has established the first European pilot-line for the manufacturing of flexible and highly efficient CIGS thin-film cells on a flexible carrier material in 2002. Entering mass-manufacturing of CIGS based modules is planned for the year 2010.

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