

PVA TePla and Fraunhofer-Institute: First *MultiCrystallizer* commissioned in Halle

(Aslar, Halle (Saale) December 21, 2007) – The Fraunhofer Center for Silicon Photovoltaics (CSP) is commissioning its new crystallization system for manufacturing multicrystalline silicon blocks for solar wafers. The *MultiCrystallizer* system was supplied by PVA TePla AG, the world’s leading manufacturer of crystal growing systems for the semiconductor and photovoltaics industry.

With the removal of the first silicon block, the CSP has achieved a further milestone on the path to becoming the leading research center for crystallization and material analysis of solar silicon in Halle: Using the extremely advanced *MultiCrystallizer* crystallization system, the CSP is to develop new solidifying processes for solar silicon and also intends to offer this practice-related research service to industrial companies.

The system enables companies in the solar and photovoltaic sector to produce silicon blocks for more than one million wafers per year. Jörg Bagdahn, head of the CSP in Halle is delighted: “We can now optimize the crystallization processes on a scale acceptable to industry and process innovative silicon material ourselves”. For this purpose, the Fraunhofer Institute for Mechanics of Materials (IWM) and the Fraunhofer Institute for Solar Energy Systems (ISE) are taking advantage of their synergies: “In conjunction with cell processing at the Fraunhofer ISE in Freiburg, the material can be directly refined to produce solar cells”, adds Professor Gerhard Willeke, deputy head of the

Fraunhofer CSP and photovoltaics coordinator at the ISE.

The CSP is ahead of the competition: PVA TePla estimates the current global market demand for systems of this kind to be several hundred per year. "The collaboration with the CSP is extremely important to our company and is confirmation of the top-class technology used in our systems" commented Peter Abel, Chief Executive Officer at PVA TePla AG. "If scientists succeed in treating and recasting innovative silicon in our systems in such a way that it can be processed directly to produce solar wafers, there will be an even greater increase in demand for our systems", continued Abel. The utilization of these materials may lead to quicker expansion of photovoltaics.

The *MultiCrystallizer* is a new VGF system (**v**ertical-**g**radient-**f**reeze process) from PVA TePla's Crystal Growing Systems division which is perfectly customized to the needs and requirements of solar wafer manufacturers. It produces silicon blocks with a total weight of up to 450 kg. High-purity silicon is melted at a temperature of up to 1,500°C in a ceramic crucible and then solidified in a vertical temperature field regulated by three heat zones. Thanks to its great flexibility in various processes, the system offers ideal conditions for near-production material and process development.

In the Center for Silicon Photovoltaics (CSP) in Halle, the employees of the Fraunhofer Institute for Solar Energy Systems (ISE) are working with employees from the Fraunhofer Institute for Mechanics of Materials (IWM) on improving the processes involved in manufacturing silicon crystals and solar modules. In the only crystallization and material analysis center of its kind in the world, they are working on site with industrial partners, the Martin Luther University and the

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Max Planck Institute of Microstructure Physics. Their common objective is to increase the performance of crystalline silicon photovoltaics while also making them more cost-effective. They aim to benefit from the cost reduction potentials that exist in these fields by rigorously using new, higher-performance materials and technologies.

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