

Trade Press Release

Hanau, Germany

September 8, 2015

New PERC Efficiency Record Set Using Heraeus Metallization Paste

- **Cell efficiency of 21.7% achieved using Heraeus' front-side silver paste**
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Once again, Heraeus has contributed in setting a world record in solar cell efficiency. Heraeus' front-side metallization paste has been successfully put to use to achieve a record PERC ("passivated emitter and rear cell") efficiency of 21.7%. The record cells were processed at the solar cell R&D line at SolarWorld in Freiberg.

Dr. Weiming Zhang, Senior Vice President, Head of Global Sales & Head of Global Innovation for the Heraeus Photovoltaics Global Business Unit, says: "We are proud of our efforts to supply our metallization pastes and research and development expertise in achieving this record performance. Heraeus has several paste formulations that are ideal for PERC applications. We also have the capability to modify our formulations for special cell design characteristics. We feel that our ability to work closely with our partners allowed us to provide a front-side paste that reduced recombination losses at the surface and minimized shading after the metallization process."

Heraeus has a long history of working with leading academic and industrial researchers to increase the performance and efficiency of advanced cell technologies.

To learn more information regarding Heraeus and our recommendations for specific metallization pastes for your PERC applications, meet the Heraeus Photovoltaics Global Business Unit team at this year's EU PVSEC at the Congress Center Hamburg, in Hamburg, Germany from September 15th – 17th 2015. Exhibiting in Hall H, Booth F4. For additional information regarding the world record PERC cell processed at SolarWorld, see: <http://www.solarworld.de/en/group/investor-relations/news-announcements/corporate-news/single-ansicht/article/solarworld-ag-sets-new-world-record-for-solar-cell-efficiency/>.

About the Heraeus Photovoltaics Global Business Unit

The Heraeus Photovoltaics Business Unit is an industry leading developer and manufacturer of silver metallization pastes for the photovoltaic industry. For over 40 years, Heraeus has built a reputation of innovation, extensive research and new product development in thick film technologies for some of the most prominent companies within a variety of industries. In the field of photovoltaics, the Heraeus Photovoltaics Business Unit applies this history and its innovative technology to offer metallization pastes for solar cell applications. The Heraeus SOL Series of silver pastes is specially formulated to provide higher efficiencies and wider processing windows, resulting in better yields and higher output for cell manufacturers.

Heraeus, the technology group headquartered in Hanau, Germany, is a leading international family-owned company formed in 1851. With expertise, a focus on innovations, operational excellence and an entrepreneurial leadership, we strive to continuously improve our business performance.

We create high-quality solutions for our clients and strengthen their competitiveness in the long term by combining material expertise with technological know-how. Our ideas are focused on themes such as the environment, energy, health, mobility and industrial applications. Our portfolio ranges from components to coordinated material systems which are used in a wide variety of industries, including the steel, electronics, chemical, automotive and telecommunications industries.

In the 2014 financial year, Heraeus generated product revenues of €3.4 bn and precious metal revenues of €12.2bn euros. With around 12,600 employees worldwide in more than 100 subsidiaries in 38 countries, Heraeus holds a leading position in its global markets.

For additional information, please contact:

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