

Press Release

For SNEC 2019, Heraeus Photovoltaics delivers new standards for efficiency and value with introduction of its next generation of high-performance metallization pastes

SHANGHAI, China- June 3, 2019- Heraeus Photovoltaics, a leading supplier of metallization solutions to the PV industry, will introduce its latest series of high-performance, high-efficiency metallization pastes at the 13th annual SNEC PV Power Expo, which takes place June 4th to June 6th at the Shanghai New International Expo Center. Continuing to help cell manufacturers achieve new levels of efficiency and performance-to-price ratios, the SOL966X series covers a wide variety of manufacturing needs. They include:

- **SOL9661B for high efficiency PERC solar cells:** designed for ultra fine-line screen printing through less than 26 μm screen opening in high throughput mass production. Its unique chemistry enables the paste to be fired at low peak and at wide firing temperature range, allowing protection of emitter during the firing step. This platform delivers radical innovation by improving contact performance, resulting in I_{sc} (short circuit current) and FF (fill factor) gain at the same time.
- **SOL9662B series for double printing:** based on the glass chemistry upgrade from the last generation, this paste offers extra protection on laser damaged area. This, in combination with the latest improvement in organic vehicle system for UFL (Ultra-Fine-Line) printing, results in significant Voc and I_{sc} gain.
- **SOL9661B2 series for “double passivation” solar cells:** its unique chemistry enables penetration of stack passivation layers. This paste also successfully overcomes the challenge of contacting ULDE (~ 10-19 dopant concentration) and reduces passivation damages. Such features bring out the most benefits of ULDE, such as higher FF and Voc, therefore boosting PERC cell efficiency.

The other new paste products include: the SOL9661D series for DWC/MCCE, which delivers fine-line printability on Knotless screen printing without defects in mass production; the SOL9380 series for N Type solar cells, which offers significant improvement in cell Voc while maintaining or improving fill factor; the SOL7200 series for Topcon solar cells, whose glass chemistry enables low firing temperatures, which is key to achieving very high Voc on the finished solar cell; and the SOL6700 series for Floating Busbar, which contains a new glass formulation and paste additives to help minimize defects on the emitter during the metallization process and enable higher cell efficiencies of 22+%, improved Voc as well as module reliability.

Heraeus also continues to expand its portfolio beyond paste to provide manufacturers with essential module products to help them lower costs and increase efficiency. Hecaro®, its newly developed Electrically Conductive Adhesive, applied patented low-silver technology, which having excellent reliability and passed module level TUV certification. The new Heraeus product line of advanced Selectively Coated Ribbons delivers increased power, up to 2.4 watt power gain on module level, while easily integrating into existing

manufacturing processes (plug & play process integration) without requiring any additional equipment.

Martin Ackermann, President of Heraeus Photovoltaics, said, "The PV industry must continue to lower the per-watt cost compared to other power alternatives. Our newest pastes deliver the value, innovation and efficiency cell manufacturers need to improve performance and lower the levelized cost of electricity, which will enable solar energy adoption to reach a global tipping point."

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About the Heraeus Photovoltaics Global Business Unit

The Heraeus Photovoltaics Global 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.

About Heraeus

A globally leading technology group, Heraeus is headquartered in Hanau, Germany. Founded in 1851, it is a family-owned portfolio company which traces its roots back to a pharmacy opened by the family in 1660. Today, Heraeus combines businesses in the environmental, energy, electronics, health, mobility and industrial applications sectors. In the 2017 financial year, Heraeus generated revenues of € 21.8 billion. With approximately 13.000 employees in 40 countries, the FORTUNE Global 500-listed company holds a leading position in its global markets. Heraeus is one of the top 10 family-owned companies in Germany. With technical expertise, a commitment to excellence, a focus on innovation and entrepreneurial leadership, we are constantly striving to improve our performance. We create high-quality solutions for our clients and strengthen their long-term competitiveness by combining unique material expertise with leadership in technology.

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