

Press Release

Heraeus Porocarb® enables Lithium-Ion battery manufacturer to increase C-rate performance and reduce formation time by 40%

Latest customer implementation confirms battery additive's ability to deliver real-world results in improved battery performance.

KLEINOSTHEIM, Germany- June 19, 2018- Heraeus Battery Technology today announced that Porocarb®, its innovative line of functional carbon additives, has been successfully implemented in a customer's lithium-ion battery production in Taiwan. This marks the company's first implementation in a full manufacturing environment and represents a major step forward in the additive's global commercial rollout.

The implementation project with LiS, a Taiwan-based lithium-ion battery developer, began in mid-2017. Heraeus worked with LiS production experts to develop a special formulation of Porocarb to the specific technical manufacturing requirements of one of its customers in central China. Porocarb (a non-agglomerated, highly-porous carbon with fully interconnected macroporosity) and carbon nano tubes were then implemented as a pre-formulated carbon system.

The non-agglomerated Porocarb particles are designed to maintain their open porosity, even under high packaging densities, allowing for easy electrolyte access. This open porosity significantly improves the ionic conductivity, reduces diffusion limitations, and increases power densities and charge/discharge acceptance. Once implemented into the customer's production process, the synergetic effect between Porocarb and carbon nano tubes enabled LiS to achieve significant product, process and performance improvements, including:

- improved C-rate performance and higher energy density
- higher pressing density and increased electrode loading
- reduction of formation time by 40%
- much easier dispersibility of conductive carbon system
- less usage of NMP, a costly solvent used in Li-Ion battery material
- less amount of binder possible using the Porocarb/nano tubes dispersion, which produced higher active material content

"Case studies and laboratory research are important, but the true test of a battery additive comes when it is put into a real world production environment," said LiS CEO Dr. Meng Lung Lee. "The results were impressive and it will enable LiS to deliver higher-performing lithium-ion batteries to the market." Michael Grimm, the Head of Heraeus Battery Technology, added, "Time after time, we have seen Porocarb perform exceptionally well in customer tests and qualifications. Our focus is to ensure manufacturers can quickly and seamlessly incorporate Porocarb into their manufacturing process so they can achieve these significant benefits even faster."

Porocarb is specially tailored for the unique technical requirements of Lithium-Ion, Lead-Acid and Electric Double Layer Capacitors (Super-Capacitors). Porocarb is easy to process as a carbon powder, a pre-formulated electrode slurry (paste) or as a carbon-nano-tube/Porocarb dispersion.

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About Heraeus Battery Technology

Heraeus Battery Technology is an independent business of Heraeus, the global technology company. Our mission is to leverage our expertise in materials science, electro-chemistry and engineering to help customers significantly improve the efficiency and performance of batteries and energy storage systems. Heraeus Battery Technology is the sole producer of Porocarb a new product family of conductive porous carbon powders for electrochemical applications such as battery additives. The porous carbon additive is specially formulated for a manufacturer's unique technical and manufacturing requirements and is designed for advanced lead-acid batteries, lithium-ion batteries and Super-Cap applications. For more information, visit www.heraeus-porocarb.com.

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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