

Evonik launches Siridion® Black, a novel high-performance material for batteries

- New silicon-carbon composite material for the anode
- Improves the energy density and the capacity of lithium-ion batteries
- Material now available on an industrial scale

Essen, Germany. Evonik has introduced the silicon-carbon composite material Siridion® Black as a new anode material for lithium-ion batteries. It makes batteries more powerful by increasing energy density and improving the fast-charging capability and energy efficiency.

“The market launch of Siridion® Black marks an important milestone in the strategic development of our portfolio,” said Peter Friesenhahn, Head of Evonik's Silanes Business Line. “We are strengthening our offering in attractive, technology-driven growth markets and positioning ourselves as an innovation partner for our customers.”

The introduction of the new high-performance material also completes Evonik's range of battery materials: the company already offers cathode active material and fumed metal oxides for the coating of separators.

“Until now, graphite has been used as an anode material in lithium-ion batteries, but batteries with a higher capacity need new materials that also allow faster charging,” said Dr. Björn Borup, who is responsible for the marketing of battery materials in Evonik's Silanes Business Line. “As an additive, our solution can be quickly integrated into existing anode materials and production processes, and it combines well with other battery materials.”

The powder is produced by gas phase synthesis. It consists of isolated unsintered spherical particles that are a few hundred nanometers in size. Within the amorphous particles, the carbon concentration increases from the inside out. This ensures superior stability. “In addition, due to the higher carbon content on the

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Contact person

Dr. Bernd Kaltwasser

Head of Market Communications
Silanes

Phone +49 6181 59-12248
bernd.kaltwasser@evonik.com

Responsible

Nina Peck

Head of Market Communications
Smart Materials

Phone +49 201 177-2223
nina.peck@evonik.com

Evonik Industries AG

Rellinghauser Straße 1-11
45128 Essen
Germany
Phone +49 201 177-01
www.evonik.com

Supervisory Board

Bernd Tönjes, Chairman

Executive Board

Christian Kullmann, Chairman

Dr. Harald Schwager, Deputy Chairman

Thomas Wessel, Ute Wolf

Registered Office is Essen
Register Court Essen Local Court
Commercial Registry B 19474

surface, the particles are better protected against oxidation and easier to process”, said Dr. Julia Lyubina, who is responsible for the development and commercialisation of Siridion® Black.

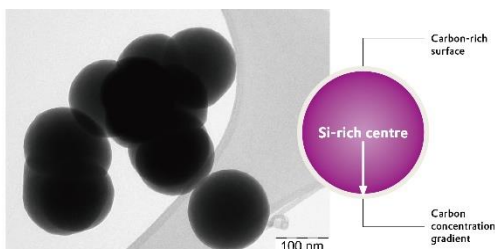
The high-performance anode material was jointly developed by the Research, Development & Innovation Function and the Silanes Business Line of Evonik. They are working on making lithium-ion batteries even more powerful in a joint project with the University of Duisburg-Essen that is being funded by the German Federal Ministry of Economic Affairs and Energy until 2023 (funding code: 03EI3027B).

“Our Siridion® Black enables customized solutions: It gives anode manufacturers and their customers the necessary flexibility to adapt their batteries exactly to their respective needs” said Lyubina. Manufacturers of wearables or mobile devices, in particular, are likely to appreciate this design freedom.

The carbon-covered silicon is now available on an industrial scale. It will be showcased to the public at the China International Battery Fair, which will take place from March 19 to 21 in Shenzhen, China. Evonik’s experts are available at booth 1GT087.

This press release is available for download here.

The following pictures are available in higher resolution for publication in connection with this press release. Click on the image to follow the link.



Siridion® Black, Evonik’s Si/C composite powder: transmission electron microscopy image (left) and schematic representation of the Si/C structure with carbon concentration gradient (right).
Source: Evonik



Siridion® Black:
Empowering you to
perform.
Source:
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AsiaVision

Company information

Evonik is one of the world leaders in specialty chemicals. The company is active in more than 100 countries around the world and generated sales of €13.1 billion and an operating profit (adjusted EBITDA) of €2.15 billion in 2019. Evonik goes far beyond chemistry to create innovative, profitable and sustainable solutions for customers. More than 32,000 employees work together for a common purpose: We want to improve life today and tomorrow.

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