

Evonik launches solutions to improve the performance and safety of electric vehicle batteries in China

- Latest Evonik products help overcome life cycle and overheating issues of current lithium-ion batteries
- Evonik makes debut at China International Battery Fair with several new solutions to help the automotive industry
- Latest innovations in battery technology supports to the fast-growing Electric Vehicle market

Essen, Germany. Evonik has developed a series of solutions that help to make the lithium-ion batteries used in electric vehicles, safer, longer lasting and more affordable. These latest innovative materials and products from Evonik will be showcased during the China International Battery Fair, from March 19 – 21, 2021 in Shenzhen, China.

With a clear acceptance from governments, the automotive industry and consumers of the need to address future energy requirements of vehicles, the global electric vehicle (EV) market has seen significant growth. This shift from traditional petrol- and diesel-powered combustion engines, to hybrid and fully EVs has placed the battery at the heart of modern e-mobility solutions.

Automotive manufacturers are looking for any improvements in battery technology that will boost the performance of e-mobility and further advance the EV industry. However, the standard lithium-ion batteries currently being used to power EVs, still face many technical hurdles such as short life cycles and overheating issues. To overcome this, Evonik has focused on several technological developments that provide the performance improvements the industry is looking for.

“In a future driven by electric vehicles, the automotive industry needs solutions that can help deliver the safety and performance requirements that enables modern e-mobility to fully replace traditional combustion engines,” said Fuliang Xia, President of Evonik Greater China. “Evonik has the technical know-how and products to help deliver these benefits. With the Chinese government’s strong commitment to driving the growth of the EV

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market, China is now the world's largest manufacturer and consumer of electric vehicles. Evonik is fully focused on supporting this growth by developing high-performance solutions that can support this initiative. We are proud to make our debut at this year's China International Battery Fair."

During the three-day tradeshow in Shenzhen, Evonik will highlight the following new solutions at its booth 1GT087 in Hall 1:

Dry coating for LIB cathode active materials

AEROXIDE® is used for cathode material surface coating to stabilize cathode active material particles and to avoid cracks during charge/discharge, resulting in an increased capacity retention and enhanced battery life.

High-performance LIB separator for coatings or fillers

AEROXIDE® fumed alumina enables the use of ultra-thin ($\leq 1 \mu\text{m}$), homogeneous ceramic coatings, or can be applied as a ceramic filler inside the membrane, resulting in improvement of thermal stability of separator. Evonik also offers AERODISP®, for ready-to-use alumina dispersions that are tailor-made for specific coating applications and compatible with a variety of different binders.

Precipitated and fumed silica provide important components for lead-acid battery separators and electrolytes

Evonik's precipitated silica, SIPERNAT® features good dispersibility & high oil absorption behaviour, so can be used in PE separators to create high porosity and therefore ensure low electrical resistance (ER) of the lead-acid battery separator. Additionally, AEROSIL® fumed silica, immobilizes the liquid electrolytes in gel batteries which leads to a much longer life cycle of the lead-acid battery.

Process enablers for LIB electrode and separator manufacturing

Evonik's innovative process enablers help contribute to further improvements in the production of LIB's which yield better

electrical performance and lower the overall costs. Evonik's broad surfactant technology platform provides a wide range of products from wetting and dispersing agents to defoamers as well as plasticizers.

High-performance silicon-based powders to boost the storage capacity of batteries

Siridion® Black, are silicon-based powders designed to provide high energy density and superior performance for lithium-ion batteries. The high-performance anode material powders from Evonik are produced by gas-phase synthesis. The powders consist of separated non-sintered spherical particles with a size < 200 nm and are characterized by their amorphous structure. In addition to these existing products, Evonik also develops custom silicon-based anode materials with highly specific requirements.

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 €12.2 billion and an operating profit (adjusted EBITDA) of €1.91 billion in 2020. Evonik goes far beyond chemistry to create innovative, profitable and sustainable solutions for customers. More than 33,000 employees work together for a common purpose: We want to improve life today and tomorrow.

About Smart Materials

The Smart Materials division includes businesses with innovative materials that enable resource-saving solutions and replace conventional materials. They are the smart answer to the major challenges of our time: environment, energy efficiency, urbanization, mobility and health. The Smart Materials division generated sales of around €3.24 billion in 2020 with about 7,900 employees.

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