

LANXESS at the Battery Show Europe, May 7 to 9, 2019,
Messe Stuttgart, Hall 1, Stand 1081

Material innovations for batteries and electromobility

- **LANXESS offering products and solutions along the value chain of lithium-ion batteries**
- **Wide range of polyamides and polyesters for the electric powertrain**
- **Project for the extraction of lithium from in-house sources**

Cologne – For the first time, specialty chemicals company LANXESS will have its own stand at the Battery Show in Stuttgart. This event is regarded as the biggest European trade show for highly advanced battery and hybrid vehicle technologies. The spotlight will be on raw materials and compounds used in the production of lithium-ion batteries and components of the electric powertrain. “LANXESS is offering numerous products and materials along the entire value chain of batteries,” explains Dr. Wolfgang Ebenbeck, expert on electromobility and battery materials in the Group Function Corporate Development at LANXESS. “Our product portfolio ranges from raw materials for the synthesis of lithium chemicals, to flame retardants and products for the extraction of high-purity nickel and cobalt compounds for cathode materials, right through to high-tech polyamides and polyesters for battery and electric powertrain components.” In a film at its stand, LANXESS is showcasing the numerous, potential applications of the specialty chemicals company’s materials in advanced lithium-ion batteries, as well as those in which the company’s raw materials are involved.

Electromobility is driving the growth of lithium-ion batteries

Lithium-ion batteries play a key role in advanced technology solutions for the areas of mobility, energy storage and consumer electronics. The trend toward electromobility, in particular, is driving investment in

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the mass production of batteries. In Europe alone, there are plans for the construction of battery cell factories with an annual production capacity of over 100 gigawatt hours by 2025. According to a forecast by the P3 Group at the Battery Experts Forum in April 2019, the costs of lithium-ion battery systems will have decreased significantly by 2020 that battery-powered vehicles will be able to compete with their equivalents driven by combustion engines.

Great potential for use of thermoplastics in batteries

LANXESS has developed tailor-made polyamides and polybutylene terephthalates under the Durethan and Pocan brands for components of the lithium-ion battery, the electric powertrain and the charging infrastructure. "The Battery Show presents the ideal opportunity for us to make direct contact with international battery manufacturers and demonstrate to them the benefits of our thermoplastics, for instance, in terms of cost reduction, functional integration, flame-retardant properties, heat conduction and lightweight design. Thanks to our many years of doing business with the E/E and automotive industries, our materials already conform to the most important global standards and standards of the E/E sector, with most of them also already being used in vehicles," explains Anika van Aaken, a specialist in the "e-Powertrain team" of the High Performance Materials business unit at LANXESS, which supports project partners across the entire development chain of plastic components for electromobility. Potential battery applications of the LANXESS thermoplastics include, for example, module covers and separators, high-voltage connectors, housing parts for control units, cell holders, spacers, module cover plates and supply lines.

One example of a material innovation for batteries is the easy-flowing Durethan BKV45FN04, featuring 45 percent by weight glass-fiber reinforcement. The halogen-free, flame-retardant polyamide 6 passes the UL 94 flame-retardant test from US testing institute Underwriters Laboratories Inc. with the best classification of V-0 (0.4 millimeters) and is also tracking resistant at high electrical voltages. Due to its

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stiffness and strength, it is ideal for the production of structural components of the battery – such as cell frames and end plates. It is also suitable for high-voltage connectors.

Higher capacities, faster charging, more charging cycles

Particularly in the cells – the “heart” of lithium-ion batteries – LANXESS materials are contributing, directly or indirectly, to increase the performance of batteries. For example, the iron oxide pigments Bayoxide E B are precursors in the carbothermal reduction process for the production of lithium iron phosphate (LFP). This cathode active material is characterized by a long lifetime and, among other things, enables fast charging of batteries at high charging currents.

The battery capacity and the number of charging cycles can be increased using Rhenofit CNT-4. This product involves dispersions of carbon nanotubes, which are used in both cathodes and anodes.

Ion exchange resins of the Lewatit brand have long proven themselves in the extraction and production of battery grade nickel and cobalt, as well as in the purification of high-purity lithium. These three metals represent key components for cathode materials used in batteries of today’s electric vehicles.

Raw materials for electrolytes

LANXESS is one of the leading manufacturers of hydrofluoric acid and phosphorus trichloride, two key materials for lithium hexafluorophosphate (LiPF₆), which is the standard conducting salt used in electrolytes for lithium-ion cells. “The massive ramp-up of production capacities for lithium-ion batteries in Europe will also trigger the demand for this electrolyte component. We can secure the supply for a LiPF₆ and electrolyte production in Europe with both key materials,” says Ebenbeck.

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Extraction of lithium suitable for use in batteries

LANXESS is also confident that it is well positioned with regard to the global rise in demand for lithium for battery chemicals. There are plans to collaborate with Canadian company Standard Lithium Ltd. on the commercial extraction of lithium suitable for use in batteries from brine that LANXESS produces in El Dorado, Arkansas, US, in order to manufacture bromine products. Standard Lithium is contributing an innovative process for the extraction of high-purity lithium directly from brine. The technical and economic feasibility of the project is currently being examined.

LANXESS is a leading specialty chemicals company with sales of EUR 7.2 billion in 2018. The company currently has about 15,400 employees in 33 countries and is represented at 60 production sites worldwide. The core business of LANXESS is the development, manufacturing and marketing of chemical intermediates, additives, specialty chemicals and plastics. LANXESS is listed in the leading sustainability indices Dow Jones Sustainability Index (DJSI World and Europe) and FTSE4Good.

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Forward-Looking Statements

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News Release

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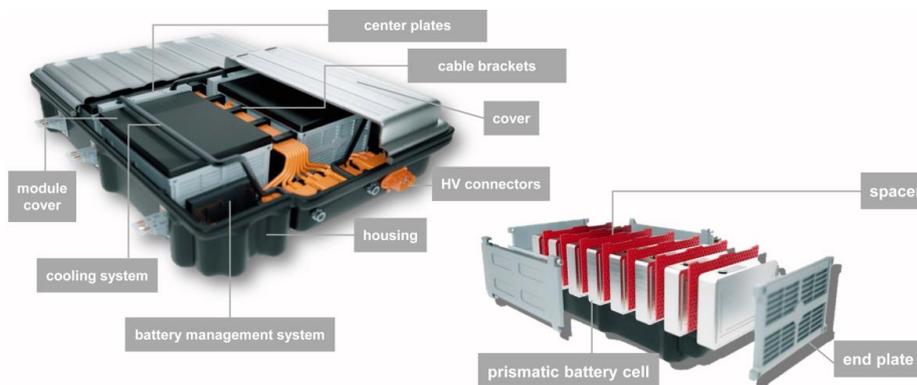
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Image



LANXESS is offering numerous products and materials along the entire value chain of lithium-ion batteries. The polyamides Durethan and polybutylene terephthalates Pocan have various potential applications in the battery sector, among others.

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