News Release

Water-Based Coating:
OQ Chemicals Presents Oxvolt S221 to Prevent Cracking of High-Energy Electrodes in Lithium-Ion Batteries

Monheim am Rhein, Germany, Sept. 16, 2024 - With Oxvolt S221, the global chemical company OQ Chemicals offers a new co-solvent for water-based electrode coatings that enables crack-free surfaces after coating and drying for lithium-ion batteries. The automotive industry in particular requires high-performance, durable and environmentally friendly batteries as the basis for e-mobility.

Oxvolt S221 is particularly suitable for high energy graphite anodes and has already been approved by some battery cell manufacturers. It acts as a film-forming agent (also coalescing) and ensures a uniform coating of the graphite anodes. This allows for better electrode processing and reduces production failure rates compared to conventional water-based manufacturing processes. Oxvolt S221 reduces the viscosity of the slurry and facilitates processing by optimizing the mixing properties of the slurry and the quality of the electrode after coating and the first drying phases. Oxvolt S221 acts as a solvent similar to N-methylpyrrolidone, but is readily biodegradable and non-toxic. It is water soluble and is added to the water as a co-solvent at a few percent. It evaporates completely during the drying process.

"In a pilot test at CustomCells in Itzehoe, Oxvolt S221 has shown in a water-based graphite anode production process that it has the potential to increase the efficiency of graphite anode production compared to a purely water-based production process. The electrical properties and lifetime of the battery cells are not affected. After the C-rate* and 300 charge cycle aging test, there were no significant differences in performance compared to the purely water-based manufacturing process," said Dr. Claudia Fischer, Director of Global Business Development at OQ Chemicals.

For LFP cathodes, Oxvolt S221 as a co-solvent in water also showed promising results with improved electrode processability. This technology supports the development of high performance, environmentally friendly, high energy batteries for electric vehicles.

OQ Chemicals manufactures Oxvolt S221 in the USA, securing the supply chain for western industrial customers. For USA customers, the product meets the requirements of the Inflation Reduction Act (IRA).

OQ Chemicals supports the EU Battery Passport initiative, which enables the traceability of chemicals used in batteries and thus promotes the circular economy. Oxvolt is a registered trademark of OQ Chemicals.

** The C-rate indicates the time required to fully charge or discharge a battery.*

About OQ Chemicals
OQ Chemicals (formerly Oxea) is a global manufacturer of Oxo Intermediates and Oxo Performance Chemicals such as alcohols, polyols, carboxylic acids, specialty esters, and amines. These are used to produce high-quality coatings, lubricants, cosmetic and pharmaceutical products, flavors and fragrances, printing inks, and plastics. OQ Chemicals employs more than 1,400 people worldwide and markets its chemicals in more than 60 countries. The company is part of OQ, an integrated energy company originating in Oman. More information under chemicals.oq.com

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