

Solvay highlights comprehensive portfolio of PVDF solutions for Li-Ion battery industry at CIBF

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As Chinese lithium-ion battery manufacturers are experiencing double-digit growth rates, Solvay Specialty Polymers is supporting the market with a range of innovative material solutions designed to meet the needs for next-generation high-energy and high-power Li-ion batteries. Beyond established Solef ? PVDF high-performance polymers for separators and electrode binders, the company also offers new Solef? 90000 solvent-free aqueous dispersions for use as anode binders in more environmentally-friendly Li-ion battery technologies. Solvay made the announcement at the 11th China International Battery Fair (CIBF 2014) in Shenzhen, June 18-20, 2014.

"The Chinese battery industry, which already has a world market share of 25%, is heavily investing in increased capacity, responding especially to a dramatic rise in demand for higher-performance lithium-ion batteries in consumer electronics as well as the fast-emerging segment of hybrid and fully electric vehicles", says Dr. Luke Du, General Manager of Greater China & Southeast Asia for Solvay Specialty Polymers. "New-generation Solef? PVDF provides extraordinary adhesion and cohesion properties while also helping xEV battery manufacturers to reach the higher energy, power, safety and life cycle levels demanded by the automotive industry. Furthermore, our new Solef? PVDF latex technology represents an advanced organic solvent-free solution for anode preparation in a much more cost-efficient and greener process", he adds.

Solef? PVDF is a partially fluorinated semi-crystalline polymer with excellent thermo-mechanical and chemical properties for lithium batteries. It shows outstanding electro-chemical stability across the full voltage range from 0V to 5V vs. Li/Li+, which guarantees its safe use in the electro-mechanical environment of lithium cells. As binders in the formulation of electrodes, Solef? homopolymer grades are selected thanks to their high crystallinity levels which are needed to resist the typical electrolytes used in lithium batteries. Solef ? copolymers in turn have lower crystallinity, are soluble in a wider range of solvents and show different levels of swelling in organic carbonates, which makes them highly suitable for flexible binders and gel polymer separators.

While Solef? 90000 is currently being evaluated in collaboration with major battery manufacturers, all other Solef ? PVDF materials for the lithium-ion battery market is commercially available, worldwide. To support customers in adopting and fine-tuning these advanced polymer technologies to the specific needs of each application, Solvay Specialty Polymers has evaluated and confirmed the superior performance of its PVDF binder and separator materials in extensive adhesion, cycling, impedance, immersion and swelling tests.

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