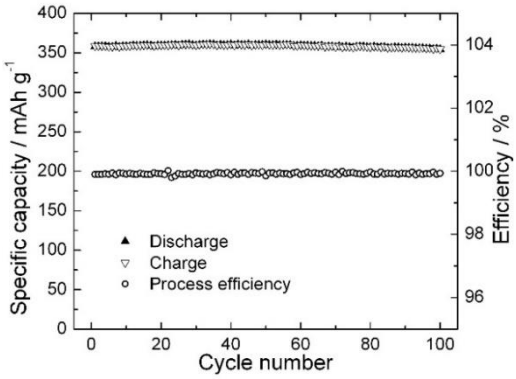
Li-Booster

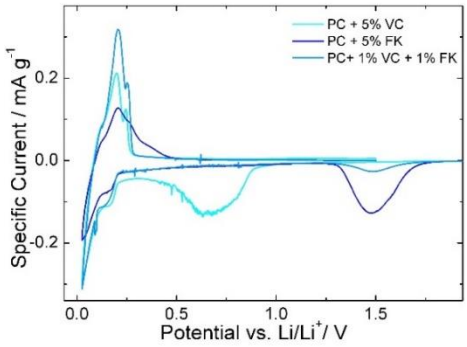
SEI-forming electrolyte additive for lithium-ion batteries

Invention

Scientists at the MEET battery research center at the Westphalian Wilhelms-University of Muenster have Invented an electrolyte additive for the formation of a stable SEI film (SEI = solid electrolyte inter-phase) on anodes for lithium-ion batteries. These substances are used as additives for a propylene carbonate electrolyte at low concentration. During the first charge / discharge cycle the substance decomposes at the graphite electrode and forms a layer which protects the electrode surface. This result for lithium-ion batteries in a reduced loss of capacity and higher thermal stability thus improved safety. Li-Booster includes new previously unknown fluorinated ketones (FK). In particular, cycle stability is significantly improved by the SEI formation at the electrode.



Cyclization of a lithium ion battery using the electrolyte of the invention



Cyclic voltamogram of a graphite half-cell using 1 M LiPF6 in PC (propylene carbonate) for comparison of additives

Commercial Opportunities

Lithium ion batteries are widely used as mobile energy storage. The accumulator performance is significantly increased by the Li-Booster.

Current Status

A German patent application can be internationalized worldwide. PROvendis offers on behalf of the Westphalian Wilhelms University of Muenster licenses to the technology.

An invention of the University of Münster.

Competitive Advantages

- Enhanced temperature stability
- Improved safety
- Suitable for long-lasting lithium-ion batteries
- Simple synthesis of the FKs
- Lab tested

Technology Readiness Level

12345678

Experimental proof of concept

Industries

- Battery Industry
- Chemical Industry

Ref. No.

2912

Contact

Dr. Thorsten Schaefer
E-Mail: ts@provendis.info
Phone: +49(0)208-94105-27

PROvendis GmbH
Schlossstraße 11-15
45468 Muelheim an der Ruhr
Germany
www.provendis.info