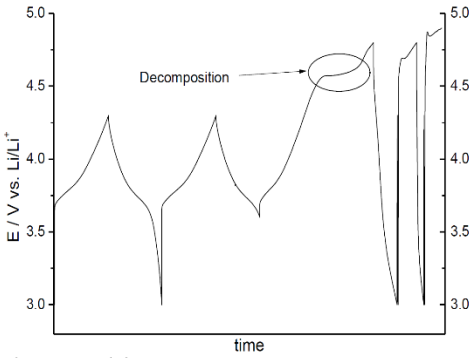
Li-Protect

Chemical overcharge protection for lithium-ion batteries

Invention

Scientists at the University of Münster and the Jacobs University Bremen have identified and synthesized substances that prevent an overload of lithium-ion batteries. These substances are simply added to the electrolyte. From a determined charge potential, e.g. the overcharge potential of its lithium-ion battery, Li-Protect acts as a chemical overload protection and is decomposed before the overpotential may cause overheating of the battery. The accumulator is thus protected from overheating and explosion because of the chemical additive in the electrolyte. Li-Protect includes NCN carbene, which prevents the critical voltage increase e.g. more than 4.6 V at excessive charge potential. In contrast to most commercially available additives, Li-Protect does not influence the properties of the battery in normal operation. There is, for example, no oxidative decomposition. No higher potential in the normal charging process can be achieved.



I/V comparision

Commercial Opportunities

Lithium-ion batteries are widely used as mobile energy storage. Due to improper operation, the accumulator can be irreparably damaged. Li-Protect prevents overcharging and the consequences of over-voltage and makes the lithium battery safer.

Current Status

A German patent application may be internationalized in all States. PROvendis offers on behalf of the University of Münster licenses to the technology.

An invention of the University of Münster.

Competitive Advantages

- Effective protection of the battery in case of battery management system failure
- No adverse side effects during battery operation
- Increased security for the Li-battery operation in vehicles
- Simple Synthesis

Technology Readiness Level

1 2 3 4 5 6 7 8 9

Technology validated in lab

Industries

- Chemical Industry
- Energy & Environmental Industry
- Materials Industry

Ref. No.

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