



Recycling

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Lithium-Ion and Next-Generation Batteries Recycling

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The progressive expansion of electromobility will lead to an increasing demand for lithium-ion batteries (LIBs) in the future and thus inevitably to a drastically increased demand for raw materials for battery materials. The recycling and reuse of the individual components therefore serves as an important link in achieving a circular economy, whereby the dependence on geographically unevenly distributed elements and the associated costs can be reduced and the sustainability within the value chain improved.

Lithium-ion batteries (LIBs) and upcoming cell chemistries like sodium-ion or lithium-sulfur batteries are and will be an integral part of our modern way of life, particularly in portable electronic devices and the emerging field of electric mobility. Ongoing research in the field, with the overarching aim of achieving higher energy densities and enabling lower material costs, has led to the continuous development of new cell chemistries specifically adapted to different requirements. The resulting high complexity of battery systems in combination with varying battery lifetimes leads to a heterogeneous flow of used end-of-life cells. In view of this, the establishment of universal, flexible, and robust recycling processes remains a major challenge, which is why it is crucial to thoroughly analyze and optimize the current state of the art and adapt it to future types and cell chemistries.

