The adapted process uses froth flotation to separate battery materials | Photo source Argonne National Laboratory

NEW EV BATTERY RECYCLING PROCESS MAINTAINS PURITY OF METALS

MOBILITY & TRANSPORT

The new process brings the possibility of buying recycled EV batteries one step closer for consumers

Spotted: A team led by researchers from Michigan Technological University (MTU) has created a new way to recycle lithium ion batteries using a process popular in the mining industry. Originally used to separate and purify ore, the updated process is based on froth flotation, and uses a mild mixture of water and chemicals to separate lithium nickel manganese cobalt oxide (NMC111) from lithium manganese oxide (LMO).

Lithium ion batteries are becoming more and more popular, powering devices from smartphones to electric vehicles (EVs). As use of those devices increases, so too does the long-term waste problem. With increasingly bold low energy goals, many countries are seeking high-volume solutions to forthcoming challenges, including the need to recycle new materials and composites.

The process of separating the metals in batteries is an important step in achieving a completely circular EV battery life cycle. Scientists are already looking for ways to recycle and reuse the other parts of lithium ion batteries.

The MTU team is one of many organisations working to develop fully recyclable batteries. They developed the recycling process as part of the ReCell Advanced Battery Recycling Center, headquartered at the Argonne National Laboratory and funded by the US Department of Energy.

Other means of making electric batteries more sustainable and accessible include a small, fully recyclable battery designed for mopeds and small delivery vehicles. Springwise has also recently spotted battery-powered electric construction vehicles.

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9th November 2021
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Takeaway:

Global concerns over emissions, alongside more stringent national energy goals, are creating what could become an explosive demand for lithium ion battery recycling facilities. The ReCell team acknowledge the need to make any process economical for the businesses that take on the task. As renewable energy use surges, the piles of old smartphone and EV batteries are also going to increase, making circularity a goal that is more urgent than ever.