China's Cyclewell Technologies sponsors the ICBR22 Virtual Hub for the next six months and showcases its lithium battery recycling technology and equipment

Salzburg, 21 September 2022. Cyclewell Technologies, the Chinese technology-based company dedicated to developing spent lithium battery recycling technology and equipment, is the exclusive sponsor of the International Battery Recycling Congress 2022 Virtual Hub for the next six months. The congress was held in Salzburg and attracted over 450 participants, a record number.

Cyclewell Technologies' lithium battery recycling process and equipment system is based on high chemical design standards. With the advantages of advanced recycling technology and intelligent equipment, Cyclewell has solved the problems of high safety risk, serious secondary pollution and poor economy in the lithium battery recycling industry.

Through lithium battery recycling 'process design - a comprehensive set of intelligent equipment supply, commissioning, and operation' and other integrated service capabilities, the company, founded in 2020, is able to assist global lithium battery recycling businesses in providing technology services, engineering design, and equipment supply services.

In general, spent lithium battery resources are recycled in two steps. During the first step, lithium batteries are crushed and sorted into black

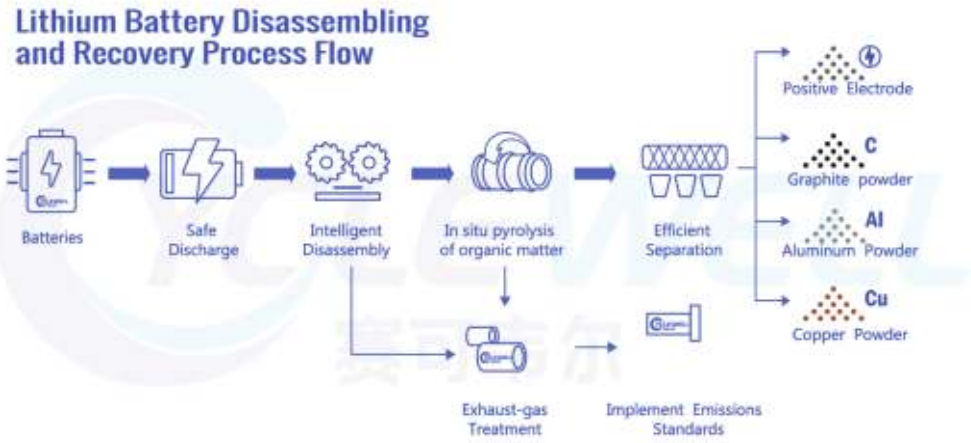
powder that contains valuable metals.

'Metal separation and purification' is the second process in which black powders are separated, acid leached, extracted, and de-hybridized and valuable metals are integrated, purified, and sorted to produce qualifying products.

Solution for lithium battery crushing and sorting

A traditional method of crushing and sorting lithium batteries involves crushing and roasting the discharged batteries in order to remove the organic matter; the crushed materials are then further crushed and screened to produce battery black powder, copper powder, and aluminum powder. There are several problems associated with conventional technology, including a low rate of organic removal, environmental hazards, and a lower level of recycling and purity of black powder.

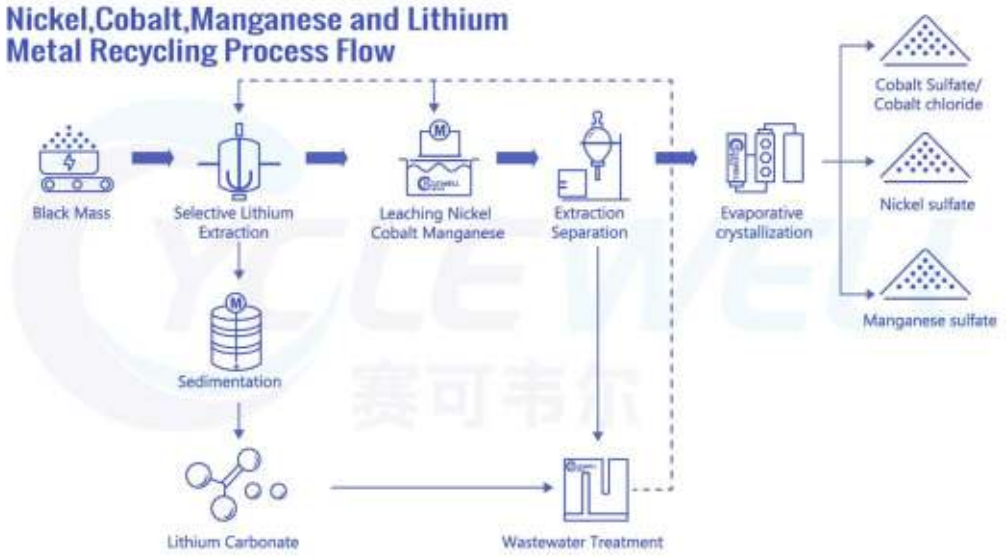
A breakthrough in organic matter pyrolysis technology and multi-component material separation technology has been developed by Cyclewell Technologies, and this has been combined with online testing equipment to develop an intelligent recycling system for spent lithium batteries that removes over 99% of organic matter and recycles over 98.5% of black powder. The content of copper and aluminum in the black powder is less than 1%.



Solution for selective lithium extraction

The use of high-efficiency lithium extraction technology can enable the separation of lithium from black powder alone, achieving the purpose of priority lithium extraction. Lithium metal can be recovered at a rate of over 95%, directly preparing battery-grade lithium carbonate.

The recovery rate is higher and the processing cost is reduced by more than 50% compared with other process methods. It fully solves the problem of low efficiency and high cost of lithium recovery.



Solution for metal separation & purification

The solution for nickel, cobalt, and manganese metal recovery emphasizes efficient extraction, precise separation, higher value-added products, more stable production, and automation.

In the leaching process, nickel, cobalt, and manganese leach at a rate of more than 99%, and the recyclable metals are recovered at over 98.5%. This meets the specifications for battery-grade nickel, cobalt, and manganese.

About Cyclewell Technologies

Cyclewell Technologies was established in December 2020 and its founding team members are leaders in the field of lithium battery recycling in China. **Professor Zhi Sun,** the chief scientist of Cyclewell, is a researcher at the Chinese Academy of Sciences, and a Ph.D. from the University of Leuven, Belgium. He has published more than 150 papers in Nature, Green Chemistry, and other mainstream journals, and has edited and co-authored nine monographs in English and Chinese. He has applied for more than 40 Chinese patents, 2 international patents,

and 1 enterprise technology secret for related technologies.

Cyclewell CEO **Miles Meng** worked for Ganzhou Highpower Technology Co.Ltd. as a Chief Engineer and Deputy General Manager. As one of the first lithium battery recycling enterprises in China, Ganzhou Highpower is part of the first batch of lithium battery recycling demonstration enterprises announced by China. Miles Meng has focused on lithium battery recycling technology development, recycling equipment development, and recycling production line construction since 2008. He has more than ten years of practical experience in lithium battery recycling industrial applications.

In an effort to combine mechanistic research and practical experience in lithium battery recycling, Cyclewell Technologies, led by Zhi Sun and Miles Meng, has successfully applied lithium battery recycling technology to industrialization. Cyclewell, assists global lithium battery recycling companies to solve recycling challenges, reducing trial and error costs, and accelerating industry growth.

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