

# Design of battery cracking waste gas treatment system

How can a recycling process improve the sustainability of the battery industry?

The innovation of this study is evident in its optimization of the recycling process, effectively separating and recovering cathode materials while reducing environmental pollution. This approach supports environmentally friendly waste treatment and contributes to the sustainable development of the battery industry. 1. Introduction

Why do we need a wet recycling method for lithium batteries?

In recent years, various technologies and optimization algorithms have emerged to address challenges such as significant metal loss, complexities in waste liquid management, and environmental pollution associated with traditional wet recycling methods for lithium batteries.

Can resource recovery technology improve the dismantling process of retired lithium batteries?

This study focuses on optimizing resource recovery technology in the dismantling process of retired lithium batteries to mitigate environmental pollution.

Can hydrometallurgy and pyrometallurgy be used to recycle batteries?

Currently, the combined use of hydrometallurgy and pyrometallurgy as a new recycling process has been widely reported, but further in-depth research is still needed. In the process of recycling batteries, Sony Corporation (Japan) employs a combined technique of hydrometallurgy and pyrometallurgy (Meng et al., 2021).

Does multi-stage countercurrent leaching improve battery-grade lithium carbonate recycling?

Following multi-stage countercurrent leaching, the lithium leaching rate exceeds 97 %, satisfying the purity requirements for battery-grade lithium carbonate. The innovation of this study is evident in its optimization of the recycling process, effectively separating and recovering cathode materials while reducing environmental pollution.

What is waste lithium-ion battery recycling?

Waste lithium-ion battery recycling technologies (WLIBRTs) can not only relieve the pressure on the ecological environment, but also help to break the resource bottleneck of new energy industries, thereby promoting the development of a circular economy, enhancing both sustainability and economic efficiency.

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The invention discloses a waste gas purification system for lithium battery cracking and a control method, wherein the waste gas purification system comprises a rotary kiln, a...

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Design Guide for Wastewater Treatment Plants In Saudi Arabia First Edition - Muharram 1428 AH (2007)  
This translation is provided for guidance. The governing text is the Arabic text. Contents ...

The number of LIBs decommissioned or scrapped will increase even more, due to the failures of batteries and large number of battery storage systems reaching their safety lifespans. It will be a grievous waste of resources ...

The invention discloses a pyrolysis gas treatment system for waste battery recovery, which comprises a waste treatment system, a pyrolysis system and a waste gas purification...

A waste gasification system, which is equipped with pyrolysis rotary kiln and gas cracker, is reported. After building a pilot plant first, it advanced to construction of a ...

DAS Environmental Experts partners with manufacturers, building designers and OEMs to develop and deliver the best possible treatment concept for process waste gases in the high ...

At DAS Environmental Expert our systems are as flexible and unique as our clients. Currently we offer waste gas abatement technology in four process groups: The combination of burner and ...

The invention discloses a waste gas purification treatment system for recycling waste lithium batteries generated by crushing and cracking; lithium cell schizolysis exhaust gas...

Industrial exhaust gas treatment systems are necessary as it helps to minimize adverse impacts on the environment and human health. Industrial processes often produce pollutants such as ...

Battery manufacturing is a crucial sector in modern industry, powering everything from smartphones to electric vehicles. However, the production process

Effective waste gas management often involves integrating multiple treatment technologies to achieve comprehensive pollutant removal and compliance with emissions ...

Specific measures include establishing a comprehensive modular standard system for power batteries and improving the battery recycling management system, which ...

Herein, this paper evaluates different waste lithium-ion battery recycling technologies in a multi-criteria decision framework to determine the best technology. A criteria ...

Balancing of emissions of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O as greenhouse gases for combustion and non-thermal plasma (NTP) processes for treatment of a gas flow of 1000 m<sup>3</sup> ...

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A water ion cracking lithium battery system, including a feeding device, a steam generator, a supercharger, a water ion generator, a lithium battery processing device, a condensate tank, ...

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