ŁOTWA SYSTEM

Automatic separation of cylindrical lithium batteries

Overview

What is a lithium ion battery separator?

Learn more. Separators are critical components in lithium-ion batteries (LIBs), preventing internal short circuits, mitigating thermal runaway, and influencing rate capability and cycling performance.

Can high-energy lithium-ion battery separators improve performance?

Insights from this paper illustrate that various strategies could enhance the performance of separators, and better performance and safety can be achieved in separators in high-energy lithium-ion batteries. Export citation and abstract BibTeX RIS.

What are end-of-life lithium-ion batteries?

Rapid advances in the use of lithium-ion batteries (LIBs) in consumer electronics, electric vehicles, and electric grid storage have led to a large number of end-of-life (EOL) LIBs awaiting recycling to reclaim critical materials and eliminate environmental hazards.

How are retired lithium-ion batteries recycled?

The recycling of retired lithium-ion batteries (LIBs) involves typically pretreatments such as discharging, disassembly, shredding, separation, followed by pyrometallurgical or hydrometallurgical processes to recover active materials. These processes face substantial challenges in efficiently separating materials and achieving high purity levels.

Automatic separation of cylindrical lithium batteries

Designing Advanced Separators Toward Lithium-Ion Batteries
Jul 29, 2025 · The separator plays an indispensable role in lithium-ion batteries (LIBs). This review summarizes the functions of the separator in the cathode, anode, and the overall ...

(PDF) Advanced separators for lithium-ion ...
Apr 1, 2022 · The separator technology is a major area of interest in lithium-ion batteries (LIBs) for high-energy and high-power applications such as ...

Post-mortem analysis-based framework for automated ...
Apr 10, 2025 · The recycling of retired lithium-ion batteries (LIBs) involves typically pretreatments such as discharging, disassembly, shredding, separation, followed by pyrometallurgical or ...

Disassembly Automation for Recycling End-of-Life Lithium ...
Pouch Trimming ModuleHousing Removal ModuleElectrode Sorting ModuleControl ArchitectureConcept VerificationThe separation of cathodes, anodes, and separators is a critical process for any LIB recycling processes. It directly influences the purity and recovery rate of the black mass. Our proposed electrode sorting strategy extracts cathode sheets and anode sheets respectively without applying destructive forces. By automatically stretching and feeding th See more on link.springer .b_imgcap_altitle p strong,.b_imgcap_altitle .b_factrow strong{color:#767676}#b_results .b_imgcap_altitle{line-height:22px}.b_imgcap_altitle{display:flex;flex-direction:row-reverse;gap:var(--mai-smtc-padding-card-default)}.b_imgcap_altitle .b_imgcap_img{flex-shrink:0;display:flex;flex-direction:column}.b_imgcap_altitle .b_imgcap_main{min-width:0;flex:1}.b_imgcap_altitle .b_imgcap_img>div,.b_imgcap_altitle .b_imgcap_img a{display:flex}.b_imgcap_altitle .b_imgcap_img img{border-radius:var(--smtc-corner-card-rest)}.b_hList img{display:block}.b_imagePair ner img{display:block;border-radius:6px}.b_algo .vtv2 img{border-radius:0}.b_hList .cico{margin-bottom:10px}.b_title .b_imagePair> ner,.b_vList>li>.b_imagePair> ner,.b_hList .b_imagePair> ner,.b_vPanel>div>.b_imagePair> ner,.b_gridList .b_imagePair> ner,.b_caption .b_imagePair> ner,.b_imagePair> ner>.b_footnote,.b_poleContent .b_imagePair> ner{padding-bottom:0}.b_imagePair> ner{padding-bottom:10px;float:left}.b_imagePair.reverse> ner{float:right}.b_imagePair .b_imagePair:last-child:after{clear:none}.b_algo .b_title .b_imagePair{display:block}.b_imagePair.b_cTxtWithImg>*{vertical-align:middle;display:inline-block}.b_imagePair.b_cTxtWithImg> ner{float:none;padding-right:10px}.b_imagePair.square_s> ner{width:50px}.b_imagePair.square_s{padding-left:60px}.b_imagePair.square_s> ner{margin:2px 0 0 -60px}.b_imagePair.square_s.reverse{padding-left:0;padding-right:60px}.b_imagePair.square_s.reverse> ner{margin:2px -60px 0 0}.b_ci_image_overlay:hover{cursor:pointer} sightsOverlay,#OverlayIFrame.b_mcOverlay sightsOverlay{position:fixed;top:5%;left:5%;bottom:5%;right:5%;width:90%;height:90%;border:0;border-radius:15px;margin:0;padding:0;overflow:hidden;z-index:9;display:none}#OverlayMask,#OverlayMask.b_mcOverlay{z-index:8;background-color:#000;opacity:.6;position:fixed;top:0;left:0;width:100%;height:100%}wiley Lignin-Based Separators for Lithium-Ion ...Mar 26, 2025 · Abstract Separators are critical components in lithium-ion batteries (LIBs), preventing internal short circuits, mitigating thermal ...

A CNC-Modified PAN Separator Improving the Cycle Stability of Lithium
Mar 18, 2025 · In this paper, a composite separator for lithium-ion batteries was successfully prepared by electrostatic spinning, based on polyacrylonitrile (PAN) and 5% cellulose ...

Automated Disassembly of Lithium Batteries; Methods
Jan 1, 2023 · Many factors contribute to complexity of e-waste management, notably hazard of volatile batteries. Batteries including Lithium-Ion (LIBs) and Lithium Polymers (LiPo) store ...

Advanced separators for lithium-ion batteries
The separator technology is a major area of interest in lithium-ion batteries (LIBs) for high-energy and high-power applications such as portable electronics, electric vehicles and energy storage ...

Design for automated disassembly: a ...
May 26, 2025 · ABSTRACT The feasibility of automated disassembly at a product's end-of-life stage strongly depends on its design. This ...

A CNC-Modified PAN Separator Improving ...
Mar 18, 2025 · In this paper, a composite separator for lithium-ion batteries was successfully prepared by electrostatic spinning, based on ...

Lignin-Based Separators for Lithium-Ion Batteries via a Dry
Mar 26, 2025 · Abstract Separators are critical components in lithium-ion batteries (LIBs), preventing internal short circuits, mitigating thermal runaway, and influencing rate capability ...

Tuneable and efficient manufacturing of Li ...
Oct 12, 2024 · Abstract In an effort to increase the thermomechanical stability of lithium-ion battery separators, thermoset membranes (TMs) are a ...

(PDF) Advanced separators for lithium-ion batteries
Apr 1, 2022 · The separator technology is a major area of interest in lithium-ion batteries (LIBs) for high-energy and high-power applications such as portable electronics, electric vehicles and ...

Tuneable and efficient manufacturing of Li-ion battery ...
Oct 12, 2024 · Abstract In an effort to increase the thermomechanical stability of lithium-ion battery separators, thermoset membranes (TMs) are a viable alternative to commercial ...

Designing Advanced Separators Toward ...
Jul 29, 2025 · The separator plays an indispensable role in lithium-ion batteries (LIBs). This review summarizes the functions of the separator in ...

Disassembly Automation for Recycling End-of-Life Lithium ...
Sep 13, 2019 · Rapid advances in the use of lithium-ion batteries (LIBs) in consumer electronics, electric vehicles, and electric grid storage have led to a large number of end-of-life (EOL) LIBs ...

Design for automated disassembly: a comparative study of ...

May 26, 2025 · ABSTRACT The feasibility of automated disassembly at a product's end-of-life stage strongly depends on its design. This relationship is particularly relevant for electric ...

Contact Us

For technical specifications, project proposals, or partnership inquiries, please visit:
https://www.lopianowa.pl

Scan QR Code for More Information

https://www.lopianowa.pl