+357 96 030922
info@marketpublishers.com

Solid-State Battery Recycling Market Forecasts to 2032 – Global Analysis By Battery Type (Lithium-Metal Solid-State, Sulfide-Based Solid Electrolytes,Oxide-Based Solid Electrolytes, and Polymer Solid Electrolytes), Source, Recycling Process, Service Model, Scale, End User and By Geography

https://marketpublishers.com/r/S7D30FC5FDF4EN.html
Date: September 2025
Pages: 200
Price: US$ 4,150.00 (Single User License)
ID: S7D30FC5FDF4EN

Abstracts

According to Stratistics MRC, the Global Solid-State Battery Recycling Market is accounted for $234.8 million in 2025 and is expected to reach $1373.6 million by 2032 growing at a CAGR of 28.7% during the forecast period. Solid-state battery recycling involves recovering materials from solid-state batteries, used in electric vehicles and electronics, through processes like dismantling and chemical extraction. These methods reclaim valuable components such as lithium, cobalt, and solid electrolytes, minimizing waste and environmental impact. Designed for sustainability-focused industries, recycling ensures resource reuse and reduces reliance on raw materials, using eco-friendly techniques to support a circular economy in advanced battery technology.

According to IDTechEx, recycling solid-state batteries is critical for recovering scarce materials like lithium and sulfide electrolytes, ensuring a circular supply chain.

Market Dynamics:

Driver:

Growing EV adoption

The primary market driver is the rapid global adoption of electric vehicles (EVs), which

directly creates the future feedstock of end-of-life solid-state batteries requiring recycling. Government mandates phasing out internal combustion engines, consumer incentives, and advancing EV technology are accelerating this shift. This growth ensures a consistent and expanding supply of batteries, making recycling not just an environmental imperative but a crucial economic necessity to secure valuable raw materials and create a circular supply chain for the automotive industry.

Restraint:

Limited recycling infrastructure

A significant restraint is the currently limited and underdeveloped infrastructure specifically designed for recycling novel solid-state batteries. These batteries differ in chemistry and construction from traditional lithium-ion, requiring new, specialized, and capital-intensive processes for safe dismantling and material recovery. The lack of established collection networks, sorting facilities, and scalable hydrometallurgical/pyrometallurgical techniques creates a major bottleneck, hindering the industry's ability to efficiently process the coming wave of end-of-life batteries at a commercial scale.

Opportunity:

Technology innovation partnerships

A major opportunity lies in forming strategic technology innovation partnerships across the value chain. Collaborations between battery manufacturers, recycling technology startups, automotive OEMs, and research institutions can accelerate the development of efficient, cost-effective recycling processes. These partnerships can pool R&D resources, share proprietary knowledge on battery design for recyclability, and establish closed-loop supply chains, turning recycling from a cost center into a valuable source of reclaimed critical minerals and a competitive advantage.

Threat:

Regulatory uncertainty

The market faces a threat from uncertain and evolving regulations governing battery recycling standards, extended producer responsibility (EPR) schemes, and cross-border transportation of waste batteries. Inconsistent policies between regions can create

+357 96 030922
info@marketpublishers.com

compliance complexities, increase operational costs, and hinder the development of a global recycling ecosystem. A lack of clear, long-term regulations may also dampen investment in recycling infrastructure, as companies await finalized rules before committing significant capital to build large-scale facilities.

Covid-19 Impact:

The COVID-19 pandemic initially disrupted manufacturing supply chains, temporarily slowing EV production and, consequently, the future pipeline of batteries for recycling. However, the long-term impact was positive, as it intensified government and corporate focus on building resilient, localized supply chains for critical materials. Recovery stimulus packages in many regions included funding for green technology and EV infrastructure, indirectly supporting the recycling sector by accelerating the EV transition and highlighting the strategic need for a domestic circular battery economy.

The lithium-metal solid-state segment is expected to be the largest during the forecast period

The lithium-metal solid-state segment is expected to account for the largest market share during the forecast period, resulting from its position as the leading chemistry for next-generation high-performance EVs, offering superior energy density and safety. As these batteries become the mainstream choice for automakers, they will constitute the largest volume of end-of-life units in the future. Their high content of valuable lithium-metal anode material makes them economically the most attractive stream for recyclers, driving significant investment into processes to recover these premium materials and secure a dominant market share.

The EV battery packs segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the EV battery packs segment is predicted to witness the highest growth rate, propelled by the sheer exponential growth in the number of electric vehicles reaching end-of-life. As the first major wave of EVs sold in the early 2020s begins to retire, they will generate an unprecedented volume of battery packs requiring recycling. This surge in feedstock, combined with stringent upcoming regulations on end-of-life management and OEMs' need to secure recycled content for new batteries, will drive the highest growth rate in recycling services specifically for entire EV packs.

Region with largest share:

+357 96 030922
info@marketpublishers.com

During the forecast period, the Asia Pacific region is expected to hold the largest market share, attributed to its absolute dominance in both EV manufacturing and battery production. China, South Korea, and Japan are global hubs for cell production, creating a concentrated supply of manufacturing scrap and, eventually, end-of-life batteries. Supportive government policies promoting a circular economy, the presence of major battery giants like CATL and LG Energy Solution, and a well-established electronics recycling infrastructure provide a foundational advantage, making APAC the largest and most active market.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR associated with, aggressive government initiatives and policies, such as the Inflation Reduction Act, that incentivize domestic battery manufacturing and recycling to build a secure, localized supply chain. Heavy investments from automakers and tech companies in new gigafactories and recycling plants, coupled with strong regulatory push for EV adoption and recycled content mandates, are creating a rapidly expanding market from a smaller base, resulting in the highest growth rate during the forecast period.

Key players in the market

Some of the key players in Solid-State Battery Recycling Market include QuantumScape, Solid Power, SES AI, Ilika, ProLogium, StoreDot, OXIS Energy, Ionic Materials, Sila Nanotechnologies, Enovix, SolidEnergy Systems, Blue Solutions, Amprius, Lithium Werks, CATL, and BYD, Panasonic.

Key Developments:

In June 2025, a consortium led by QuantumScape and Solid Power published a joint white paper outlining the first standardized framework for the classification, handling, and transportation of spent solid-state batteries for recycling. This initiative aims to address safety concerns and establish a supply chain for end-of-life cells before commercial EVs hit the road.

In May 2025, Panasonic unveiled a new closed-loop recycling pilot line at its Osaka research center. The system is integrated directly with its SSB manufacturing process, allowing for the immediate recovery and re-use of critical materials from quality control reject cells, significantly minimizing waste during the initial production phases.

Battery Types Covered:

- Lithium-Metal Solid-State
- Sulfide-Based Solid Electrolytes
- Oxide-Based Solid Electrolytes
- Polymer Solid Electrolytes

Sources Covered:

- EV Battery Packs
- Consumer Electronics
- Stationary Storage
- Industrial Cells

Recycling Processes Covered:

- Pyrometallurgical
- Hydrometallurgical
- Direct/Material-Recovery
- Mechanical Pretreatment

Service Models Covered:

- Contract Recycling

Asset Buyback

Closed-Loop Partnerships

On-Site Decommissioning

Scales Covered:

Demo

Regional Commercial Plant

Centralized Mega-Refinery

Mobile Units

End Users Covered:

Automotive

Consumer Electronics

Grid Storage

Aerospace

Industrial

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

+357 96 030922
info@marketpublishers.com

Contents

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

10 GLOBAL SOLID-STATE BATTERY RECYCLING MARKET, BY END USER

11 GLOBAL SOLID-STATE BATTERY RECYCLING MARKET, BY GEOGRAPHY

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

List Of Tables

LIST OF TABLES

+357 96 030922
info@marketpublishers.com

Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

+357 96 030922
info@marketpublishers.com

I would like to order

Product name: Solid-State Battery Recycling Market Forecasts to 2032 – Global Analysis By Battery Type (Lithium-Metal Solid-State, Sulfide-Based Solid Electrolytes,Oxide-Based Solid Electrolytes, and Polymer Solid Electrolytes), Source, Recycling Process, Service Model, Scale, End User and By Geography

Product link: https://marketpublishers.com/r/S7D30FC5FDF4EN.html

Price: US$ 4,150.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/S7D30FC5FDF4EN.html