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Li-ion Battery Recycling Market Forecasts to 2032 – Global Analysis By Chemistry (Lithium Cobalt Oxide, Lithium Iron Phosphate, Lithium Manganese Oxide, Lithium Nickel Cobalt Aluminum Oxide and Lithium Nickel Manganese Cobalt Oxide), Process, Source, Technology, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Li-ion Battery Recycling Market is accounted for $8.6 billion in 2025 and is expected to reach $32.2 billion by 2032 growing at a CAGR of 20.6% during the forecast period. Li-ion battery recycling is the process of recovering valuable materials from spent lithium-ion batteries to reduce waste and environmental impact. It involves mechanical dismantling, thermal treatment, and hydrometallurgical processing to extract lithium, cobalt, nickel, and other metals. Batteries are first discharged and shredded, followed by separation of components like cathodes, anodes, and electrolytes. Chemical processes then refine metals for reuse in battery manufacturing. Efficient recycling requires advanced sorting, purification, and recovery technologies to optimize material yield and minimize hazardous byproducts.

According to the World Economic Forum, the battery market consumed approximately 74% of global lithium production in 2021, highlighting the critical need for efficient recycling solutions.

Market Dynamics:

Driver:

Rising electric vehicle adoption globally

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The surging global adoption of electric vehicles (EVs) is the foremost driver for the Li-ion battery recycling market. As EV sales continue to break records, the volume of end-of-life Li-ion batteries requiring environmentally responsible disposal and resource recovery is rapidly increasing. Governments worldwide are promoting EV adoption through incentives and regulations, leading to a vast future supply of spent batteries. This growing 'battery mountain' creates an urgent need for robust recycling infrastructure and efficient processes to reclaim valuable materials. The shift towards sustainable transportation, spurred by climate change mitigation efforts, directly fuels the demand for battery recycling.

Restraint:

Lack of standardized recycling infrastructure

A significant restraint for the Li-ion battery recycling market is the prevalent lack of a standardized and comprehensive recycling infrastructure. The diverse chemistries and designs of Li-ion batteries make universal recycling processes challenging and costly. In many regions, collection points and specialized recycling facilities are insufficient to handle the rapidly increasing volume of end-of-life batteries. The absence of clear regulatory frameworks and economic incentives for recycling further impedes the establishment of a robust infrastructure. This fragmented landscape creates logistical bottlenecks and hinders the efficient flow of batteries into the recycling pipeline.

Opportunity:

Advancements in recycling tech

A major opportunity for the Li-ion battery recycling market stems from ongoing advancements in recycling technologies. Innovations in hydrometallurgical, pyrometallurgical, and direct recycling methods are improving the efficiency and economic viability of extracting valuable materials like lithium, cobalt, and nickel. New techniques are emerging that offer higher recovery rates, lower energy consumption, and reduced environmental impact. These technological leaps are crucial for scaling up recycling operations and making them more profitable, fueled by the demand for critical raw materials.

Threat:

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Competition from new battery types

A considerable threat to the Li-ion battery recycling market is the emergence and growing competition from new and evolving battery chemistries. While Li-ion batteries currently dominate, ongoing research is exploring alternatives like solid-state batteries, sodium-ion batteries, and flow batteries. If these new battery types achieve widespread commercialization, they could reduce the long-term demand for Li-ion battery production, consequently impacting the volume of batteries available for recycling. The shift to chemistries with different material compositions might also render current recycling processes obsolete or less efficient, requiring significant new investments.

Covid-19 Impact:

The COVID-19 pandemic had a mixed but ultimately accelerating impact on the Li-ion battery recycling market. Initially, supply chain disruptions and a temporary slowdown in automotive production and consumer electronics sales led to a slight dip in battery generation for recycling. However, the pandemic also highlighted the fragility of global supply chains for critical raw materials. This prompted a renewed focus on establishing circular economies and securing domestic supplies of materials, thereby boosting long-term interest and investment in battery recycling. The accelerated shift towards electric vehicles post-pandemic further underscored the urgent need for a robust recycling infrastructure.

The lithium cobalt oxide segment is expected to be the largest during the forecast period

The lithium cobalt oxide segment is expected to account for the largest market share during the forecast period, due to the extensive use of Lithium Cobalt Oxide (LCO) batteries in consumer electronics, such as smartphones, laptops, and tablets. The sheer volume of these devices reaching their end-of-life ensures a consistent and significant feedstock for recycling. LCO batteries also contain high concentrations of cobalt, a valuable and critical material, making their recycling economically attractive. Their pervasive presence in the consumer sector solidifies their leading market share.

The pyrometallurgical segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the pyrometallurgical segment is predicted to witness the highest growth rate, backed by established industrial applications and infrastructure, this

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method ensures efficient metal recovery through high-temperature smelting. By increasing adoption in large-scale commercial recycling plants, pyrometallurgy remains a preferred solution in emerging economies. Influenced by its simplicity and reduced preprocessing requirements, this technique continues to attract investment. Guided by improvements in emission control technologies, environmental compliance is becoming more achievable. Motivated by expanding demand for streamlined, high-output recycling, the segment is projected to register the highest CAGR.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share, fuelled by government mandates on e-waste and industrial sustainability. Nations like China, South Korea, and Japan lead recycling infrastructure development. Guided by the presence of leading battery manufacturers, the region enjoys a well-integrated ecosystem. Spurred by aggressive EV adoption and urbanization, battery waste volumes are increasing rapidly. Motivated by resource scarcity, local governments are enforcing circular economy policies. Influenced by cost-competitive recycling services and strong supply chains, Asia Pacific will retain the largest market share.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, influenced by critical mineral sourcing concerns, and battery recycling is becoming a strategic national priority. Backed by growing investment in advanced recycling startups, the U.S. and Canada are fostering innovation-led growth. Guided by strong automotive electrification goals and manufacturer commitments, demand for recycled materials is surging. Spurred by new legislation supporting closed-loop recycling systems, infrastructure is expanding rapidly. Motivated by increasing collaboration between automakers and recyclers, the region is set to lead in growth momentum.

Key players in the market

Some of the key players in Li-ion Battery Recycling Market include 3R Recycler, ACE Green Recycling, American Battery Technology Company, Attero Recycling, BatX Energies, Cirbra Solution, Ganfeng Lithium, Glencore, Li-Cycle Holdings Corporation, Lohum Cleantech, Neometals, RecycLiCo Battery Material, Redwood Materials, SK TES, and Umicore.

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Key Developments:

In May 2025, Li-Cycle Holdings Corporation launched its Spoke & Hub 2.0 System, expanding recycling capacity across North America and Europe. The system's modular design enhances efficiency, recovering 95% of battery materials. It supports the EV and energy storage markets, reducing landfill waste and providing sustainable raw materials for battery production.

In April 2025, Ganfeng Lithium introduced a Closed-Loop Recycling Process, achieving 95% recovery of lithium, cobalt, and nickel. The process minimizes waste and energy use, supporting sustainable battery production. Its scalability benefits EV and renewable energy sectors, strengthening Ganfeng's position in the global supply chain for critical battery materials.

In March 2025, American Battery Technology Company (ABTC) announced its Lithium-Ion Direct Extraction Plant, cutting recycling costs by 30%. The plant uses proprietary technology to recover high-purity materials, supporting EV and grid storage industries. Its cost efficiency and high recovery rates make it a key player in sustainable battery recycling solutions.

Chemistries Covered:

- Lithium Cobalt Oxide
- Lithium Iron Phosphate
- Lithium Manganese Oxide
- Lithium Nickel Cobalt Aluminum Oxide
- Lithium Nickel Manganese Cobalt Oxides

Processes Covered:

- Pyrometallurgical
- Hydrometallurgical

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Physical/Mechanical

Sources Covered:

Automotive

Non-Automotive

Technologies Covered:

Hydrometallurgical

Pyrometallurgical

Physical/Mechanical

Direct Recycling

End Users Covered:

Automotive

Consumer Electronics

Communication & Technology

Energy & Power

Other End Users

Regions Covered:

North America

US

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- 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

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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:

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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

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Contents

1 EXECUTIVE SUMMARY

2 PREFACE

2.1 Abstract
2.2 Stake Holders
2.3 Research Scope
2.4 Research Methodology
  2.4.1 Data Mining
  2.4.2 Data Analysis
  2.4.3 Data Validation
  2.4.4 Research Approach
2.5 Research Sources
  2.5.1 Primary Research Sources
  2.5.2 Secondary Research Sources
  2.5.3 Assumptions

3 MARKET TREND ANALYSIS

3.1 Introduction
3.2 Drivers
3.3 Restraints
3.4 Opportunities
3.5 Threats
3.6 Technology Analysis
3.7 End User Analysis
3.8 Emerging Markets
3.9 Impact of Covid-19

4 PORTERS FIVE FORCE ANALYSIS

4.1 Bargaining power of suppliers
4.2 Bargaining power of buyers
4.3 Threat of substitutes
4.4 Threat of new entrants
4.5 Competitive rivalry

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5 GLOBAL LI-ION BATTERY RECYCLING MARKET, BY CHEMISTRY

5.1 Introduction
5.2 Lithium Cobalt Oxide
5.3 Lithium Iron Phosphate
5.4 Lithium Manganese Oxide
5.5 Lithium Nickel Cobalt Aluminum Oxide
5.6 Lithium Nickel Manganese Cobalt Oxide

6 GLOBAL LI-ION BATTERY RECYCLING MARKET, BY PROCESS

6.1 Introduction
6.2 Pyrometallurgical
6.3 Hydrometallurgical
6.4 Physical/Mechanical

7 GLOBAL LI-ION BATTERY RECYCLING MARKET, BY SOURCE

7.1 Introduction
7.2 Automotive
7.3 Non-Automotive

8 GLOBAL LI-ION BATTERY RECYCLING MARKET, BY TECHNOLOGY

8.1 Introduction
8.2 Hydrometallurgical
8.3 Pyrometallurgical
8.4 Physical/Mechanical
8.5 Direct Recycling

9 GLOBAL LI-ION BATTERY RECYCLING MARKET, BY END USER

9.1 Introduction
9.2 Automotive
9.3 Consumer Electronics
9.4 Communication & Technology
9.5 Energy & Power
9.6 Other End Users

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10 GLOBAL LI-ION BATTERY RECYCLING MARKET, BY GEOGRAPHY

10.1 Introduction
10.2 North America
  10.2.1 US
  10.2.2 Canada
  10.2.3 Mexico
10.3 Europe
  10.3.1 Germany
  10.3.2 UK
  10.3.3 Italy
  10.3.4 France
  10.3.5 Spain
  10.3.6 Rest of Europe
10.4 Asia Pacific
  10.4.1 Japan
  10.4.2 China
  10.4.3 India
  10.4.4 Australia
  10.4.5 New Zealand
  10.4.6 South Korea
  10.4.7 Rest of Asia Pacific
10.5 South America
  10.5.1 Argentina
  10.5.2 Brazil
  10.5.3 Chile
  10.5.4 Rest of South America
10.6 Middle East & Africa
  10.6.1 Saudi Arabia
  10.6.2 UAE
  10.6.3 Qatar
  10.6.4 South Africa
  10.6.5 Rest of Middle East & Africa

11 KEY DEVELOPMENTS

11.1 Agreements, Partnerships, Collaborations and Joint Ventures
11.2 Acquisitions & Mergers
11.3 New Product Launch

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11.4 Expansions
11.5 Other Key Strategies

12 COMPANY PROFILING

12.1 3R Recycler
12.2 ACE Green Recycling
12.3 American Battery Technology Company
12.4 Attero Recycling
12.5 BatX Energies
12.6 Cirbra Solution
12.7 Ganfeng Lithium
12.8 Glencore
12.9 Li-Cycle Holdings Corporation
12.10 Lohum Cleantech
12.11 Neometals
12.12 RecycLiCo Battery Material
12.13 Redwood Materials
12.14 SK TES
12.15 Umicore

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List Of Tables

LIST OF TABLES

Table 1 Global Li-ion Battery Recycling Market Outlook, By Region (2024-2032) ($MN)
Table 2 Global Li-ion Battery Recycling Market Outlook, By Chemistry (2024-2032) ($MN)
Table 3 Global Li-ion Battery Recycling Market Outlook, By Lithium Cobalt Oxide (2024-2032) ($MN)
Table 4 Global Li-ion Battery Recycling Market Outlook, By Lithium Iron Phosphate (2024-2032) ($MN)
Table 5 Global Li-ion Battery Recycling Market Outlook, By Lithium Manganese Oxide (2024-2032) ($MN)
Table 6 Global Li-ion Battery Recycling Market Outlook, By Lithium Nickel Cobalt Aluminum Oxide (2024-2032) ($MN)
Table 7 Global Li-ion Battery Recycling Market Outlook, By Lithium Nickel Manganese Cobalt Oxide (2024-2032) ($MN)
Table 8 Global Li-ion Battery Recycling Market Outlook, By Process (2024-2032) ($MN)
Table 9 Global Li-ion Battery Recycling Market Outlook, By Pyrometallurgical (2024-2032) ($MN)
Table 10 Global Li-ion Battery Recycling Market Outlook, By Hydrometallurgical (2024-2032) ($MN)
Table 11 Global Li-ion Battery Recycling Market Outlook, By Physical/Mechanical (2024-2032) ($MN)
Table 12 Global Li-ion Battery Recycling Market Outlook, By Source (2024-2032) ($MN)
Table 13 Global Li-ion Battery Recycling Market Outlook, By Automotive (2024-2032) ($MN)
Table 14 Global Li-ion Battery Recycling Market Outlook, By Non-Automotive (2024-2032) ($MN)
Table 15 Global Li-ion Battery Recycling Market Outlook, By Technology (2024-2032) ($MN)
Table 16 Global Li-ion Battery Recycling Market Outlook, By Hydrometallurgical (2024-2032) ($MN)
Table 17 Global Li-ion Battery Recycling Market Outlook, By Pyrometallurgical (2024-2032) ($MN)
Table 18 Global Li-ion Battery Recycling Market Outlook, By Physical/Mechanical (2024-2032) ($MN)
Table 19 Global Li-ion Battery Recycling Market Outlook, By Direct Recycling (2024-2032) ($MN)

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Table 20 Global Li-ion Battery Recycling Market Outlook, By End User (2024-2032) ($MN)
Table 21 Global Li-ion Battery Recycling Market Outlook, By Automotive (2024-2032) ($MN)
Table 22 Global Li-ion Battery Recycling Market Outlook, By Consumer Electronics (2024-2032) ($MN)
Table 23 Global Li-ion Battery Recycling Market Outlook, By Communication & Technology (2024-2032) ($MN)
Table 24 Global Li-ion Battery Recycling Market Outlook, By Energy & Power (2024-2032) ($MN)
Table 25 Global Li-ion Battery Recycling Market Outlook, By Other End Users (2024-2032) ($MN)

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

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