

Critical Mineral Extraction from Mixed Waste Market Forecasts to 2034 – Global Analysis By Waste Type (Electronic Waste (E-Waste), Industrial Waste Streams, Automotive & Battery Waste, Mining Tailings & Residues, Incineration Ash, Municipal Solid Waste, Other Waste Types), By Technology, By Material Type, By Application, By End User and By Geography

<https://marketpublishers.com/r/C7012CF2D155EN.html>

Date: March 2026

Pages: 200

Price: US\$ 4,150.00 (Single User License)

ID: C7012CF2D155EN

Abstracts

According to Statistics MRC, the Global Critical Mineral Extraction from Mixed Waste Market is accounted for \$3.8 billion in 2026 and is expected to reach \$11.9 billion by 2034 growing at a CAGR of 15.2% during the forecast period. Critical Mineral Extraction from Mixed Waste Market refers to processes and technologies that recover valuable minerals such as lithium, cobalt, rare earth elements, and nickel from complex waste streams including e-waste, industrial residues, batteries, and tailings. It involves advanced separation, hydrometallurgical, and bioleaching techniques to isolate critical materials efficiently. This approach reduces dependence on primary mining, enhances circular economy practices, and mitigates environmental impacts. It also supports resource security by transforming waste into a secondary supply of essential minerals required for clean energy, electronics, and advanced manufacturing industries.

Market Dynamics:

Driver:

Rising demand for EV battery minerals

Industries increasingly require lithium, cobalt, and nickel for electric vehicles and

renewable energy systems. Supply chain vulnerabilities have made recycling and recovery more attractive than mining alone. Corporate investments in battery recycling are accelerating the development of advanced extraction technologies. Marketing campaigns emphasize sustainability and resource security, boosting visibility in industrial ecosystems. Collectively, EV battery mineral demand is propelling the market toward sustained expansion.

Restraint:

High processing complexity and costs

Advanced separation and purification technologies are expensive to implement. Smaller recyclers often struggle to absorb these costs, limiting accessibility. Developing regions face affordability challenges that slow adoption. Consumers are sensitive to price gaps between virgin and recovered minerals. Consequently, high costs continue to constrain market penetration despite strong demand drivers.

Opportunity:

Urban mining and secondary resource recovery

Advances in waste-to-resource technologies enable efficient recovery of critical minerals from discarded electronics and batteries. Strategic collaborations between recyclers and municipalities are driving commercialization. Investment in circular economy initiatives fosters breakthroughs in resource efficiency. Growing institutional preference for sustainable sourcing accelerates uptake of urban mining projects. Overall, secondary recovery is creating new revenue streams and strengthening market competitiveness.

Threat:

Volatile commodity prices impacting profitability

Lithium and cobalt markets are highly sensitive to global demand fluctuations. Price instability discourages long-term investment in recycling projects. Negative publicity around volatility undermines confidence in recovered materials. Industries with conservative procurement practices often resist adopting recycled minerals. As a result, commodity price swings continue to limit scalability despite strong innovation drivers.

Covid-19 Impact:

The Covid-19 pandemic highlighted the importance of resource security in global supply chains. Disruptions in mining operations increased reliance on recycled minerals. Lockdowns constrained new material production, boosting short-term demand for recovery solutions. Supply chain challenges slowed deployment of advanced recycling systems. Post-pandemic recovery spurred renewed investment in sustainable resource innovation. Overall, Covid-19 acted as both a short-term constraint and a long-term catalyst for recycling growth.

The electronic waste segment is expected to be the largest during the forecast period

The electronic waste segment is expected to account for the largest market share during the forecast period as rising demand for EV battery minerals accelerates reliance on discarded electronics for recovery. Growing volumes of e-waste provide a consistent supply of lithium, cobalt, and rare earths. Recycling initiatives are increasingly focused on extracting these critical minerals from consumer electronics. Investment in clean energy projects further boosts demand for recovered materials. Strategic collaborations between recyclers and manufacturers are enhancing commercialization.

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

Over the forecast period, the lithium segment is predicted to witness the highest growth rate due to rising demand for EV battery minerals making lithium recovery from mixed waste streams a strategic priority. Electric vehicles rely heavily on lithium-ion batteries, creating strong demand for recovery solutions. Renewable energy storage systems also depend on lithium, further expanding market potential. Investment in advanced recycling technologies is improving recovery efficiency. Partnerships between recyclers and battery manufacturers are accelerating commercialization.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share owing to rising demand for EV battery minerals. Countries such as China, Japan, South Korea, and India are leading in electronics and EV manufacturing. Strong recycling infrastructure supports large-scale mineral recovery. Government initiatives are promoting sustainable sourcing and circular economy practices. Strategic collaborations between recyclers and manufacturers are driving innovation.

Region with highest CAGR:

Over the forecast period, the Europe region is anticipated to exhibit the highest CAGR as rising demand for EV battery minerals aligns with strict sustainability regulations and circular economy policies. Government incentives are encouraging investment in advanced recovery technologies. Consumer preference for sustainable electronics is boosting demand for recycled materials. Industrial ecosystems are integrating recovered minerals into manufacturing processes. Strategic partnerships are enhancing commercialization of recovery solutions.

Key players in the market

Some of the key players in Critical Mineral Extraction from Mixed Waste Market include Glencore plc, Rio Tinto Group, BHP Group Limited, Vale S.A., Freeport-McMoRan Inc., Teck Resources Limited, Umicore SA, American Battery Technology Company, Li-Cycle Holdings Corp., Redwood Materials, Inc., Fortum Oyj, Recupyl SAS, Green Li-ion Pte Ltd, Neometals Ltd and Primobius GmbH.

Key Developments:

In October 2025, Glencore signed a Memorandum of Understanding with Metallium Ltd. focused on electronic scrap supply and metal offtake in the U.S. market . The agreement aims to secure a material portion of feedstock for Metallium's Stage-1 requirements, leveraging Glencore's global collection network and its position as a major recycler of end-of-life electronics through its Horne Smelter

In September 2025, Rio Tinto entered into a Joint Development Agreement with Geomega Resources Inc. to advance Geomega's technology for valorizing bauxite residue (red mud), a waste product from alumina refining . The agreement includes a demonstration license and engineering studies that could lead to the construction of a demonstration plant in Saguenay.

Waste Types Covered:

Electronic Waste (E-Waste)

Industrial Waste Streams

Automotive & Battery Waste

Mining Tailings & Residues

Incineration Ash

Municipal Solid Waste

Other Waste Types

Technologies Covered:

Hydrometallurgical Processing

Pyrometallurgical Processing

Biometallurgical Processing

Solvent Extraction & Ion Exchange

Electrochemical Recovery

AI-Driven Sorting & Separation

Other Technologies

Material Types Covered:

Lithium

Cobalt

Nickel

Rare Earth Elements (REEs)

Copper

Aluminum

Other Material Types

Applications Covered:

Battery Manufacturing

Electronics Manufacturing

Renewable Energy Systems

Electric Vehicles

Aerospace & Defense

Industrial Applications

Other Applications

End Users Covered:

Mining & Metals Companies

Recycling Companies

Battery Manufacturers

Electronics Manufacturers

Automotive OEMs

Energy & Utilities

Other End Users

Regions Covered:**North America**

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of 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 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- 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

Contents

1 EXECUTIVE SUMMARY

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

2 RESEARCH FRAMEWORK

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
 - 2.4.1 Data Collection (Primary and Secondary)
 - 2.4.2 Data Modeling and Estimation Techniques
 - 2.4.3 Data Validation and Triangulation
 - 2.4.4 Analytical and Forecasting Approach

3 MARKET DYNAMICS AND TREND ANALYSIS

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

4 COMPETITIVE AND STRATEGIC ASSESSMENT

- 4.1 Porter's Five Forces Analysis
 - 4.1.1 Supplier Bargaining Power
 - 4.1.2 Buyer Bargaining Power
 - 4.1.3 Threat of Substitutes
 - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

5 GLOBAL CRITICAL MINERAL EXTRACTION FROM MIXED WASTE MARKET, BY WASTE TYPE

- 5.1 Electronic Waste (E-Waste)
- 5.2 Industrial Waste Streams
- 5.3 Automotive & Battery Waste
- 5.4 Mining Tailings & Residues
- 5.5 Incineration Ash
- 5.6 Municipal Solid Waste
- 5.7 Other Waste Types

6 GLOBAL CRITICAL MINERAL EXTRACTION FROM MIXED WASTE MARKET, BY TECHNOLOGY

- 6.1 Hydrometallurgical Processing
- 6.2 Pyrometallurgical Processing
- 6.3 Biometallurgical Processing
- 6.4 Solvent Extraction & Ion Exchange
- 6.5 Electrochemical Recovery
- 6.6 AI-Driven Sorting & Separation
- 6.7 Other Technologies

7 GLOBAL CRITICAL MINERAL EXTRACTION FROM MIXED WASTE MARKET, BY MATERIAL TYPE

- 7.1 Lithium
- 7.2 Cobalt
- 7.3 Nickel
- 7.4 Rare Earth Elements (REEs)
- 7.5 Copper
- 7.6 Aluminum
- 7.7 Other Material Types

8 GLOBAL CRITICAL MINERAL EXTRACTION FROM MIXED WASTE MARKET, BY APPLICATION

- 8.1 Battery Manufacturing
- 8.2 Electronics Manufacturing
- 8.3 Renewable Energy Systems
- 8.4 Electric Vehicles
- 8.5 Aerospace & Defense
- 8.6 Industrial Applications
- 8.7 Other Applications

9 GLOBAL CRITICAL MINERAL EXTRACTION FROM MIXED WASTE MARKET, BY END USER

- 9.1 Mining & Metals Companies
- 9.2 Recycling Companies
- 9.3 Battery Manufacturers
- 9.4 Electronics Manufacturers
- 9.5 Automotive OEMs
- 9.6 Energy & Utilities
- 9.7 Other End Users

10 GLOBAL CRITICAL MINERAL EXTRACTION FROM MIXED WASTE MARKET, BY GEOGRAPHY

- 10.1 North America
 - 10.1.1 United States
 - 10.1.2 Canada
 - 10.1.3 Mexico
- 10.2 Europe
 - 10.2.1 United Kingdom
 - 10.2.2 Germany
 - 10.2.3 France
 - 10.2.4 Italy
 - 10.2.5 Spain
 - 10.2.6 Netherlands
 - 10.2.7 Belgium
 - 10.2.8 Sweden
 - 10.2.9 Switzerland
 - 10.2.10 Poland
 - 10.2.11 Rest of Europe

10.3 Asia Pacific

10.3.1 China

10.3.2 Japan

10.3.3 India

10.3.4 South Korea

10.3.5 Australia

10.3.6 Indonesia

10.3.7 Thailand

10.3.8 Malaysia

10.3.9 Singapore

10.3.10 Vietnam

10.3.11 Rest of Asia Pacific

10.4 South America

10.4.1 Brazil

10.4.2 Argentina

10.4.3 Colombia

10.4.4 Chile

10.4.5 Peru

10.4.6 Rest of South America

10.5 Rest of the World (RoW)

10.5.1 Middle East

10.5.1.1 Saudi Arabia

10.5.1.2 United Arab Emirates

10.5.1.3 Qatar

10.5.1.4 Israel

10.5.1.5 Rest of Middle East

10.5.2 Africa

10.5.2.1 South Africa

10.5.2.2 Egypt

10.5.2.3 Morocco

10.5.2.4 Rest of Africa

11 STRATEGIC MARKET INTELLIGENCE

11.1 Industry Value Network and Supply Chain Assessment

11.2 White-Space and Opportunity Mapping

11.3 Product Evolution and Market Life Cycle Analysis

11.4 Channel, Distributor, and Go-to-Market Assessment

12 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

- 12.1 Mergers and Acquisitions
- 12.2 Partnerships, Alliances, and Joint Ventures
- 12.3 New Product Launches and Certifications
- 12.4 Capacity Expansion and Investments
- 12.5 Other Strategic Initiatives

13 COMPANY PROFILES

- 13.1 Glencore plc
- 13.2 Rio Tinto Group
- 13.3 BHP Group Limited
- 13.4 Vale S.A.
- 13.5 Freeport-McMoRan Inc.
- 13.6 Teck Resources Limited
- 13.7 Umicore SA
- 13.8 American Battery Technology Company
- 13.9 Li-Cycle Holdings Corp.
- 13.10 Redwood Materials, Inc.
- 13.11 Fortum Oyj
- 13.12 Recupyl SAS
- 13.13 Green Li-ion Pte Ltd
- 13.14 Neometals Ltd
- 13.15 Primobius GmbH

List Of Tables

LIST OF TABLES

- Table 1 Global Critical Mineral Extraction from Mixed Waste Market Outlook, By Region (2023-2034) (\$MN)
- Table 2 Global Critical Mineral Extraction from Mixed Waste Market, By Waste Type (2023–2034) (\$MN)
- Table 3 Global Critical Mineral Extraction from Mixed Waste Market, By Electronic Waste (E-Waste) (2023–2034) (\$MN)
- Table 4 Global Critical Mineral Extraction from Mixed Waste Market, By Industrial Waste Streams (2023–2034) (\$MN)
- Table 5 Global Critical Mineral Extraction from Mixed Waste Market, By Automotive & Battery Waste (2023–2034) (\$MN)
- Table 6 Global Critical Mineral Extraction from Mixed Waste Market, By Mining Tailings & Residues (2023–2034) (\$MN)
- Table 7 Global Critical Mineral Extraction from Mixed Waste Market, By Incineration Ash (2023–2034) (\$MN)
- Table 8 Global Critical Mineral Extraction from Mixed Waste Market, By Municipal Solid Waste (2023–2034) (\$MN)
- Table 9 Global Critical Mineral Extraction from Mixed Waste Market, By Other Waste Types (2023–2034) (\$MN)
- Table 10 Global Critical Mineral Extraction from Mixed Waste Market, By Technology (2023–2034) (\$MN)
- Table 11 Global Critical Mineral Extraction from Mixed Waste Market, By Hydrometallurgical Processing (2023–2034) (\$MN)
- Table 12 Global Critical Mineral Extraction from Mixed Waste Market, By Pyrometallurgical Processing (2023–2034) (\$MN)
- Table 13 Global Critical Mineral Extraction from Mixed Waste Market, By Biometallurgical Processing (2023–2034) (\$MN)
- Table 14 Global Critical Mineral Extraction from Mixed Waste Market, By Solvent Extraction & Ion Exchange (2023–2034) (\$MN)
- Table 15 Global Critical Mineral Extraction from Mixed Waste Market, By Electrochemical Recovery (2023–2034) (\$MN)
- Table 16 Global Critical Mineral Extraction from Mixed Waste Market, By AI-Driven Sorting & Separation (2023–2034) (\$MN)
- Table 17 Global Critical Mineral Extraction from Mixed Waste Market, By Other Technologies (2023–2034) (\$MN)
- Table 18 Global Critical Mineral Extraction from Mixed Waste Market, By Material Type

(2023–2034) (\$MN)

Table 19 Global Critical Mineral Extraction from Mixed Waste Market, By Lithium (2023–2034) (\$MN)

Table 20 Global Critical Mineral Extraction from Mixed Waste Market, By Cobalt (2023–2034) (\$MN)

Table 21 Global Critical Mineral Extraction from Mixed Waste Market, By Nickel (2023–2034) (\$MN)

Table 22 Global Critical Mineral Extraction from Mixed Waste Market, By Rare Earth Elements (REEs) (2023–2034) (\$MN)

Table 23 Global Critical Mineral Extraction from Mixed Waste Market, By Copper (2023–2034) (\$MN)

Table 24 Global Critical Mineral Extraction from Mixed Waste Market, By Aluminum (2023–2034) (\$MN)

Table 25 Global Critical Mineral Extraction from Mixed Waste Market, By Other Material Types (2023–2034) (\$MN)

Table 26 Global Critical Mineral Extraction from Mixed Waste Market, By Application (2023–2034) (\$MN)

Table 27 Global Critical Mineral Extraction from Mixed Waste Market, By Battery Manufacturing (2023–2034) (\$MN)

Table 28 Global Critical Mineral Extraction from Mixed Waste Market, By Electronics Manufacturing (2023–2034) (\$MN)

Table 29 Global Critical Mineral Extraction from Mixed Waste Market, By Renewable Energy Systems (2023–2034) (\$MN)

Table 30 Global Critical Mineral Extraction from Mixed Waste Market, By Electric Vehicles (2023–2034) (\$MN)

Table 31 Global Critical Mineral Extraction from Mixed Waste Market, By Aerospace & Defense (2023–2034) (\$MN)

Table 32 Global Critical Mineral Extraction from Mixed Waste Market, By Industrial Applications (2023–2034) (\$MN)

Table 33 Global Critical Mineral Extraction from Mixed Waste Market, By Other Applications (2023–2034) (\$MN)

Table 34 Global Critical Mineral Extraction from Mixed Waste Market, By End User (2023–2034) (\$MN)

Table 35 Global Critical Mineral Extraction from Mixed Waste Market, By Mining & Metals Companies (2023–2034) (\$MN)

Table 36 Global Critical Mineral Extraction from Mixed Waste Market, By Recycling Companies (2023–2034) (\$MN)

Table 37 Global Critical Mineral Extraction from Mixed Waste Market, By Battery Manufacturers (2023–2034) (\$MN)

Table 38 Global Critical Mineral Extraction from Mixed Waste Market, By Electronics Manufacturers (2023–2034) (\$MN)

Table 39 Global Critical Mineral Extraction from Mixed Waste Market, By Automotive OEMs (2023–2034) (\$MN)

Table 40 Global Critical Mineral Extraction from Mixed Waste Market, By Energy & Utilities (2023–2034) (\$MN)

Table 41 Global Critical Mineral Extraction from Mixed Waste Market, By Other End Users (2023–2034) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) are also represented in the same manner as above.

I would like to order

Product name: Critical Mineral Extraction from Mixed Waste Market Forecasts to 2034 – Global Analysis By Waste Type (Electronic Waste (E-Waste), Industrial Waste Streams, Automotive & Battery Waste, Mining Tailings & Residues, Incineration Ash, Municipal Solid Waste, Other Waste Types), By Technology, By Material Type, By Application, By End User and By Geography

Product link: <https://marketpublishers.com/r/C7012CF2D155EN.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/C7012CF2D155EN.html>