

Europe Lithium-ion Battery Recycling Market, By Chemistry (Lithium-nickel Manganese Cobalt, Lithium-iron Phosphate, Lithium-manganese Oxide Spinal, Lithium-titanate Oxide, Lithium-nickel Cobalt Aluminium Oxide, and Lithium-cobalt Oxide), By End-user Industry (Automotive, Marine, Industrial, Power, and Others), By Region, Competition, Forecast & Opportunities, 2028

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Abstracts

Europe Lithium-ion Battery Recycling Market is anticipated to observe impressive growth during the forecast period 2024-2028. Li-ion batteries are an evolving technology that is growing at a rampant pace. Small lithium-ion batteries are widely used in portable electronic devices, while large ones are mostly used in electric vehicles. The two metrics that are of utmost importance are state of charge (SoC) and state of health (SoH), which ensure high reliability and prolonged shelf life of batteries. As per the European Commission, due to economies of scale and production experience, lithium-ion battery prices in the region can be reduced by 50% through mass production by the year 2030 and by another 50% after that. So, a lithium-ion battery that costs 200 euros per kWh today might eventually cost 50 euros per kWh. The selection of electrode material is consequential as conventional electrode material has a low energy/power density and a limited life cycle. Metal-Organic Frameworks (MOFs) for batteries are promising materials because of their distinct properties, nonspecific surfaces, well-developed porosity, and high storage capacity.

However, as per the IVL Swedish Environmental Research Institute, the EU only produces 1% of all battery raw materials to cover the needs of the mobility and energy

storage sectors, but access to 7–18 times more lithium and 2–5 times more cobalt by 2030 is needed. Infrastructure investments are being undertaken in the area to recover indigenous materials, but the demand still outstrips the supply that is anticipated.

Moreover, due to their high energy per unit mass in comparison to other electrical energy storage methods, lithium-ion batteries are currently employed in most electric cars. They also have excellent high-temperature performance, a high power-to-weight ratio, great energy efficiency, and minimal self-discharge. As per the International Council on Clean Transportation (ICCT), seven of the top ten national markets in terms of yearly EV sales in 2021 were in Europe, including Germany, the United Kingdom, France, Norway, Italy, Sweden, and the Netherlands. In addition, global EV sales reached a record high of 6.9 million in 2021, a 107% increase from 2020. All these factors are helping the overall market to grow in the forecast period.

Increasing Demand from The Automotive Sector

Lithium-based batteries, which offer high energy, high power, and an extended lifespan compared to other presently offered battery systems, are anticipated to be the dominant battery technology for EVs. When describing the need for local lithium-ion battery manufacture, EVs are the main market focus and a key driver of the need for lithium-ion batteries. According to the European Commission, the extrapolated demand for Li-ion cells for battery-electric powered passenger cars and light commercial vehicles (BEV and PHEV) in the EU in 2030 is expected to be between 360 and 750 GWh/a, which is roughly 10 to 15 times the EU production volume in 2020. The international community has determined that GHG emissions must be drastically and quickly decreased to combat climate change and establish a fossil fuel-free economy. As a result, Li-ion batteries are viewed as viable, clean technology to take the place of current fossil-fuel-driven equipment. Li-ion batteries now have the highest energy densities of any battery technology when compared to other high-quality rechargeable battery technologies. Hence, demand from the Automotive sector is propelling the Lithium-ion Battery Recycling Market.

New Policy Regulations

The European regulations advocate for high material recovery and the use of recovered materials in the manufacture of new batteries. With the proposed EU Battery Regulation, legislation will support the ongoing effort to recover the most important battery industry raw materials through recycling, including nickel,

lithium, and cobalt, while also addressing the CO2 footprint of batteries. Moreover, the EU's also proposed battery passport and labeling rules for batteries, which promote the sustainability of batteries through reporting and traceability.

Recent Developments

Recently, The European Commission recently published a proposal for a new battery regulation with three goals:

- 1) strengthening the internal market's functionality (including products, processes, waste batteries, and recyclates) by ensuring a level playing field through a shared set of rules
- 2) fostering a circular economy; and
- 3) minimizing environmental and social impacts throughout the entirety of the battery life cycle.

The EU Ecodesign Directive created a framework for imposing eco-design standards on energy-related items as well as uniform EU-wide guidelines for enhancing the environmental performance of goods. It is pertinent to recycling batteries since it will have an impact on future battery design and manufacture, which will affect recycling procedures like collection and disassembly as well as anticipated end-of-life dates, putting the focus on things like phase extension.

Furthermore, the RoHS Directive places restrictions on the use of 10 chemicals in electrical and electronic equipment, including batteries specifically. For instance, 1,3-propane sultone or 1,2-oxathiolane and 2,2-dioxide (C₃H₆O₃S), which is an electrolyte fluid in lithium-ion batteries, are carcinogenic.

Market Segmentation

Europe Lithium-ion Battery Recycling Market is segmented into Chemistry and End-User Industries. Based on Chemistry, the market is divided into Lithium-nickel Manganese Cobalt, Lithium-iron Phosphate, Lithium-manganese Oxide Spinal, Lithium-titanate Oxide, Lithium-nickel Cobalt Aluminium Oxide, and Lithium-cobalt Oxide. Based on End-User Industry, the market is divided into Automotive, Marine, Industrial, Power,

and Others.

Market Players

Umicore SA, Euro Dieuze Industrie (Veolia), S.N.A.M. (Société Nouvelle d'Affinage des Métaux), Accurec Recycling GmbH, Duesenfeld GmbH, Redux GmbH, Royal Bees Recycling Sp. z o.o., SungEel HiTech Hungary kft, Volkswagenwerk GmbH, and AkkuSer Oy are some of the leading companies operating in the market.

Report Scope:

In this report, Europe Lithium-ion Battery Recycling market has been segmented into the following categories, in addition to the industry trends, which have also been detailed below:

Europe Lithium-ion Battery Recycling Market, By Chemistry:

Lithium-nickel Manganese Cobalt

Lithium-iron Phosphate

Lithium-manganese Oxide Spinal

Lithium-titanate Oxide

Lithium-nickel Cobalt Aluminium Oxide

Lithium-cobalt Oxide

Europe Lithium-ion Battery Recycling Market, By End-Use Industry:

Automotive

Marine

Industrial

Power

Others

Europe Bioplastics & Biopolymers Market, By Region:

France

Germany

United Kingdom

Italy

Spain

Finland

Switzerland

Netherlands

Denmark

Poland

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present Europe Lithium-ion Battery Recycling market

Available Customizations:

With the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

Europe Lithium-ion Battery Recycling Market, By Chemistry (Lithium-nickel Manganese Cobalt, Lithium-iron Phosp...

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