

# **Lithium-ion Battery Market Report by Product Type (Lithium Cobalt Oxide, Lithium Iron Phosphate, Lithium Nickel Manganese Cobalt, Lithium Manganese Oxide, and Others), Power Capacity (0 to 3000mAh, 3000mAh to 10000mAh, 10000mAh to 60000mAh, more than 60000mAh), Application (Consumer Electronics, Electric Vehicles, Energy Storage, and Others), and Region 2024-2032**

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## **Abstracts**

The global lithium-ion battery market size reached US\$ 51.0 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$ 139.6 Billion by 2032, exhibiting a growth rate (CAGR) of 11.5% during 2024-2032. The growing demand for lightweight and portable electronic devices, rising traction of electric vehicles (EVs) around the world, and increasing utilization of various renewable energy sources are some of the major factors propelling the market.

A lithium-ion battery is a form of rechargeable battery that employs lithium-ions as the primary carrier of electric charge. It consists of two electrodes (a positive electrode known as the cathode and a negative electrode called the anode) separated by an electrolyte, which allows the movement of lithium ions through the electrodes during charging and discharging. It provides high energy density, which allows these devices to be lightweight and have longer battery life as compared to other battery technologies. It also plays an important role in storing energy created from renewable sources like solar and wind power.

Presently, the increasing demand for li-ion batteries, as they are sustainable, cost-efficient, and lightweight, is impelling the growth of the market. Besides this, rising initiatives undertaken by governing agencies of various countries to promote sustainable transportation and prevent air pollution are contributing to the growth of the market. In addition, the growing demand for sustainable energy storage solutions in residential, commercial, and utility-scale installations is offering a favorable market outlook. Apart from this, the increasing utilization of various consumer electronics, including smartphones, tablets, laptops, and wearable devices, is strengthening the market growth. Additionally, rising research and development (R&D) activities in enhancing lithium-ion battery technologies are supporting the growth of the market. Moreover, the increasing modernization of electrical grids to improve efficiency and reliability and incorporate more renewable energy sources is bolstering the growth of the market.

#### Lithium-ion Battery Market Trends/Drivers:

##### Rising demand for lightweight and portable electronic devices

The advancement of wireless technologies and the availability of internet connectivity are fueling the demand for portable electronic devices. Moreover, as individuals want to stay connected wherever they go, whether for communication, accessing information, or entertainment purposes, the demand for portable devices is increasing. Apart from this, lightweight devices often benefit from advancements in battery technology, enabling longer battery life. They are integrated with lithium-ion batteries which offer extended battery life and eliminate the need for frequent charging. At present, there is an increase in the demand for lightweight and portable electronic devices as they are convenient and consume a lesser amount of space.

##### Increasing utilization of renewable energy sources

At present, the usage of renewable energy sources is increasing rapidly due to the growing global concern about climate change and the need to reduce greenhouse gas emissions. Renewable energy, such as wind, solar, hydel, and geothermal power, offers a clean and sustainable alternative to fossil fuels, thereby mitigating environmental impact. Additionally, the declining cost of renewable energy technologies are making them more economically viable and competitive with traditional energy sources. Governing agencies of various countries and international organizations are also implementing supportive policies, incentives, and targets to encourage the adoption of renewables. Moreover, advancements in energy storage technologies, such as lithium-ion batteries, are addressing the intermittent issue associated with renewables, making

them more reliable and accessible.

### Rising traction of electric vehicles (EVs)

The traction of electric vehicles (EVs) is rising due to the growing awareness about negative impacts of traditional gasoline-powered vehicles and a global push to reduce carbon emissions. EVs offer a clean and sustainable alternative, producing zero tailpipe emissions and significantly reducing greenhouse gas emissions. Moreover, lower operating costs, reduced dependence on fossil fuels, and the allure of cutting-edge technology are contributing to the increasing popularity of EVs. Additionally, advancements in battery technology, along with the integration of lithium-ion batteries, are leading to improvements in EV range and charging infrastructure, addressing concerns about limited driving distances and charging accessibility.

### Lithium-ion Battery Industry Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the global lithium-ion battery market report, along with forecasts at the global and regional levels from 2024-2032. Our report has categorized the market based on product type, power capacity, and application.

### Breakup by Product Type:

Lithium Cobalt Oxide

Lithium Iron Phosphate

Lithium Nickel Manganese Cobalt

Lithium Manganese Oxide

Others (Lithium Nickel Cobalt Aluminium Oxide and Lithium Titanate Oxide)

### Lithium cobalt oxide dominates the market

The report has provided a detailed breakup and analysis of the market based on the product type. This includes lithium cobalt oxide, lithium iron phosphate, lithium nickel manganese cobalt, lithium manganese oxide, and others (lithium nickel cobalt aluminum oxide and lithium titanate oxide). According to the report, lithium cobalt oxide represented the largest segment. Lithium cobalt oxide is a compound commonly used as a cathode material in lithium-ion batteries. It is one of the earliest and most widely used materials for cathodes due to its favorable electrochemical properties. It is typically combined with a graphite anode and an electrolyte to form a lithium-ion battery. It has a layered crystal structure and belongs to the class of transition metal oxides. It exhibits

high energy density and voltage characteristics, making it suitable for applications that require high-performance batteries. The compound is known for its enhanced specific capacity, which refers to the amount of charge it can store per unit mass or volume.

#### Breakup by Power Capacity:

0 to 3000mAh

3000mAh to 10000mAh

10000mAh to 60000mAh

More than 60000mAh

3000mAh to 10000mAh holds the largest market share

A detailed breakup and analysis of the market based on the power capacity have also been provided in the report. This includes 0 to 3000mAh, 3000mAh to 10000mAh, 10000mAh to 60000mAh, and more than 60000mAh. According to the report, 3000mAh to 10000mAh accounted for the largest market share. Lithium-ion batteries with power capacities between 3000mAh to 10000mAh find applications in various electronic devices that require a moderate to high energy storage capacity. Modern smartphones and tablets are equipped with lithium-ion batteries within this power range, as it can provide longer usage times and reducing the need for frequent recharging. Portable computers, such as laptops and ultrabooks often employ lithium-ion batteries in the 3000mAh to 10000mAh range, as these batteries offer sufficient power to support extended usage periods without the need for a constant power source.

#### Breakup by Application:

Consumer Electronics

Electric Vehicles

Energy Storage

Others

Consumer electronics hold the biggest share of the market

A detailed breakup and analysis of the market based on the application have also been provided in the report. This includes consumer electronics, electric vehicles, energy storage, and others. According to the report, consumer electronics accounted for the largest market share.

Consumer electronics are intended for personal use by individuals in their everyday lives. They are manufactured to improve communication, entertainment, productivity, and convenience. They comprise a wide variety of gadgets, including smartphones, laptops, tablets, wearable devices, digital cameras, camcorders, and portable power banks.

Electric vehicles (EVs) are automobiles that are powered by one or more electric motors, using electricity stored in batteries as their primary source of energy. They are eco-friendly and sustainable as they use electricity to propel the vehicle and power its various systems, unlike traditional internal combustion engine vehicles that rely on gasoline or diesel fuel.

Breakup by Region:

Asia Pacific

North America

Europe

Middle East and Africa

Latin America

Asia Pacific exhibits a clear dominance, accounting for the largest lithium-ion battery market share

The report has also provided a comprehensive analysis of all the major regional markets, which include Asia Pacific, North America, Europe, the Middle East and Africa, and Latin America.

Asia Pacific held the biggest market share since the region is experiencing a rise in the traction of electric vehicles (EVs). Besides this, the increasing adoption of renewable energy sources to reduce carbon footprint is propelling the growth of the market. Apart from this, the rising utilization of tablets and smartphones to communicate with other individuals and access the internet is catalyzing the demand for lithium-ion batteries in the region.

North America is estimated to expand further in this domain during the forecast period due to the increasing employment of robots and efficient machinery in industries to improve operational efficiency and boost production capacities. Apart from this, the rising environmental awareness among the masses is supporting the growth of the market.

### Competitive Landscape:

Key market players are investing in research activities for increasing energy density and performance and improving safety features of batteries. They are also reducing costs by exploring new materials, electrode designs, electrolyte formulations, and manufacturing processes. Top companies are expanding their production capacities by constructing new battery manufacturing facilities, optimizing existing production lines, and forming strategic partnerships to secure a stable supply chain for raw materials. They are also vertically integrating their operations by acquiring or investing in other parts of the battery value chain.

Leading companies are engaging in collaborations and partnerships to leverage complementary expertise and resources. They are also focusing on partnerships with automotive companies, energy storage system providers, and research institutions to develop advanced battery technologies and explore new applications for lithium-ion batteries.

The report has provided a comprehensive analysis of the competitive landscape in the market. Detailed profiles of all major companies have also been provided. Some of the key players in the market include:

A123 Systems LLC  
AESC SDI CO.,LTD.  
LG Chem Ltd.  
Panasonic Corporation  
SAMSUNG SDI CO.,LTD.  
Toshiba Corporation  
Amperex Technology Limited  
BAK Group  
Blue Energy Limited  
BYD Company Ltd.  
CBAK Energy Technology, Inc.  
Tianjin Lishen Battery Joint-Stock CO.,LTD.  
Valence Technology, Inc.  
SK innovation Co., Ltd  
Hitachi, Ltd

### Recent Developments:

In May 2023, Panasonic Corporation announced the development of the high-thermal conductive film R-2400 for multilayer circuit boards that mitigates the effects of heat

generated by power semiconductors.

In June 2023, SAMSUNG SDI CO., LTD. announced that the company has become the first lithium-ion battery maker to receive the carbon footprint labels from Carbon Trust.

In 2022, AESC SDI CO., LTD. announced its new multi-year partnership with BMW Group to supply latest innovation battery cells for the global brand's next generation electric vehicles.

### Key Questions Answered in This Report

1. How big is the lithium-ion battery market?
2. Is the market for lithium-ion batteries growing?
3. Why is lithium-ion battery demand so high?
4. What has been the impact of COVID-19 on the global lithium-ion battery market?
5. What are the key factors driving the global lithium-ion battery market?
6. What is the breakup of the global lithium-ion battery market based on the product type?
7. What is the breakup of the global lithium-ion battery market based on the power capacity?
8. What is the breakup of the global lithium-ion battery market based on the application?
9. Who is the largest producer of lithium-ion batteries?

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