

# **Rechargeable Battery Market Report by Battery Type (Lead-Acid Batteries, Li-ion Batteries, NiMH Batteries, NiCd Batteries, and Others), Capacity (150 - 1000 mAh, 1300 - 2700 mAh, 3000 - 4000 mAh, 4000 - 6000 mAh, 6000 - 10000 mAh, More than 10000 mAh), Application (Consumer Electronics, Industrial Applications, Automobile Applications, Defence, and Others), and Region 2024-2032**

<https://marketpublishers.com/r/R5885DFA1AE1EN.html>

Date: January 2024

Pages: 145

Price: US\$ 3,899.00 (Single User License)

ID: R5885DFA1AE1EN

## **Abstracts**

The global rechargeable battery market size reached US\$ 117.3 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$ 205.2 Billion by 2032, exhibiting a growth rate (CAGR) of 6.2% during 2024-2032. The growing purchase of electric vehicles (EVs) as a sustainable alternative to fuel-dependent cars, rising popularity of solid-state batteries, and increasing digitalization and automation of various industrial operations to improve productivity are some of the major factors propelling the market.

A rechargeable battery, also known as a secondary battery, is an energy storage device that can be recharged and reused multiple times by reversing chemical reactions that occur during discharge. It is available in various chemistries, including lithium-ion, nickel-cadmium, nickel-metal hydride, and lead-acid. It helps to lower the environmental impact of disposable batteries, which can contain hazardous materials. It enables the efficient storage of energy from intermittent renewable sources, contributing to the transition to cleaner and more sustainable energy systems.

At present, the increasing demand for rechargeable batteries for backup power during

electrical outages to prevent data loss and maintain critical operations is impelling the growth of the market. Besides this, the rising purchase of various electronic devices, including laptops, smartphones, and tablets, to access the internet and communicate with other individuals is contributing to the growth of the market. In addition, the growing popularity of rechargeable batteries playing a pivotal role in energy storage systems (ESS), enabling the efficient harnessing and distribution of renewable energy by storing excess power during periods of surplus and releasing it when needed, is offering a favorable market outlook. Apart from this, increasing advancements in battery chemistry and design to enhance energy density, charging speed, and overall lifespan are supporting the growth of the market. Additionally, the rising digitalization and automation of various industrial operations to improve productivity are bolstering the growth of the market.

#### Rechargeable Battery Market Trends/Drivers:

##### Growing purchase of electric vehicles (EVs)

The growing purchase of electric vehicles (EVs) is currently exerting a positive influence on the growth of the rechargeable battery market. Besides this, the growing utilization of EVs is catalyzing the demand for advanced and high-capacity rechargeable batteries. As consumers increasingly opt for EVs due to their environmental benefits and cost-efficiency, manufacturers are compelled to produce more powerful and durable battery solutions to meet this burgeoning market demand. This continuous need for cutting-edge batteries in EVs ensures a steady and growing market for rechargeable batteries. Furthermore, ongoing innovations in battery technology are a direct result of the popularity of EVs. As automakers compete to offer longer driving ranges and faster charging times, they are actively investing in research activities to improve battery performance. These efforts are spurring advancements, such as lithium-ion (Li-ion) battery improvements, solid-state batteries, and enhanced energy density, which not only benefit the EV sector but also have applications in other industries, further bolstering the rechargeable battery market.

##### Increasing demand for wearable devices

At present, the increasing demand for Internet of Things (IoT) and wearable devices is propelling the growth of the market. Besides this, the proliferation of IoT devices in various industries, including healthcare, manufacturing, and transportation, necessitates reliable and long-lasting power sources. Rechargeable batteries, characterized by their ability to be repeatedly charged and discharged, appropriately align with the continuous operational requirements of IoT devices. As the adoption of IoT technology continues to

expand, the demand for rechargeable batteries remains on a steady upward trajectory. Moreover, the rising popularity of wearable devices, including smartwatches, fitness trackers, and augmented reality (AR) glasses, is contributing significantly to the burgeoning demand for rechargeable batteries. These devices rely heavily on compact, high-capacity batteries to power their diverse functionalities while ensuring portability and user convenience. As manufacturers strive to enhance the performance and longevity of wearables, rechargeable batteries are indispensable components, thus fueling the market growth.

### Rising popularity of solid-state batteries

Presently, the rising popularity of solid-state batteries is bolstering the demand for rechargeable batteries. Besides this, solid-state batteries represent a significant technological advancement in the field of energy storage. These batteries are characterized by their superior energy density, enhanced safety features, and prolonged lifespan compared to traditional lithium-ion (Li-ion) batteries. As a result, they are attracting heightened attention from various industries, including EVs, consumer electronics, and renewable energy systems. Furthermore, the renewable energy sector is witnessing a surge in the use of solid-state batteries in energy storage applications. Their ability to efficiently store and release energy from renewable components, including solar and wind power, is facilitating the transition to an eco-friendly and sustainable energy ecosystem.

### Rechargeable Battery Industry Segmentation:

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

### Breakup by Battery Type:

- Lead-Acid Batteries
- Li-ion Batteries
- NiMH Batteries
- NiCd Batteries
- Others

Li-ion batteries dominate the market

The report has provided a detailed breakup and analysis of the market based on the battery type. This includes lead-acid batteries, Li-ion batteries, NiMH batteries, NiCd batteries, and others. According to the report, Li-ion batteries represented the largest segment.

Lithium-ion (Li-ion) batteries refer to a type of rechargeable battery commonly used in a wide range of portable electronic devices and EVs. They are known for their high energy density, which enables them to store a significant amount of energy in a small and lightweight package. They operate on the principle of lithium ions moving between the positive and negative electrodes (anode and cathode) during charge and discharge cycles. They are commonly used in a wide range of portable electronic devices, including smartphones, laptops, tablets, digital cameras, and wearable devices. Their high energy density and lightweight nature make them ideal for powering these devices, providing long-lasting battery life in a compact form. Li-ion batteries play a crucial part in the EV industry. They provide the high energy storage capacity needed to power electric cars, buses, and bikes.

#### Breakup by Capacity:

150 - 1000 mAh

1300 - 2700 mAh

3000 - 4000 mAh

4000 - 6000 mAh

6000 - 10000 mAh

More than 10000 mAh

6000-10000 mAh holds the largest share in the market

A detailed breakup and analysis of the market based on the capacity has also been provided in the report. This includes 150-1000 mAh, 1300-2700 mAh, 3000-4000 mAh, 4000-6000 mAh, 6000-10000 mAh, and more than 10000 mAh. According to the report, 6000-10000 mAh accounted for the largest market share.

A rechargeable battery with a capacity ranging from 6000mAh to 10000mAh offers several benefits and can be used in a variety of applications. It provides extended usage between charges, making them suitable for devices that require consistent power for extended periods. It is comparatively more environmentally friendly than disposable batteries, as they reduce the number of batteries that end up in landfills. It is found in electric toothbrushes, providing convenience and long usage between charges. It can

also serve as an emergency power source to charge essential devices during power outages or when camping. Furthermore, it is used in digital cameras and camcorders to capture photos and videos over extended periods without needing frequent battery changes.

#### Breakup by Application:

- Consumer Electronics
- Industrial Applications
- Automobile Applications
- Defence
- Others

Automobile applications hold the biggest share in 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, industrial applications, automobile applications, defence, and others. According to the report, automobile applications accounted for the largest market share.

Rechargeable batteries are the primary energy storage technology used in electric vehicles (EVs). EVs rely on large lithium-ion battery packs to store and supply electrical energy to generate power in the electric motor of the vehicle. This helps reduce greenhouse gas emissions and dependence on fossil fuels, facilitating a cleaner and more sustainable transportation system. Rechargeable batteries are commonly used in start-stop systems in conventional internal combustion engine vehicles. These systems automatically shut off the engine when the vehicle is stopped at traffic lights and restart it when needed. Rechargeable batteries can power various auxiliary systems in vehicles, such as lights, air conditioning, and entertainment systems. This reduces the load on the main engine and can enhance fuel efficiency.

#### Breakup by Region:

- Asia Pacific
- North America
- Europe
- Middle East and Africa
- Latin America

Asia Pacific exhibits a clear dominance, accounting for the largest rechargeable battery market share

The market research 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. According to the report, Asia Pacific accounted for the largest market share.

Asia Pacific held the biggest market share due to the increasing purchase of various consumer electronics to communicate with distant people, track sleep cycles and heart rates, and carry out household chores. Besides this, the rising emphasis on renewable energy sources is contributing to the market growth. Apart from this, the increasing implementation of stricter emissions standards and promotion of green technologies by governing agencies of various countries is supporting the growth of the market.

North America is estimated to expand further in this domain due to the rising purchase of electric vehicles (EVs) as a sustainable option to fuel-dependent vehicles. Moreover, the increasing research operation to improve battery technology, increase battery capacity, enhance energy density, and extend battery life is bolstering the growth of the market.

#### Competitive Landscape:

Key market players are investing in research activities to improve the performance, energy density, and longevity of rechargeable batteries by working on next-generation battery chemistries like solid-state batteries, which promise higher energy density and safety. They are emphasizing sustainability by reducing the environmental impact of battery production by sourcing materials responsibly, recycling programs for used batteries, and exploring ways to reduce the carbon footprint of battery manufacturing. Top companies are expanding their production capacity for EV batteries, partnering with automakers, and developing batteries with longer ranges and faster charging times. They are also focusing on energy storage solutions for the grid, which includes large-scale battery installations that help stabilize renewable energy sources like wind and solar, ensuring a continuous power supply. Leading companies are optimizing manufacturing processes, scaling up production, and securing a stable supply chain for raw materials.

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:

East Penn Manufacturing  
EnerSys  
Exide Technologies  
Johnson Controls  
LG Chem  
Saft  
Samsung SDI  
Panasonic Corporation  
Apple Inc.  
STMicroelectronics N.V.  
Enfucell Oy  
Ultralife Corporation  
Cryopak  
Blue Spark Technology  
NEC Energy Solutions Inc.

#### Recent Developments:

In 2020, EnerSys collaborated with Blink Charging Co. to manufacture high-power wireless and enhanced DC fast charging (DCFC) systems along with integrated battery storage for the transportation market.

In 2021, Exide Technologies announced the extension of Excell car battery range with numerous new batteries with long life and durability at extreme temperatures.

In 2023, LG Chem announced the expansion of its Gumi plant by 2027 to mass produce single-crystal high-nickel cathodes, which play a crucial role in addressing the main challenges of next-generation batteries, primarily related to lifespan and capacity.

#### Key Questions Answered in This Report

1. What was the size of the global rechargeable battery market in 2023?
2. What is the expected growth rate of the global rechargeable battery market during 2024-2032?
3. What are the key factors driving the global rechargeable battery market?
4. What has been the impact of COVID-19 on the global rechargeable battery market?
5. What is the breakup of the global rechargeable battery market based on the battery type?
6. What is the breakup of the global rechargeable battery market based on the capacity?
7. What is the breakup of the global rechargeable battery market based on the application?

8. What are the key regions in the global rechargeable battery market?
9. Who are the key players/companies in the global rechargeable battery market?



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