+44 20 8123 2220
info@marketpublishers.com

Lithium-Ion Battery Separator Market Report by Material (Polypropylene (PP), Polyethylene (PE), Nylon, and Others), Thickness (16µm, 20µm, 25µm), End User (Industrial, Consumer Electronics, Automotive, and Others), and Region 2024-2032

https://marketpublishers.com/r/L735326BC0C8EN.html
Date: March 2024
Pages: 143
Price: US$ 3,899.00 (Single User License)
ID: L735326BC0C8EN

Abstracts

The global lithium-ion battery separator market size reached US$ 7.0 Billion in 2023. Looking forward, IMARC Group expects the market to reach US$ 14.6 Billion by 2032, exhibiting a growth rate (CAGR) of 8.35% during 2024-2032. The increasing encouragement for renewable energy sources, including solar and wind, the development of lithium-ion batteries with higher energy density, and the escalating shift towards decentralized energy systems are some of the major factors propelling the market.

A lithium-ion battery separator is an essential component situated between the anode and cathode within a lithium-ion battery. Its primary role is to keep the two electrodes apart to prevent internal short circuits while allowing the flow of ionic charge carriers. It is typically produced from polymer materials, including polyethylene or polypropylene. It is permeable, which permits the movement of lithium ions between the electrodes during the charging and discharging cycles. The characteristics of the separator, including its thickness, porosity, and thermal stability, can influence the battery's overall performance, safety, and lifespan. For instance, a separator that can shut down ion flow at high temperatures enhances safety by preventing thermal runaway, a dangerous overheating condition. Therefore, the lithium-ion battery separator is a crucial element in battery design, balancing the need for efficient ion transport and robust safety mechanisms.

The global push for renewable energy sources, including solar and wind, majorly drives

+44 20 8123 2220
info@marketpublishers.com

the market. Lithium-ion batteries are commonly used in these applications for their high energy density and long cycle life. As the adoption of renewable energy systems expands, the demand for reliable and efficient batteries grows. As electronic devices become increasingly compact, the need for small yet powerful batteries has grown. This trend is driving the development of lithium-ion batteries with higher energy density and, consequently, more advanced separators. Along with this, the healthcare sector has seen a growing dependence on battery-operated medical devices, such as pacemakers, portable ventilators, and infusion pumps. The critical nature of these devices necessitates reliable and safe batteries, which in turn creates a specialized market for high-quality lithium-ion battery separators. In addition, the rising global demand for energy, coupled with a shift towards decentralized energy systems, creates a robust market for energy storage solutions. Apart from this, financial backing from venture capitalists, government grants, and collaboration between research institutions and industry players are playing a pivotal role in driving growth.

Lithium-Ion Battery Separator Market Trends/Drivers:
Increasing Adoption of Electric Vehicles (EVs)

One of the most prominent market drivers for the lithium-ion battery separator industry is the accelerating global adoption of electric vehicles (EVs). As governments worldwide tighten emission regulations, the push towards electric mobility has never been stronger. Tax incentives, rebates, and infrastructure development, including charging stations, are making EVs more accessible to the average consumer. The success of electric vehicles largely hinges on the efficiency, safety, and durability of lithium-ion batteries. Battery separators are critical in ensuring that these parameters are met, acting as a safety layer and helping to prevent issues, such as internal short circuits and thermal runaway. As the number of EVs on the road increases, the demand for lithium-ion batteries, and consequently, high-quality separators, is growing. Manufacturers in the battery separator industry are ramping up production capabilities and investing in R&D to create separators that meet stringent automotive quality standards.

Rapid Advancements in Consumer Electronics

The consumer electronics market is another significant driver for the lithium-ion battery separator industry. Along with this, devices, such as smartphones, laptops, and smartwatches have become indispensable in today's digital age, and they all rely on lithium-ion batteries for power. As technology evolves, these gadgets demand higher energy densities and quicker charging capabilities, encouraging battery manufacturers to continually innovate. In confluence with this, battery separators play an essential role

+44 20 8123 2220
info@marketpublishers.com

in meeting these performance metrics by ensuring efficient ion flow and thermal stability. As consumers increasingly seek devices with longer battery life and faster charging times, the pressure is on manufacturers to produce superior separators that can meet these expectations.

Stringent Safety Regulations and Standards

Safety concerns associated with lithium-ion batteries, such as overheating and the risk of fire, have led to the establishment of stringent safety regulations and standards globally. In addition, the safety of a lithium-ion battery is significantly influenced by the quality of its separator. A well-designed separator can inhibit internal short circuits and offer thermal shutdown features, thereby mitigating risks. Moreover, regulatory bodies and standards organizations are increasingly focused on setting high safety standards for lithium-ion batteries used in various applications, from consumer electronics to electric vehicles and industrial equipment. This heightened focus on safety is compelling battery and separator manufacturers to invest in technology that meets or exceeds these standards, serving as another key driver for the lithium-ion battery separator industry.

Lithium-Ion Battery Separator Industry Segmentation:
IMARC Group provides an analysis of the key trends in each segment of the global lithium-ion battery separator market report, along with forecasts at the global, regional and country levels from 2024-2032. Our report has categorized the market based on material, thickness and end user.

Breakup by Material:
Polypropylene (PP)
Polyethylene (PE)
Nylon
Others

The report has provided a detailed breakup and analysis of the market based on the material. This includes polypropylene (PP), polyethylene (PE), nylon, and others.

The growing demand for polypropylene (PP) material in lithium-ion battery separators can be attributed to superior thermal stability. It is a preferred choice for applications that require enhanced safety features, such as electric vehicles and industrial-grade batteries. Its low electrical conductivity and high porosity allow for efficient ion flow, boosting the overall battery performance. In addition, the material is cost-effective and

+44 20 8123 2220
info@marketpublishers.com

easy to manufacture, making it attractive for mass production. Apart from this, the versatility of PP allows for innovations in separator design, accommodating different battery form factors and specifications. Furthermore, polypropylene is lightweight, which is an essential attribute for applications where weight reduction, such as in the automotive and aerospace sectors, is crucial.

On the contrary, polyethylene's excellent chemical resistance enhances the longevity and reliability of batteries, making it a preferred choice for consumer electronics and renewable energy storage systems. Its high mechanical strength and dimensional stability also contribute to better performance and safety, essential for large-scale industrial applications and electric vehicles. In addition, PE material is relatively lightweight and offers good thermal properties, aligning with the industry's push towards energy-efficient solutions. The material is also amenable to various manufacturing techniques, facilitating innovation in separator design. With these attributes, Polyethylene stands as a strong competitor in the market for lithium-ion battery separators, answering the call for durable, efficient, and safe energy storage solutions.

Breakup by Thickness:

16µm
20µm
25µm

A detailed breakup and analysis of the market based on the thickness has also been provided in the report. This include 16µm, 20µm, and 25µm.

The market for 16µm-thick lithium-ion battery separators is gaining traction, propelled by specific requirements in both safety and performance. This particular thickness strikes a balance between mechanical strength and ion permeability, making it a versatile choice for a range of applications from consumer electronics to electric vehicles. The 16µm thickness is sufficient to prevent internal short circuits, a critical safety feature, while still allowing for efficient ion flow for optimal battery performance. Moreover, this thickness level contributes to lighter and more compact batteries, an important factor in the miniaturization trend seen in consumer electronics and space-sensitive applications. In the electric vehicles, where weight and energy density are crucial parameters, a 16µm separator offers a compromise between safety and efficiency, thereby driving its market demand.

On the other hand, the demand for 20µm-thick lithium-ion battery separators is driven

+44 20 8123 2220
info@marketpublishers.com

by the increased thickness offering greater resistance to punctures and internal short circuits. It is a crucial safety feature especially important for industrial-grade batteries and electric vehicles. In larger battery systems, such as those used in grid storage and backup power solutions, the 20µm thickness serves to improve thermal stability and decrease the risk of thermal runaway. Although slightly heavier, the trade-off for enhanced safety and durability is often considered acceptable in applications where these factors are prioritized. As industries increasingly focus on safety and long-term reliability, the 20µm-thick separators are emerging as a preferred choice, thereby fueling market growth in this segment.

Breakup by End User:

Industrial
Consumer Electronics
Automotive
Others

Consumer electronics dominates the market

The report has provided a detailed breakup and analysis of the market based on the end user. This includes industrial, consumer electronics, automotive, and others. According to the report, consumer electronics represented the largest segment.

The consumer electronics segment stands as a significant market driver for the lithium-ion battery separator industry, shaped by rapid digitization. As technological devices, such as smartphones, laptops, tablets, and wearables become indispensable to modern life, there's an escalating need for batteries that are high-performance, safe, and reliable. This need has stimulated increased demand for high-quality battery separators, which play a pivotal role in enabling efficient ion flow between the anode and cathode while preventing the risk of internal short circuits. As consumers continue to demand devices with longer battery life and faster charging capabilities, manufacturers are tasked with developing separators that can meet these performance benchmarks without sacrificing safety. Moreover, the trend toward device miniaturization pushes the need for separators that can fit into smaller, thinner batteries while still maintaining high performance and safety standards. The consumer electronics industry's continual evolution and growth, coupled with increasingly stringent quality and safety requirements, are collectively driving advancements and market expansion for lithium-ion battery separators.

+44 20 8123 2220
info@marketpublishers.com

Breakup by Region:
North America
United States
Canada
Asia-Pacific
China
Japan
India
South Korea
Australia
Indonesia
Others
Europe
Germany
France
United Kingdom
Italy
Spain
Russia
Others
Latin America
Brazil
Mexico
Others
Middle East and Africa

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

The market research report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, Asia Pacific represented the largest share.

The Asia Pacific region is a significant market driver for the lithium-ion battery separator industry, propelled by rapid industrialization, rising consumer electronics markets, and significant investments in renewable energy. Countries, such as China, Japan, and

+44 20 8123 2220
info@marketpublishers.com

South Korea are leading manufacturers of consumer electronics and key players in the electric vehicle (EV) market. As these nations introduce stringent emissions regulations and promote EV adoption, the demand for high-quality lithium-ion batteries, and consequently, battery separators, is skyrocketing.

Besides this, the region is also making substantial investments in renewable energy projects, requiring efficient and safe energy storage solutions, which again places lithium-ion batteries in focus. Additionally, local governments and corporations are heavily investing in R&D, pushing innovation in battery technology, including separator advancements. Asia Pacific's unique blend of rising consumer demand, governmental policies favoring clean energy and electric mobility, and technological innovation creates a fertile ground for the growth of the lithium-ion battery separator market.

Competitive Landscape:
The global market is experiencing significant growth due to the rising demand, especially from electric vehicles and renewable energy sectors. Companies are expanding their production capacities. New plants are being built, and existing ones are being upgraded to meet the increased requirements. Along with this, the accelerating investments in R&D to create battery separators that are safer, more efficient, and cost-effective, including ceramic-coated and multi-layer separators are significantly supporting the market. In addition, the rising focus on meeting stringent safety and performance standards imposed by various industries and regulatory bodies is also positively influencing the market. With increasing environmental concerns, companies are working on making their products more sustainable, from the materials used to the manufacturing processes. Apart from this, brands are tailoring their products to meet the needs of different industries, from consumer electronics and automotive to industrial and medical applications. Furthermore, key players are also engaging in educational campaigns, webinars, and thought leadership articles to inform potential customers about the benefits of their advanced separator technologies.

The market 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:

Asahi Kasei Corporation
Beijing SOJO Electric Co. Ltd.
Cangzhou Mingzhu Plastic Co. Ltd.
ENTEK International LLC
Mitsubishi Paper Mills Limited (Oji Paper Co. Ltd.)

+44 20 8123 2220
info@marketpublishers.com

Shanghai Energy New Materials Technology Co. Ltd.
SK Innovation Co. Ltd.
Sumitomo Chemical Co. Ltd.
Teijin Limited
Toray Industries Inc.
UBE Corporation
W-SCOPE Corporation

Recent Developments:
In March 2021, Asahi Kasei Corporation expanded the capacity of its Mizayaki plant's Li-ion battery (LIB) separator manufacturing in response to rising demand for electric cars.
In March 2021, SK Innovation Co. Ltd. announced a one trillion won investment to construct more lithium-ion battery separator (LiBS) factories in Poland.
In February 2023, ENTEK International LLC stated that in addition to its previously mentioned 1.4 billion square meters per year project, which was chosen for a Department of Energy funding award, it will significantly increase manufacturing capacity. There are contracts in place with Br?ckner Group USA for 18 separator film production lines.

Key Questions Answered in This Report

1. What was the size of the global lithium-ion battery separator market in 2023?
2. What is the expected growth rate of the global lithium-ion battery separator market during 2024-2032?
3. What are the key factors driving the global lithium-ion battery separator market?
4. What has been the impact of COVID-19 on the global lithium-ion battery separator market?
5. What is the breakup of the global lithium-ion battery separator market based on the end user?
6. What are the key regions in the global lithium-ion battery separator market?
7. Who are the key players/companies in the global lithium-ion battery separator market?

+44 20 8123 2220
info@marketpublishers.com

Contents

+44 20 8123 2220
info@marketpublishers.com

7 MARKET BREAKUP BY THICKNESS

8 MARKET BREAKUP BY END USER

9 MARKET BREAKUP BY REGION

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

List Of Tables

LIST OF TABLES

+44 20 8123 2220
info@marketpublishers.com

List Of Figures

LIST OF FIGURES

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

I would like to order

Product name: Lithium-Ion Battery Separator Market Report by Material (Polypropylene (PP), Polyethylene (PE), Nylon, and Others), Thickness (16µm, 20µm, 25µm), End User (Industrial, Consumer Electronics, Automotive, and Others), and Region 2024-2032

Product link: https://marketpublishers.com/r/L735326BC0C8EN.html

Price: US$ 3,899.00 (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/L735326BC0C8EN.html

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

**All fields are required

Custumer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at https://marketpublishers.com/docs/terms.html

To place an order via fax simply print this form, fill in the information below

+44 20 8123 2220
info@marketpublishers.com

and fax the completed form to +44 20 7900 3970