

# **Thin Film Battery Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Battery Type (Disposable, Rechargeable), By Voltage (Below 1.5V, 1.5V to 3V, and Above 3V), By Application (Wearable Devices, Medical, Consumer Electronics, Smart Cards, and Others), By Region and Competition**

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## **Abstracts**

Global Thin film battery market is expected to grow at a robust pace in the forecast period 2024-2028 owing to these batteries having a long battery backup, making them suited for low-power devices along with rising demand in both developed and developing countries for Smartphones, iPad, and other electronic devices such as Internet of Things (IoT) gadgets, wearable electronics, and medical tracking software. Moreover, advantages associated with thin film batteries as compared to lithium-ion are the factors expected to drive the global thin film battery market during the forecast period.

Thin film batteries are solid state batteries, or batteries that combine both solid electrodes and a solid electrolyte. Thin film batteries, like other batteries, have an anode and a cathode as well as an electrolyte to act as a separator between the two electrodes.

There are various benefits that thin film batteries have over conventional rechargeable solid-state batteries. They may be utilized to make smaller electronic devices due to their size, which is the first and most evident benefit. In addition, thin film batteries frequently outperform bulkier solid-state batteries in terms of performance, average output voltage, weight, flexibility, energy density, electrolyte leakage risk, tighter

packing, and life cycles. These thin film batteries have an effective reversible lithium insertion mechanism between the electrodes, just like typical rechargeable batteries.

Commercially accessible thin film batteries have a wide range of uses, including renewable energy storage systems, smart cards, radio-frequency identification (RFID) tags, portable electronics, defibrillators, neurological stimulators, pacemakers, and wireless sensors.

Thin-film batteries distinguish themselves due to their high safety level. They are preferable to currently utilized liquid electrolyte cells, especially in terms of user proximity, because they only use solid-state components. Additionally, the possibility of stacking individual cells allows for optimal customization of the thin-film battery to each application scenario, and the inherent mechanical flexibility makes integration on a variety of surfaces possible. The thin-film battery's ability to be integrated in this situation is unrestricted. The user has complete freedom in choosing the cell's shape and geometry and it can be tailored to their preferences. These factors are expected to drive the growth of the global thin film battery market.

Thin film batteries have evolved in recent years in terms of their density, life span, and better safety. The major players are driven towards technical improvement by the increased demand for these batteries in electronic gadgets, medical devices, and smartwatches, allowing the batteries to become thinner or more flexible.

Moreover, the use of these batteries shall be accelerated by the expanding use of smart cards and e-cards in the government and transportation sectors to increase security. Smart cards increase the use of smart cards globally by providing personal identification, authentication, data storage, and application processing. Additionally, the market for thin film battery technology is being driven by the increasing use of smart cards in Europay, Mastercard, and Visa.

### Growing Demand of Electronics Components to Support the Global Thin Film Battery Market

The demand for electronics components has increased as a result of the expanding market of gadgets like mobile phones, medical equipment, and smartwatches. Around the world, numerous tiny electronic gadgets and systems are being developed. Because it is difficult to shrink the size of electronics devices using ordinary batteries, miniaturization is becoming more and more necessary. Additionally, the need for tiny

batteries has been caused by the diminishing form factors of implantable and wearable technologies.

### Increasing Adoption of Wireless Sensors Worldwide is boosting the Global Thin Film Battery Market

As Internet of things (IoT) devices and wireless sensor technology evolve, wireless sensors are being adopted more widely across the globe. These technologies are starting to become feasible alternatives for embedded systems' power sources, which would enable the use of wireless sensors. Batteries would have a chance to grow as energy harvesting-based wireless sensors become more widely used. The use of smart cards for authentication is another factor promoting expansion. Both the wearables business and the IoT movement would expand over the upcoming years. The IoT supports these end-user segments, which in turn helps the thin-film battery market grow. Flexible printed electronics and wearable technology are two of the application categories that are growing the fastest. Thin-film batteries are increasingly needed to power devices for prolonged periods of time as the number of IoT-connected devices grows. These gadgets need wireless communication that consumes very little power, is inexpensive, and are often very small in size. The aforementioned needs are effectively satisfied by thin-film batteries.

### Flexibility of Thin Film Batteries driving the Market Growth

Applications where flexibility and thinness are crucial are greatly facilitated by the high-density flexible battery's ability to be recharged. Consumer electronics and wearable technology are two well-known areas where flexible batteries are urgently needed. Therefore, successful integration of these important applications with flexible batteries is anticipated by both existing and developing businesses in order to increase performance. Moreover, flexible batteries would have chances as a result of the impending efforts to actually use rechargeable batteries for energy-intensive applications, which would lead to massive growth in the flexible battery market.

### High Cost of Raw Materials and Lack of Standardization is Expected to Hinder the Global Thin Film Battery Market

When compared to lithium-ion batteries, the cost of the raw materials used to make these batteries is higher. Due to their chemical properties and volatile prices, many raw materials also have substantial material handling expenses. Thin film batteries are not consistently manufactured by different manufacturers, which causes compatibility

problems when used with other devices. In addition, the cyclical nature of these commodities prices and their high material handling costs results in high final product costs. Moreover, the industry faces a significant obstacle in the shape of the high initial costs connected with the production and marketing of thin film batteries, despite the rising potential for product uptake. The fabrication of thin film batteries is quite expensive because it depends on rare earth metals like lithium. The high cost of lithium further raises the price of a thin film battery, making it unaffordable for many small- and medium-sized makers of consumer goods.

Additionally, based on the requirements of the manufacturers, the proprietary technologies utilized to produce printed flexible batteries vary from one manufacturer to another. Because these batteries are made specifically for specific electronic devices, using them with other devices will cause compatibility problems. As a result, the market for printed flexible batteries is constrained by the lack of standards that must be adhered to while developing batteries.

## Market Segmentation

The global thin film battery market is segmented based on battery type, voltage, application, and region. Based on battery type, the market is bifurcated into disposable and rechargeable. Based on voltage, the market is bifurcated into below 1.5v, 1.5v to 3v, and above 3v. Based on application, the market is bifurcated into wearable devices, medical, consumer electronics, smart cards, and others. Based on region, the market is further bifurcated into North America, Asia-Pacific, Europe, South America, and Middle East & Africa.

## Market players

The main market players in the global thin film battery market are Brightvolt Inc, Cymbet Corporation, Guangzhou Feng Jiang Battery New Technology Co. Ltd, Excellatron Inc, Jenax Inc, Kurt J. Lesker Company Ltd., Front Edge Technology Inc, Soleras Advanced Coatings BV, Molex LLC, and STMicroelectronics N.V.

## Report Scope:

In this report, global thin film battery market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

### Thin Film Battery Market, By Battery Type:

Disposable

Rechargeable

Thin Film Battery Market, By Voltage:

Below 1.5V,

1.5V to 3V,

Above 3V

Thin Film Battery Market, By Application:

Wearable Devices

Medical

Consumer Electronics

Smart Cards

Others

Thin Film Battery Market, By Region:

North America

United States

Canada

Mexico

Asia-Pacific

India

Japan

South Korea

Australia

China

Europe

Germany

United Kingdom

France

Italy

Spain

South America

Brazil

Argentina

Colombia

Middle East

Saudi Arabia

South Africa

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the global thin film battery market.

Available Customizations:

Global thin film battery market report with the given market data, Tech Sci 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 ten).

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