

Cathode Materials Market- Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028

Segmented By Battery Type (Lithium-Ion, Lead Acid, Others), By Material (Lithium Cobalt Oxide (LCO), Lithium Iron Phosphate (LFP), Lithium Manganese Oxide (LMO), Lead Dioxide, Others), By End User (Automotive, Consumer Electronics, Power Tools, Others), By Region, and Competition

<https://marketpublishers.com/r/CC0F4FB3CAE8EN.html>

Date: July 2023

Pages: 116

Price: US\$ 4,900.00 (Single User License)

ID: CC0F4FB3CAE8EN

Abstracts

Global Cathode Materials Market is anticipated to expand significantly through 2028 due to the growing demand from the automotive industry. In 2021, the total volume of automobile industry sales in China was around 26.2 million units.

Global Cathode Materials Market is expected to expand during the projected period due to rising demand from various end-user, including automotive, consumer electronics, power tools, and others. In the manufacturing sector, cathode materials and metal enamels are both employed in the production of transformers, motors, and generators. The electrical sector uses a variety of components, including insulating materials, wire windings, and laminated cores that need cathode materials. The growth in their production facilities increases the demand for cathode materials. In addition, the focus on advanced technology to produce cathode material by using recycled batteries drives the growth of the market in the future.

In April 2022, Ascend Elements launched the Hydro-to-Cathode process technology, which helps to transform elements from recycled lithium-ion batteries to cathode materials.

Moreover, the demand for electric vehicles increases because of strict Greenhouse gas laws and policy to reduce CO₂ emission and reduce dependency on fossil fuels resulting in the use of cathode materials in battery, which further fuel the demand for Global Cathode Materials Market in the upcoming years.

Rising Demand from Automotive Industry

Due to the substantial use of cathode material in car batteries, the automotive industry is expected to overtake all other segments. Automakers have increased their investment in electric vehicles because of rising gasoline prices and falling Li-ion battery costs. The market for cathode materials is anticipated to grow due to the movement in the automobile sector toward the use of clean and sustainable fuel.

Increasing demand for Electric Vehicles (EVs), Plug-in hybrid electric vehicles (PHEVs), and Hybrid Electric Vehicles (HEVs) increases the demand for cathode materials. Along with this, the preference shift from fossil fuel energy sources to battery energy sources owing to CO₂ emission limits results in reducing greenhouse gas effects, resulting in increasing the usage of the cathode material. Cathode materials are used in Li-ion batteries in electric vehicles to generate electricity through chemical reactions. In addition, the government provides benefits to the users of electric vehicles. According to the U.S. Department of Energy, electric and plug-in hybrid vehicles qualify for USD 2,500 to USD 7,500 federal tax credit.

For instance, according to the Global EV Outlook 2022, consumers spent USD 250 billion on electric vehicle purchases in 2021, a 65% increase over 2020.

Furthermore, Global sales of electric cars have kept rising strongly in 2022, with 2 million sold in the first quarter, up 75% from the same period in 2021.

Therefore, all these factors dominate the demand for Cathode Materials in the forecast period.

Growing Investment for Renewable Energy Storage

Various renewable sources of energy, like windmills, solar cells, and hydroelectric plants, use energy storage devices. Li-ion battery's cathode materials are important due to their properties, such as capacity and output. It means that they have tremendous capacity energy storage systems, and along with it, they are designed to

provide high power output for various applications. Advanced energy storage system usage is anticipated to rise due to the growing need for energy efficiency and the continuous switch from conventional to alternative energy sources. Demand for these systems is anticipated to rise due to more smart grid installations and a move toward renewable energy. The cathode materials market will be driven by the adoption of renewable energy battery storage technologies by various countries to combat prices and carbon emissions from fuel energy.

For instance, in 2019, Acciona SA, a Spanish company, installed a Windmill plant in Barasoain with a capacity of 3 Megawatts and used batteries to store energy.

Moreover, in 2022, Vistra Energy signed an agreement with Pacific Gas and Electric Company (PG&E) for a 350-megawatt battery energy storage system for 15 years.

Thus, increasing demand for renewable energy storage systems led to the growth of Global Cathode Materials Market in the upcoming years.

Lead Dioxide will be the Key Material Dominate the market growth.

An increase in the production of passenger cars, commercial vehicles, and three & two-wheelers and the rising demand for energy storage systems by various industries led to the demand for lead dioxide. Additionally, in many lead acid batteries, the positive side electrode is made of lead plates or grids, which have a covering layer of lead dioxide along with calcium lignosulfonate. Lead dioxide and lead are rarely discharged and have the lowest energy densities, which make them highly efficient material.

For instance, Penox group produces lead dioxide, which is used by many automotive and industrial battery companies.

In addition, Lithium Manganate (LiMn_2O_4), a Lithium Manganese Oxide (LMO) based material, has a spinel structure that helps to discharge at a high-rate application making it suitable for Lithium Manganese Oxide-based batteries. Lithium Manganese Oxide powder is a thermally stable and affordable cathode material, and its three-dimensional structure is useful in the development of lithium-ion batteries for hybrid electric vehicles. Moreover, desirable capacity, cheap cost, and high energy density are some of the advantages of Lithium Manganese Oxide, which have great demand for high-energy density and next-generation lithium-ion batteries.

For instance, in 2022, NEI Corporation expanded the selection of materials for both

lithium-ion and sodium-ion batteries.

Therefore, increasing demand for these materials from various industries results in the growth of Global Cathode Materials Market in the projected period.

Moreover, long-term possibilities for producers of cathode materials are anticipated to be abundant due to ongoing research and development aimed at enhancing the effectiveness of cathode materials for energy storage systems, such as lithium, sodium, and nickel. In addition, the production of lithium-air and lithium-sulfur cathode materials, as well as the use of nanotechnology in lithium-ion batteries and the advancement of technological knowledge in the field of lithium-ion battery cathode materials creates opportunities for growth of the Global Cathode Materials Market. Furthermore, many government agencies started spending on the research and development sector to promote technological advancement for an eco-friendly approach which helps to reduce the SO_x, CO_x, and NO_x concentration in the environment.

For instance, according to the Ministry of Science & Technology, India, in 2021, the International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), India, has developed indigenous technology to produce Lithium Iron Phosphate (LFP) cathode material for Li-ion Batteries (LiBs).

However, safety issues regarding the transportation and storage of batteries, along with less use of technology regarding the recycling of batteries, can slowdown the market growth.

Recent Developments

In November 2022, POSCO Chemical constructed the world's largest cathode production plant in Gwangyang, South Korea.

BASF and TODA extended their agreement to enhance their capacity for high nickel cathode active materials in July 2022.

In November 2021, Johnson Matthey announced the commercialization of its high nickel cathode material ranging for the automotive industry.

For the extraction of lithium, nickel, cobalt, and manganese BASF started a battery recycling plant in Schwarzheide, Germany, in July 2021.

Market Segmentation

Global Cathode Materials Market is segmented based on battery type, material, end-user, and region. Based on battery type, the market is categorized into lithium-ion, lead acid, and others. Based on material, the market is segmented into lithium cobalt oxide (LCO), lithium iron phosphate (LFP), lithium manganese oxide (LMO), lead dioxide, and others. Based on end-user, the market is fragmented into automotive, consumer electronics, power tools, and others. Based on region, the market is divided into North America, Europe, Asia Pacific, South America, and Middle East & Africa.

Market Players

BASF SE, Targray Technology International Inc., L&F Co., Ltd., Johnson Matthey Plc, Sumitomo Metal Mining Co., Ltd., Umicore SA, LG Chem, Ltd., EcoPro BM, Nichia Corporation, Toda Kogyo Corp. are some of the key players of Global Cathode Materials Market.

Report Scope:

In this report, Global Cathode Materials market has been segmented into the following categories, in addition to the industry trends, which have also been detailed below:

Cathode Materials Market, By Battery Type:

Lithium-Ion

Lead Acid

Others

Cathode Materials Market, By Material:

Lithium Cobalt Oxide (LCO)

Lithium Iron Phosphate (LFP)

Lithium Manganese Oxide (LMO)

Lead Dioxide

Others

Cathode Materials Market, By End User:

Automotive

Consumer Electronics

Power Tools

Others

Cathode Materials Market, By Region:

North America

United States

Mexico

Canada

Europe

France

Germany

United Kingdom

Spain

Italy

Asia-Pacific

China

India

South Korea

Japan

Australia

South America

Brazil

Argentina

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive landscape

Company Profiles: Detailed analysis of the major companies present in the Global Cathode Materials 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).

Contents

1. PRODUCT OVERVIEW

- 1.1. Market Definition
- 1.2. Scope of the Market
 - 1.2.1. Markets Covered
 - 1.2.2. Years Considered for Study
 - 1.2.3. Key Market Segmentations

2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

3. EXECUTIVE SUMMARY

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Market Players
- 3.4. Overview of Key Regions/Countries
- 3.5. Overview of Market Drivers, Challenges, Trends

4. VOICE OF CUSTOMER

5. GLOBAL CATHODE MATERIALS MARKET OUTLOOK

- 5.1. Market Size & Forecast
 - 5.1.1. By Value & Volume
- 5.2. Market Share & Forecast
 - 5.2.1. By Battery Type (Lithium-Ion, Lead Acid, Others)
 - 5.2.2. By Material (Lithium Cobalt Oxide (LCO), Lithium Iron Phosphate (LFP), Lithium Manganese Oxide (LMO), Lead Dioxide, Others)
 - 5.2.3. By End User (Automotive, Consumer Electronics, Power Tools, Others)

5.2.4. By Region (North America, Europe, Asia Pacific, South America, Middle East & Africa)

5.2.5. By Company (2022)

5.3. Market Map

5.3.1. By Battery Type

5.3.2. By Material

5.3.3. By End User

5.3.4. By Region

6. NORTH AMERICA CATHODE MATERIALS MARKET OUTLOOK

6.1. Market Size & Forecast

6.1.1. By Value & Volume

6.2. Market Share & Forecast

6.2.1. By Battery Type

6.2.2. By Material

6.2.3. By End User

6.2.4. By Country

6.3. Pricing Analysis

6.4. North America: Country Analysis

6.4.1. United States Cathode Materials Market Outlook

6.4.1.1. Market Size & Forecast

6.4.1.1.1. By Value & Volume

6.4.1.2. Market Share & Forecast

6.4.1.2.1. By Battery Type

6.4.1.2.2. By Material

6.4.1.2.3. By End User

6.4.2. Mexico Cathode Materials Market Outlook

6.4.2.1. Market Size & Forecast

6.4.2.1.1. By Value & Volume

6.4.2.2. Market Share & Forecast

6.4.2.2.1. By Battery Type

6.4.2.2.2. By Material

6.4.2.2.3. By End User

6.4.3. Canada Cathode Materials Market Outlook

6.4.3.1. Market Size & Forecast

6.4.3.1.1. By Value & Volume

6.4.3.2. Market Share & Forecast

6.4.3.2.1. By Battery Type

- 6.4.3.2.2. By Material
- 6.4.3.2.3. By End User

7. EUROPE CATHODE MATERIALS MARKET OUTLOOK

- 7.1. Market Size & Forecast
 - 7.1.1. By Value & Volume
- 7.2. Market Share & Forecast
 - 7.2.1. By Battery Type
 - 7.2.2. By Material
 - 7.2.3. By End User
 - 7.2.4. By Country
- 7.3. Pricing Analysis
- 7.4. Europe: Country Analysis
 - 7.4.1. France Cathode Materials Market Outlook
 - 7.4.1.1. Market Size & Forecast
 - 7.4.1.1.1. By Value & Volume
 - 7.4.1.2. Market Share & Forecast
 - 7.4.1.2.1. By Battery Type
 - 7.4.1.2.2. By Material
 - 7.4.1.2.3. By End User
 - 7.4.2. Germany Cathode Materials Market Outlook
 - 7.4.2.1. Market Size & Forecast
 - 7.4.2.1.1. By Value & Volume
 - 7.4.2.2. Market Share & Forecast
 - 7.4.2.2.1. By Battery Type
 - 7.4.2.2.2. By Material
 - 7.4.2.2.3. By End User
 - 7.4.3. United Kingdom Cathode Materials Market Outlook
 - 7.4.3.1. Market Size & Forecast
 - 7.4.3.1.1. By Value & Volume
 - 7.4.3.2. Market Share & Forecast
 - 7.4.3.2.1. By Battery Type
 - 7.4.3.2.2. By Material
 - 7.4.3.2.3. By End User
 - 7.4.4. Spain Cathode Materials Market Outlook
 - 7.4.4.1. Market Size & Forecast
 - 7.4.4.1.1. By Value & Volume
 - 7.4.4.2. Market Share & Forecast

- 7.4.4.2.1. By Battery Type
- 7.4.4.2.2. By Material
- 7.4.4.2.3. By End User
- 7.4.5. Italy Cathode Materials Market Outlook
 - 7.4.5.1. Market Size & Forecast
 - 7.4.5.1.1. By Value & Volume
 - 7.4.5.2. Market Share & Forecast
 - 7.4.5.2.1. By Battery Type
 - 7.4.5.2.2. By Material
 - 7.4.5.2.3. By End User

8. ASIA-PACIFIC CATHODE MATERIALS MARKET OUTLOOK

- 8.1. Market Size & Forecast
 - 8.1.1. By Value & Volume
- 8.2. Market Share & Forecast
 - 8.2.1. By Battery Type
 - 8.2.2. By Material
 - 8.2.3. By End User
 - 8.2.4. By Country
- 8.3. Pricing Analysis
- 8.4. Asia-Pacific: Country Analysis
 - 8.4.1. China Cathode Materials Market Outlook
 - 8.4.1.1. Market Size & Forecast
 - 8.4.1.1.1. By Value & Volume
 - 8.4.1.2. Market Share & Forecast
 - 8.4.1.2.1. By Battery Type
 - 8.4.1.2.2. By Material
 - 8.4.1.2.3. By End User
 - 8.4.2. India Cathode Materials Market Outlook
 - 8.4.2.1. Market Size & Forecast
 - 8.4.2.1.1. By Value & Volume
 - 8.4.2.2. Market Share & Forecast
 - 8.4.2.2.1. By Battery Type
 - 8.4.2.2.2. By Material
 - 8.4.2.2.3. By End User
 - 8.4.3. South Korea Cathode Materials Market Outlook
 - 8.4.3.1. Market Size & Forecast
 - 8.4.3.1.1. By Value & Volume

- 8.4.3.2. Market Share & Forecast
 - 8.4.3.2.1. By Battery Type
 - 8.4.3.2.2. By Material
 - 8.4.3.2.3. By End User
- 8.4.4. Japan Cathode Materials Market Outlook
 - 8.4.4.1. Market Size & Forecast
 - 8.4.4.1.1. By Value & Volume
 - 8.4.4.2. Market Share & Forecast
 - 8.4.4.2.1. By Battery Type
 - 8.4.4.2.2. By Material
 - 8.4.4.2.3. By End User
- 8.4.5. Australia Cathode Materials Market Outlook
 - 8.4.5.1. Market Size & Forecast
 - 8.4.5.1.1. By Value & Volume
 - 8.4.5.2. Market Share & Forecast
 - 8.4.5.2.1. By Battery Type
 - 8.4.5.2.2. By Material
 - 8.4.5.2.3. By End User

9. SOUTH AMERICA CATHODE MATERIALS MARKET OUTLOOK

- 9.1. Market Size & Forecast
 - 9.1.1. By Value & Volume
- 9.2. Market Share & Forecast
 - 9.2.1. By Battery Type
 - 9.2.2. By Material
 - 9.2.3. By End User
 - 9.2.4. By Country
- 9.3. Pricing Analysis
- 9.4. South America: Country Analysis
 - 9.4.1. Brazil Cathode Materials Market Outlook
 - 9.4.1.1. Market Size & Forecast
 - 9.4.1.1.1. By Value & Volume
 - 9.4.1.2. Market Share & Forecast
 - 9.4.1.2.1. By Battery Type
 - 9.4.1.2.2. By Material
 - 9.4.1.2.3. By End User
 - 9.4.2. Argentina Cathode Materials Market Outlook
 - 9.4.2.1. Market Size & Forecast

- 9.4.2.1.1. By Value & Volume
- 9.4.2.2. Market Share & Forecast
 - 9.4.2.2.1. By Battery Type
 - 9.4.2.2.2. By Material
 - 9.4.2.2.3. By End User

10. MIDDLE EAST AND AFRICA CATHODE MATERIALS MARKET OUTLOOK

- 10.1. Market Size & Forecast
 - 10.1.1. By Value & Volume
- 10.2. Market Share & Forecast
 - 10.2.1. By Battery Type
 - 10.2.2. By Material
 - 10.2.3. By End User
 - 10.2.4. By Country
- 10.3. Pricing Analysis
- 10.4. MEA: Country Analysis
 - 10.4.1. South Africa Cathode Materials Market Outlook
 - 10.4.1.1. Market Size & Forecast
 - 10.4.1.1.1. By Value & Volume
 - 10.4.1.2. Market Share & Forecast
 - 10.4.1.2.1. By Battery Type
 - 10.4.1.2.2. By Material
 - 10.4.1.2.3. By End User
 - 10.4.2. Saudi Arabia Cathode Materials Market Outlook
 - 10.4.2.1. Market Size & Forecast
 - 10.4.2.1.1. By Value & Volume
 - 10.4.2.2. Market Share & Forecast
 - 10.4.2.2.1. By Battery Type
 - 10.4.2.2.2. By Material
 - 10.4.2.2.3. By End User
 - 10.4.3. UAE Cathode Materials Market Outlook
 - 10.4.3.1. Market Size & Forecast
 - 10.4.3.1.1. By Value & Volume
 - 10.4.3.2. Market Share & Forecast
 - 10.4.3.2.1. By Battery Type
 - 10.4.3.2.2. By Material
 - 10.4.3.2.3. By End User

11. MARKET DYNAMICS

11.1. Drivers

- 11.1.1. Rising demand for Consumer Electronics
- 11.1.2. Growing investment for renewable energy storage
- 11.1.3. Increasing demand from automotive industry

11.2. Challenges

- 11.2.1. Safety issues regarding transportation and storage of batteries
- 11.2.2. Little use of technology regarding the recycling of battery

12. MARKET TRENDS & DEVELOPMENTS

12.1. Product Launches

12.2. Merger's & Acquisitions

12.3. Technological Advancements

13. GLOBAL CATHODE MATERIALS MARKET: SWOT ANALYSIS

14. PORTER'S FIVE FORCES ANALYSIS

14.1. Competition in the Industry

14.2. Potential of New Entrants

14.3. Power of Suppliers

14.4. Power of Customers

14.5. Threat of Substitute Types

15. COMPETITIVE LANDSCAPE

15.1. Business Overview

15.2. Type Offerings

15.3. Recent Developments

15.4. Financials (In Case of Listed Companies)

15.5. Key Personnel

15.6. SWOT Analysis

15.6.1. BASF SE

15.6.2. Targray Technology International Inc.

15.6.3. L&F Co., Ltd.

15.6.4. Johnson Matthey Plc

15.6.5. Sumitomo Metal Mining Co., Ltd.

- 15.6.6. Umicore SA
- 15.6.7. LG Chem, Ltd.
- 15.6.8. EcoPro BM
- 15.6.9. Nichia Corporation
- 15.6.10. Toda Kogyo Corp.

16. STRATEGIC RECOMMENDATIONS

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