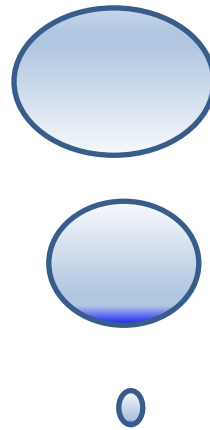




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**Lithium Ion Battery Cathodes:  
Market Shares, Strategies, and Forecasts, Worldwide, 2019 to 2024**

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WinterGreen Research, Inc.  
Lexington, Massachusetts

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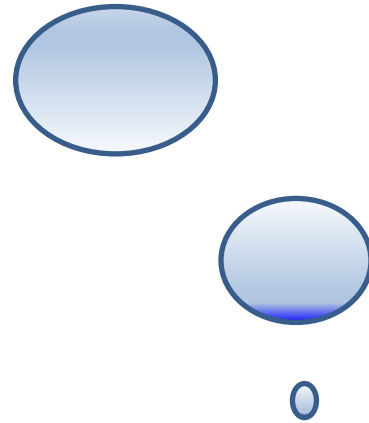
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**Lithium Ion Battery Cathodes: Attentiveness to Design, Distribution, and Innovation in Materials**

<b>Cathode</b> <b>Cobalt</b> Lithium Ion Battery EV Electric Vehicle Electric Vehicles Drones UAV	<b>UUV</b> Power Tools Smart Phone Equipment Consumer Electronics Manganese Nickel Cobalt Manganese (NMC) NMC 811	<b>NMC 632</b> Lithium Iron PhospNMC 632hate (LFP Manganese Nickel Cobalt Aluminium (NMA)
--	--	---

**Cathode Markets:**

**Lithium Ion Battery Cathodes: Market Shares, Strategies, and Forecasts, Worldwide, 2019-2024**

LEXINGTON, Massachusetts (January 18, 2019) – WinterGreen Research announces that it has published a new study **Lithium Ion Battery Cathode Markets: Market Shares, Strategy, and Forecasts, worldwide, 2019 to 2024**. The 2019 study has 250 pages, 119 tables and figures. Worldwide markets are poised to achieve continuing growth as the advantages brought by using new materials are used to decrease the cost of producing lithium ion batteries. The customization achieved by reducing the quantity of cobalt proportionally inside the cathode is a significant market growth driver.

**Lithium-ion Batteries at \$100/kWh Make EVs Cheaper Than Traditional Gas-Powered Vehicles.** As the new cathode technologies are applied to lithium ion batteries, the cost of lithium ion batteries will continue to decrease. Lithium-ion batteries aim to cost \$100/kWh, – a cost that makes EVs cheaper than traditional gas-powered vehicles. Companies are targeting between \$80/kWh and \$100/kWh. Realistically companies will likely approach \$100/kWh.

NMC lithium battery cathode materials are used for electric vehicles. As the cathode markets develop toward NMC, it is clear the LFP favored by Chinese manufacturers, not suitable for electric vehicles will lose market share. Current NMC ternary lithium-ion batteries from South Korean and Japanese makers typically employ a ratio of 60% nickel to 20% manganese, and 20% cobalt (6:2:2), but as that ratio moves to 8:1:1 in 2018 and beyond, the cathode is a key element in achieve vast cost efficiencies.

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**On the basis of product, the market is primarily split into**

**Cobalt**

**Manganese**

**Nickel Cobalt Manganese (NMC)**

**Lithium Iron Phosphate (LFP)**

**Worldwide Lithium Ion Battery cathodes have many applications. On the basis on the end users/application, this report covers**

**Electric Vehicles**

**Drones, UAV, UUV**

**Power Tools**

**Smart Phone Equipment**

**Consumer Electronics Products**

**Other**

**Worldwide Lithium Ion Battery cathode market at \$7 billion market in 2018, is expected to reach \$58.8 billion by 2024.**

**WinterGreen Research is an independent research organization funded by the sale of market research studies all over the world and by the implementation of ROI models that are used to calculate the total cost of ownership of equipment, services, and software. The company has 35 distributors worldwide, including Global Information Info Shop, Market Research.com, Research and Markets, electronics.ca, Research and Markets, and Report Linker.**

**WinterGreen Research is positioned to help customers facing challenges that define the modern enterprises. The increasingly global nature of science, technology and engineering is a reflection of the implementation of the globally integrated enterprise. Customers trust wintergreen research to work alongside them to ensure the success of the participation in a particular market segment.**

**WinterGreen Research supports various market segment programs; provides trusted technical services to the marketing departments. It carries out accurate market share and forecast analysis services for a range of commercial and government customers globally. These are all vital market research support solutions requiring trust and integrity.**

Key Words: Cathode, Cobalt, Lithium Ion Battery, EV, Electric Vehicle, Electric Vehicles, Drones, UAV, UUV, Power Tools, Smart Phone Equipment, Consumer Electronics , Manganese, Nickel Cobalt Manganese (NMC), NMC 811, NMC 632, Lithium Iron Phosphate (LFP Manganese, Nickel Cobalt Aluminum (NMA) , , ,

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## Companies Profiled

### Market Leaders

Sumitomo Metal Mining (SMM)  
Panasonic  
BASF  
Umicore  
NEI Corporation  
LG  
Argonne National Labs  
Easpring  
Mitsubishi Chemical  
Reshine  
Long Power Systems  
Targray  
Toda Kogyo  
Fujitsu  
Pulead  
JFE Chemical  
Samsung  
Hitachi Chemical

**Lithium Ion Battery Cathode Markets: Market Shares, Strategies,  
and Forecasts, Worldwide, 2019 to 2024**

**Report Methodology**

This is the 809th report in a series of primary market research reports that provide forecasts in communications, telecommunications, the Internet, computer, software, telephone equipment, health equipment, and energy. Automated process and significant growth potential are priorities in topic selection. The project leaders take direct responsibility for writing and preparing each report. They have significant experience preparing industry studies. Forecasts are based on primary research and proprietary data bases.

The primary research is conducted by talking to customers, distributors and companies. The survey data is not enough to make accurate assessment of market size, so WinterGreen Research looks at the value of shipments and the average price to achieve market assessments. Our track record in achieving accuracy is unsurpassed in the industry. We are known for being able to develop accurate market shares and projections. This is our specialty.

The analyst process is concentrated on getting good market numbers. This process involves looking at the markets from several different perspectives, including vendor shipments. The interview process is an essential aspect as well. We do have a lot of granular analysis of the different shipments by vendor in the study and addenda prepared after the study was published if that is appropriate.

Forecasts reflect analysis of the market trends in the segment and related segments. Unit and dollar shipments are analyzed through consideration of dollar volume of each market participant in the segment. Installed base analysis and unit analysis is based on interviews and an information search. Market share analysis includes conversations with key customers of products, industry segment leaders, marketing directors, distributors, leading market participants, opinion leaders, and companies seeking to develop measurable market share.

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Over 200 in depth interviews are conducted for each report with a broad range of key participants and industry leaders in the market segment. We establish accurate market forecasts based on economic and market conditions as a base. Use input/output ratios, flow charts, and other economic methods to quantify data. Use in-house analysts who meet stringent quality standards.

Interviewing key industry participants, experts and end-users is a central part of the study. Our research includes access to large proprietary databases. Literature search includes analysis of trade publications, government reports, and corporate literature.

Findings and conclusions of this report are based on information gathered from industry sources, including manufacturers, distributors, partners, opinion leaders, and users. Interview data was combined with information gathered through an extensive review of internet and printed sources such as trade publications, trade associations, company literature, and online databases. The projections contained in this report are checked from top down and bottom up analysis to be sure there is congruence from that perspective.

The base year for analysis and projection is 2017. With 2012 and several years prior to that baseline, market projections were developed for 2018 through 2024. These projections are based on a combination of a consensus among the opinion leader contacts interviewed combined with understanding of the key market drivers and their impact from a historical and analytical perspective.

The analytical methodologies used to generate the market estimates are based on penetration analyses, similar market analyses, and delta calculations to supplement independent and dependent variable analysis. All analyses are displaying selected descriptions of products and services.

This research includes reference to an ROI model that is part of a series that provides IT systems financial planners access to information that supports analysis of all the numbers that impact management of a product launch or large and complex data center. The methodology used in the models relates to having a sophisticated analytical technique for understanding the impact of workload on processor consumption and cost.

WinterGreen Research has looked at the metrics and independent research to develop assumptions that reflect the actual anticipated usage and cost of systems. Comparative analyses reflect the input of these values into models.

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The variables and assumptions provided in the market research study and the ROI models are based on extensive experience in providing research to large enterprise organizations and data centers. The ROI models have lists of servers from different manufacturers, Systems z models from IBM, and labor costs by category around the world. This information has been developed from WinterGreen research proprietary data bases constructed as a result of preparing market research studies that address the software, energy, healthcare, telecommunications, and hardware businesses.

## YOU MUST HAVE THIS STUDY

### Lithium Ion Battery Cathodes: Market Shares, Strategies, and Forecasts, Worldwide, 2019-2024

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The study is designed to give a comprehensive overview of the Cathode Markets market segment. Research represents a selection from the mountains of data available of the most relevant and cogent market materials, with selections made by the most senior analysts. Commentary on every aspect of the market from independent analysts creates an independent perspective in the evaluation of the market. In this manner the study presents a comprehensive overview of w

Abstract: Lithium Ion Battery Cathodes Undergo Rapid Change, Make Electric Vehicles Less Expensive Than Gas Powered Vehicles

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## **ABOUT THE COMPANY**

**WinterGreen Research**, research strategy relates to identifying market trends through reading and interviewing opinion leaders. By using analysis of published materials, interview material, private research, detailed research, social network materials, blogs, and electronic analytics, the market size, shares, and trends are identified. Analysis of the published materials and interviews permits WinterGreen Research senior analysts to learn a lot more about markets. Discovering, tracking, and thinking about market trends is a high priority at WinterGreen Research. As with all research, the value proposition for competitive analysis comes from intellectual input.

**WinterGreen Research**, founded in 1985, provides strategic market assessments in telecommunications, communications equipment, health care, Software, Internet, Energy Generation, Energy Storage, Renewable energy, and advanced computer technology.

Industry reports focus on opportunities that expand existing markets or develop major new markets. The reports access new product and service positioning strategies, new and evolving technologies, and technological impact on products, services, and markets. Innovation that drives markets is explored. Market shares are provided. Leading market participants are profiled, and their marketing strategies, acquisitions, and strategic alliances are discussed. The principals of WinterGreen Research have been involved in analysis and forecasting of international business opportunities in telecommunications and advanced computer technology markets for over 30 years.

The studies provide primary analytical insight about the market participants. By publishing material relevant to the positioning of each company, readers can look at the basis for analysis. By providing descriptions of each major participant in the market, the reader is not dependent on analyst assumptions, the information backing the assumptions is provided, permitting readers to examine the basis for the conclusions.

WinterGreen Research is positioned to help customers facing challenges that define the modern enterprises. The increasingly global nature of science, technology and engineering is a reflection of the implementation of the globally integrated enterprise. Customers trust wintergreen research to work alongside them to ensure the success of the participation in a particular market segment.

WinterGreen Research supports various market segment programs; provides trusted technical services to the marketing departments. It carries out accurate market share and forecast analysis services for a range of commercial and government customers globally. These are all vital market research support solutions requiring trust and integrity.

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### ABOUT THE PRINCIPAL AUTHOR

**Susan Eustis**, President, co-founder of WinterGreen Research is a senior analyst. She has done research in communications and computer markets and applications. She holds several patents in microcomputing and parallel processing. She has the original patents in electronic voting machines. She has new patent applications in format varying, multiprocessing, and electronic voting. She is the author of recent studies of the Solar Renewable Energy, Wind Energy, Thin Film Batteries, Business Process Management marketing strategies, Internet equipment, biometrics, a study of Internet Equipment, Worldwide Telecommunications Equipment, Top Ten Telecommunications, Digital Loop Carrier, Web Hosting, Web Services, and Application Integration markets.

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**About the WinterGreen Research Team:** The WinterGreen Research Team is comprised of senior analysts that prepare the market research and analysis that is offered to the client and developed using an iterative process to achieve a final study. Typical projects include providing market/viability research. The team can look at how drones can be applied to critical infrastructures safety, including: type of market existing, Barriers, Forecast demand and competitors, SWOT and competitive advantages, Price Analysis, product design recommendations (marketing orientation).

Research is typically for many different regions or localities, for example EU countries including Spain, UK, Nordic, Germany, and France. Typical projects profile the United States and areas of Asia. It is common to three representative countries from South America, Brazil, Argentina, Chile, and Mexico. Representative countries from Asia APAC typically include Japan, China, India, and Australia.

Critical infrastructure safety, including: type of market existing, barriers to entry and to faithful execution of product provision, forecast of demand, market share, SWOT, competitive advantage of major competitors, identification of new technologies and new companies, price performance analysis, product design recommendations, and marketing considerations are typical topics covered.

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