

## INDUSTRY OVERVIEW

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### SOURCES OF INFORMATION

We engaged Frost & Sullivan, an independent market research consultant, to conduct an analysis of, and to prepare a report on global and China’s battery chemicals, organic fluorochemicals, and electronic information chemicals industry for the use in this document, which was commissioned by us for a fee of RMB885,100. In compiling and preparing the F&S Report, Frost & Sullivan adopted the following assumptions: (i) the social, economic and political conditions globally currently discussed will remain stable during the forecast period, (ii) global and China’s government policies on battery chemicals, organic fluorochemicals, and electronic information chemicals will remain consistent during the forecast period, (iii) global and China’s battery chemicals, organic fluorochemicals, and electronic information chemicals industry will be driven by the factors which are stated in the report in the forecast period. Except as otherwise noted, all of the data and forecasts contained in this section are derived from the F&S Report. The Frost & Sullivan Report has been prepared by Frost & Sullivan independently without any influence from us or other interested parties. Our Directors and the Joint Sponsors confirm that they have exercised reasonable care in selecting and identifying the information sources in this section, compiling, extracting and reproducing such information, and have no reason to believe that any fact has been omitted that would render such information false or misleading in any material respect.

### ANALYSIS OF GLOBAL AND CHINA BATTERY CHEMICALS MARKET

#### Definition and Classification of Battery Chemicals Market

Battery chemicals include secondary lithium-ion battery electrolyte, supercapacitor electrolyte, primary lithium battery electrolyte, solvents, solutions and additives. Electrolyte plays the role of conducting lithium ions between the positive and negative electrodes in the battery, and provides guarantee for lithium-ion batteries to obtain relative advantages such as high voltage and high specific energy. The electrolyte is generally prepared in a certain proportion from high-purity solvents, solutes, additives and other raw materials.

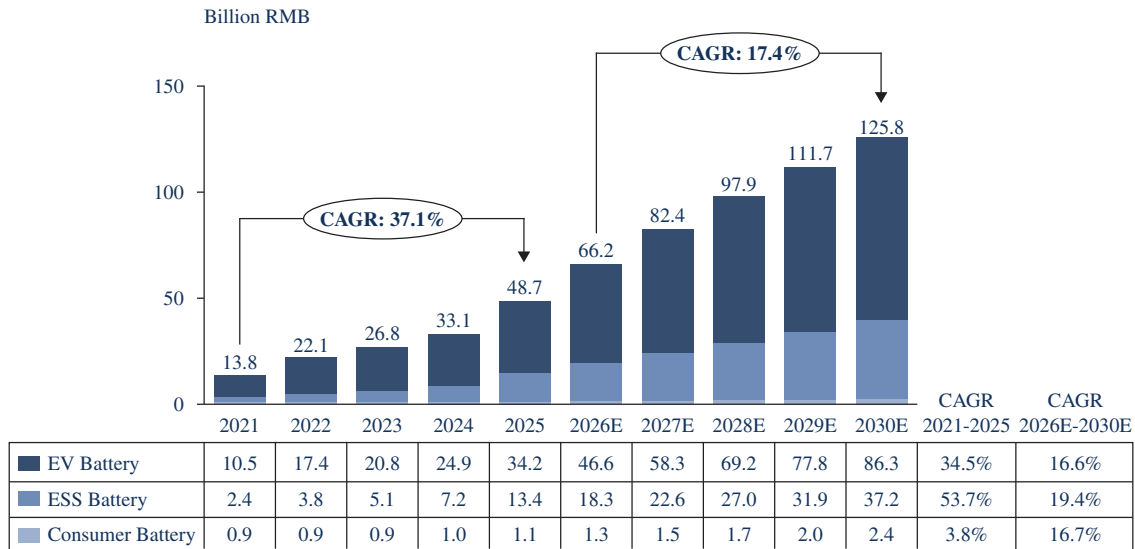
Among them, solute is the key material that determines the performance of the electrolyte; the solvent is the liquid that dissolves solid, liquid or gas solute, and constitutes the largest component of electrolyte in terms of weight; the additive improves key properties of the electrolyte, including stability, conductivity, and efficiency.

#### Market Size of Battery Electrolyte Market

Battery chemicals refer to electrolytes and their raw material components, including solvents, solutions and additives. The global battery chemicals market grew rapidly from RMB20.6 billion in 2021 to RMB69.6 billion in 2025, representing a CAGR of 35.6%, and is projected to reach RMB172.3 billion by 2030, with a CAGR of 16.4% from 2026 to 2030. The global battery electrolyte market revenue expanded significantly from RMB13.8 billion in 2021 to RMB48.7 billion in 2025, representing a CAGR of 37.1%. The market revenue is projected to further increase to RMB125.8 billion by 2030, with a CAGR of 17.4% from 2026 to 2030. Revenue growth has been driven by rising battery shipment volumes, product mix upgrading toward high-performance electrolytes, and increasing adoption of high-voltage and fast-charging battery technologies.

## INDUSTRY OVERVIEW

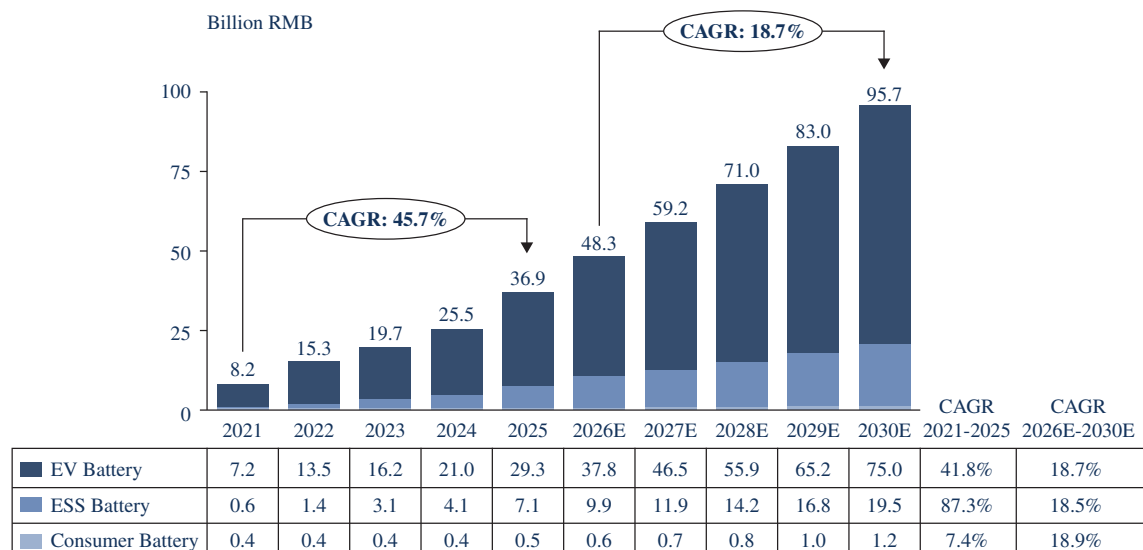
### Market Size of Battery Electrolyte Market (revenue breakdown by application), Global, 2021-2030E



Source: China Automotive Power Battery Innovation Alliance (CAPBIA), Frost & Sullivan

China's battery electrolyte market has expanded rapidly alongside the growth of the domestic battery industry. Market revenue increased from RMB8.2 billion in 2021 to RMB36.9 billion in 2025, reflecting a CAGR of 45.7% during the period driven mainly by the large-scale deployment of electric vehicles and energy storage systems. Looking ahead, the market is expected to maintain steady growth in the forecasting period, supported by continued battery capacity expansion, gradual penetration of higher-performance electrolyte products, and the application of new battery technologies. EV battery electrolyte remains the dominant segment, while energy storage electrolyte has shown a faster growth trend compared with consumer electronics applications.

### Market Size of Battery Electrolyte Market (revenue breakdown by application), China, 2021-2030E



Source: CAPBIA, Frost & Sullivan

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## INDUSTRY OVERVIEW

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### Market Drivers of Battery Chemicals Market

- **Rapid Expansion of Downstream Industries.** The rapid growth of downstream industries including electric vehicles, energy storage, and consumer electronics has steadily increased demand for battery electrolytes. For instance, global EV production volume rose from 3,085.0 thousand units in 2021 to 7,025.5 thousand units in 2025, representing a CAGR of 22.8%, and are expected to reach 17,144.9 thousand units by 2030, with a 20.2% CAGR from 2026 to 2030. Consumer electronics such as smartphones, tablets, laptops, wearables, and AR/VR devices, together with emerging applications including intelligent robots and drones, provide additional steady demand.
- **Technological Breakthroughs.** Technological innovation continues to drive the development of the LiFSI electrolyte industry. In addition to solute optimisation, advances in electrolyte additives are increasingly important in improving battery energy density and cycle life, as additives directly influence SEI formation, interfacial stability, and high-voltage tolerance. While  $\text{LiPF}_6$ , as a traditional and important solute, meets basic electrolyte requirements but faces limitations in thermal stability and energy density. LiFSI demonstrates advantages over  $\text{LiPF}_6$  in ionic conductivity, thermal stability, and hydrolytic stability and is expected to see broader application. At present, large-scale adoption of LiFSI is constrained by complex purification processes and higher production costs. With ongoing improvements in manufacturing and purification technologies of its raw material, metal alkoxide, the proportion of FSI-based components in electrolyte formulations may further increase in the forecasting period. Meanwhile, technological progress in solid-state electrolytes continues, representing a potential long-term direction for battery chemicals innovation.

### Development Trends of Battery Chemicals Market

- **Increasing Industry Concentration.** The market of global and China battery chemicals continues to concentrate as leading players develop rapidly with cost, production capacity, technological capabilities, and established brand advantages. Meanwhile, battery manufacturers tend to cooperate with large battery chemical manufacturers to ensure quality and stable supply. As a result, the gradual displacement of small and medium battery chemical manufacturers by leading players accelerates market concentration.
- **Accelerating Technological Development.** The proportion and variety of additives can largely affect the overall performance of the battery chemicals. With high voltage and high nickel content becoming the trend of lithium-ion batteries, the corresponding standards for battery chemicals rise, urging the manufacturers to emphasize R&D capability and intensity. Additionally, the manufacturers of battery chemicals and batteries are cooperating to develop new formulations, further improving efficiency and lowering the cost of the R&D process.

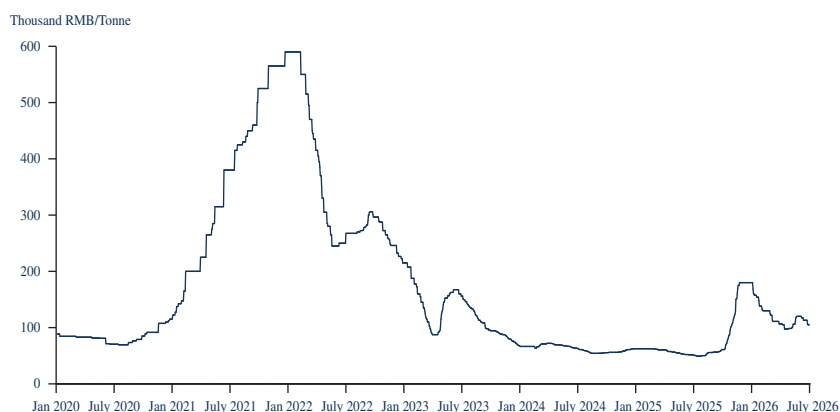
### Cost Analysis of Battery Chemicals Market

As the largest segment within battery chemicals, the price of lithium-ion battery electrolytes is influenced by fluctuations in upstream raw materials, including solutes, solvents, and additives, as well as changes in supply-demand dynamics across the battery industry.  $\text{LiPF}_6$ , as the solute in the electrolyte, accounts for approximately 40%-50% of the total electrolyte cost. It plays a critical role in determining the battery's energy density and cycle life, as its ionic dissociation characteristics, stability, and compatibility with solvents directly influence ion transport efficiency and the formation of a stable solid — electrolyte

## INDUSTRY OVERVIEW

interphase (SEI). China’s production capacity for  $\text{LiPF}_6$  is relatively concentrated among a limited number of domestic suppliers, while the industry’s import dependence has declined as domestic output expansion has strengthened overall supply self-sufficiency. In 2021, the price of  $\text{LiPF}_6$  surged sharply due to a combination of strong demand from rapidly growing lithium-ion battery production and upstream supply constraints, including limited availability of raw materials and pandemic-related disruptions. During 2022-2023, prices declined as rapid capacity expansion led to temporary oversupply, while downstream demand growth moderated. In October 2025, prices rebounded driven by renewed downstream demand, including the electric vehicle and energy storage sector. In the first half of 2026, the price of  $\text{LiPF}_6$  in China experienced an overall modest decline, mainly due to supply recovery alongside weak downstream procurement, as previously idled capacity restarted and new plants gradually put into use.

**Price of  $\text{LiPF}_6$ , China, 2020-2026H1**



Source: Frost & Sullivan

## ANALYSIS OF GLOBAL AND CHINA ORGANIC FLUORINE CHEMICALS MARKET

### Definition and Classification of Organic Fluorochemicals Market

The fluorine chemical industry is based on fluorine resources, with fluorspar as the primary source and hydrofluoric acid as the foundation of the entire industry chain. Its products are broadly classified into inorganic fluorochemicals and organic fluorochemicals. Organic fluorochemicals, which represent the higher value-added segment, can be further categorised into fluorinated fine chemicals and fluoropolymers. Benefiting from the unique performance of fluorine-containing compounds, organic fluorochemicals are widely applied in sectors such as AI and digital infrastructure, pharmaceuticals, clean energy and other related fields, and are among the fast-growing and technology-intensive segments within the chemical industry.

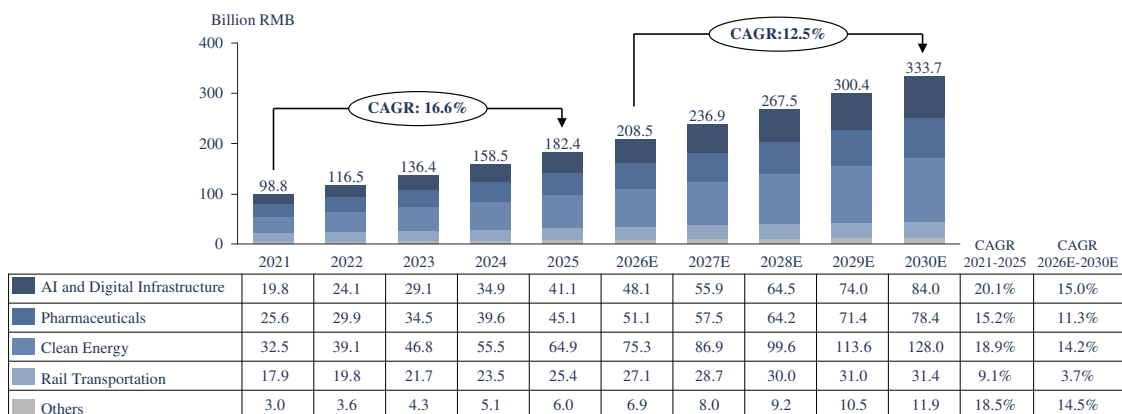
### Market Size of Organic Fluorochemicals Market

The growth of the organic fluorochemicals market is driven by expanding demand from downstream industries requiring high-performance materials, including AI and digital infrastructure, pharmaceuticals, clean energy, rail transportation, and other application fields. The unique properties of organic fluorochemicals, such as chemical stability, heat resistance, corrosion resistance and dielectric performance, support their increasing adoption in advanced applications. The global organic fluorochemicals market revenue expanded significantly from RMB98.8 billion in 2021 to RMB182.4 billion in 2025, representing a CAGR of 16.6%. The market revenue is projected to further increase to RMB333.7 billion by 2030, with a CAGR of 12.5% from 2026 to 2030. The global market size of HFPO and its downstream products grew

## INDUSTRY OVERVIEW

from RMB2.0 billion in 2021 to RMB6.1 billion in 2025 and is expected to reach RMB12.0 billion by 2030, with HFPO and its downstream products accounting for approximately 3.3% of the organic fluorochemicals market in 2025.

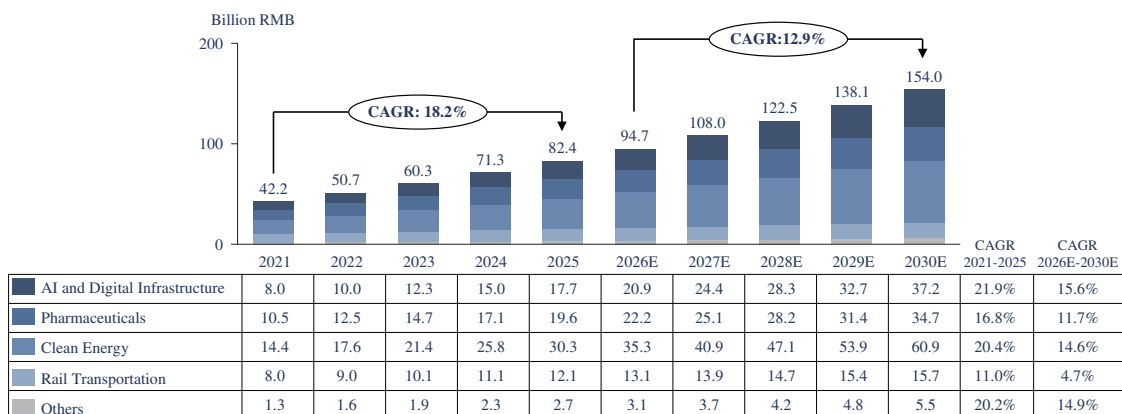
**Market Size of Organic Fluorochemicals Market  
(revenue breakdown by application), Global, 2021-2030E**



Source: Frost & Sullivan

The development of China’s organic fluorochemicals market is driven by the expansion of downstream manufacturing sectors and the upgrading of industrial structures toward higher value-added materials. Growing demand from downstream industries supports the adoption of organic fluorochemicals in advanced applications. In parallel, increasing domestic substitution, ongoing technological progress and capacity expansion in high-end and specialty products continue to enhance market demand and support the sustainable development of the industry. China’s organic fluorochemicals market revenue expanded significantly from RMB42.2 billion in 2021 to RMB82.4 billion in 2025, representing a CAGR of 18.2%. The market revenue is projected to further increase to RMB154.0 billion by 2030, with a CAGR of 12.9% from 2026 to 2030.

**Market Size of Organic Fluorochemicals Market  
(revenue breakdown by application), China, 2021-2030E**



Source: Frost & Sullivan

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## INDUSTRY OVERVIEW

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### Market Drivers of Organic Fluorochemicals Market

- ***Growing Downstream Market Demand.*** Organic fluorochemicals serve a wide range of applications, and the downstream market is expanding steadily. Driven by the growth of AI and digital infrastructure, pharmaceuticals, and clean energy industries, demand for related fluorine materials has increased. As a result, the continued development of downstream sectors is expected to further support demand growth in the organic fluorochemicals industry, presenting new opportunities for its expansion.
- ***Increasing Performance Requirements from Downstream Applications.*** Ongoing material upgrading trends across downstream industries are further driving the organic fluorochemicals market. Compared with conventional materials, fluorine-containing compounds offer enhanced durability, reliability, and functional performance, enabling improved product lifecycles and efficiency. In fields such as AI and digital infrastructure, pharmaceuticals, clean energy, higher standards for safety, efficiency, and environmental resistance are accelerating the substitution of traditional materials with fluorinated alternatives. In addition, continuous technological progress is expanding the application scope of organic fluorochemicals into more specialized and high-value niches.

### Development Trends of Organic Fluorochemicals Market

- ***Expansion of High-End Applications and Value-Added Product Opportunities.*** With the excess capacity at the low end and the rising demand for high-end applications, the recent fluorine chemical enterprises industry leading capacity planning is gradually shifting to TFE, HFP, and their derivatives, it is expected that the future high-end market prospects are broad, high-end domestic organic fluorochemicals will achieve further breakthroughs in AI and digital infrastructure, pharmaceuticals, and clean energy, and the added value of products will be greatly improved, with an increasing number of niche product categories that are high value-added and highly profitable, creating opportunities for industry players with R&D advantages.
- ***Capacity Optimisation and Industry Consolidation.*** Market development is accompanied by ongoing capacity adjustment and consolidation within the organic fluorochemicals industry. Stricter environmental, safety, and regulatory requirements are raising compliance costs, encouraging the exit of smaller and less efficient producers. At the same time, leading enterprises are expanding scale through capacity optimisation, integration along the value chain, and selective mergers or cooperation. This trend is expected to improve industry concentration, enhance supply stability, and promote more rational competition over the medium to long term.

## ANALYSIS OF GLOBAL AND CHINA ELECTRONIC INFORMATION CHEMICALS MARKET

### Definition and Classification of Electronic Information Chemicals Market

Electronic information chemicals refer to a category of high-purity chemical materials used in the manufacturing of electronic components and semiconductor devices. These chemicals play a critical role in ensuring product performance, reliability, and process stability. They mainly include capacitor chemicals and semiconductor chemicals.

## INDUSTRY OVERVIEW

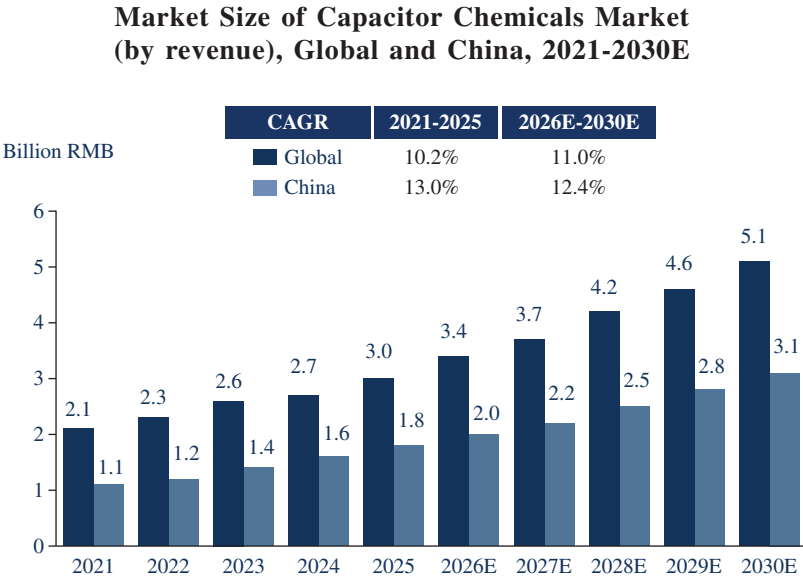
Capacitor chemicals are key process and functional materials used in the production of electrolytic capacitors, essential for ensuring capacitor performance. They are widely applied across various capacitor products and can be broadly categorised into aluminium electrolytic capacitor chemicals, aluminium foil chemicals, tantalum capacitor chemicals, and solid polymer capacitor chemicals.

Semiconductor chemicals are an important subset of semiconductor materials used throughout the semiconductor manufacturing process. They mainly include general-purpose chemicals, such as high-purity hydrogen peroxide and functional chemicals, such as etching, cleaning, and cooling liquids. Their technical level and quality directly impact the performance, reliability, and yield of downstream semiconductor products, leading to stringent requirements on purity, impurity control, particle levels, and consistency.

### Market Size of Capacitor Chemicals Market

In terms of revenue, the global capacitor chemicals market increased from RMB2.1 billion in 2021 to RMB3.0 billion in 2025, with a CAGR of 10.2% and is expected to further increase to RMB5.1 billion in 2030, representing a CAGR of 11.0% from 2026 to 2030. The market is expected to be driven by the increase in upstream supply and downstream demand, as well as technological breakthroughs in the industry.

China has the largest capacitor chemicals market around the world. The market increased from RMB1.1 billion in 2021 to RMB1.8 billion in 2025, with a CAGR of 13.0%, and is expected to further increase to RMB3.1 billion in 2030, representing a CAGR of 12.4% from 2026 to 2030.



Source: Frost & Sullivan

### Market Size of Semiconductor Chemicals Market

Driven by the expansion of downstream application industries, strong support from national policies, and upgrading of related technologies, major application industries of semiconductor chemicals experienced relatively rapid growth in recent years, boosting the growth of upstream raw materials such as semiconductor chemicals.

## INDUSTRY OVERVIEW

The market size of global semiconductor chemicals market in terms of revenue has increased from RMB49.9 billion in 2021 to RMB83.4 billion in 2025, and China’s semiconductor chemicals market has grown from RMB13.7 billion in 2021 to RMB26.4 billion in 2025. Going forward, it is expected that with the continuous improvement of downstream demand and the upgrade of technical level in downstream industries, global and China’s semiconductor chemicals will maintain relatively rapid growth in forecasting period, and is expected to expand to RMB135.4 billion and RMB45.8 billion respectively in 2030, representing CAGRs of 10.1% and 11.5% from 2026 to 2030 respectively. And it is expected that China’s semiconductor chemicals market will show more rapid growth rate than the overall semiconductor chemicals market globally in the next five years.

### Market Size of Semiconductor Chemicals Market (by revenue), Global and China, 2021-2030E



Source: Frost & Sullivan

### Market Drivers of Electronic Information Chemicals Market

- Technological Innovation and Material Upgrades.** Continuous technological breakthroughs are driving the development of the electronic information chemicals market. As downstream applications demand higher performance, miniaturization, and improved reliability, manufacturers are accelerating innovation in core materials such as electrolytes and functional chemicals. For example, advancements in new electrolyte systems and high-stability materials are enhancing product lifespan, thermal resistance, and operational stability. Emerging technologies, such as solid-state materials, are also being explored to address limitations of traditional solutions under extreme conditions, further expanding application scenarios in high-reliability fields.
- Advancements in Electronic Component Manufacturing Technologies.** The evolution of advanced manufacturing technologies, particularly in electronic components such as capacitors and semiconductor devices, is raising performance requirements for electronic information chemicals. Innovations such as stacked structures, ultra-thin processing, and precision manufacturing techniques require chemicals with higher purity, improved conductivity, and superior thermal stability. At the same time, increasing emphasis on environmental sustainability is encouraging the development of greener and more efficient chemical solutions, thereby driving product upgrades across the market.

## INDUSTRY OVERVIEW

### Development Trends of Electronic Information Chemicals Market

- Transition Toward Green and Low-Carbon Development.** The electronic information chemicals market is increasingly shifting toward environmentally friendly and low-carbon practices, driven by global sustainability goals and stricter environmental regulations. Companies are accelerating the development of eco-friendly products, such as low-toxicity and biodegradable chemicals, as well as cleaner production processes. In parallel, capabilities such as energy-efficient manufacturing and reduced emissions (e.g., wastewater minimization) are becoming key competitive factors, with environmentally compliant products expected to gain stronger market acceptance and pricing advantages.
- Rising Industry Concentration and Competitive Differentiation.** As parts of the electronic information chemicals market enter a more mature stage, industry concentration is expected to increase. Leading players with strong R&D capabilities, advanced process technologies, and effective cost control are likely to consolidate market share. At the same time, competition is shifting from scale expansion to differentiated capabilities, including product performance, quality consistency, and customer service. This trend is gradually raising entry barriers and reinforcing the position of technologically advanced companies.

## COMPETITIVE ANALYSIS

### Rankings of Global Battery Chemical Providers

As the largest segment within battery chemicals, the global market size of battery electrolyte in terms of revenue in 2025 was RMB48,707 million. It’s a relatively concentrated market with top 5 battery electrolyte providers accounted for 57.1% of the market size globally.

In terms of battery electrolyte revenue in 2025, the Company ranked as second largest battery electrolyte provider globally, with RMB5,742 million of revenue and 11.8% market share globally in 2025. Furthermore, the Company achieved the largest global market share of battery electrolyte revenue (excluding the PRC) from 2020 to 2025.

**Ranking of Battery Electrolyte Providers by Revenue<sup>(1)</sup>, Global, 2025**



Source: Company Report, Frost & Sullivan

Note:

- (1) Company A, a domestic company listed on the Shenzhen Stock Exchange, was established in 2000 and primarily engages in lithium-ion battery materials, with a focus on electrolyte and related fine chemicals.

Company B, a domestic company listed on both the Shenzhen and Hong Kong Stock Exchanges, was established in 1995 and primarily engages in sales of new energy vehicles, batteries, and electronic products.

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## INDUSTRY OVERVIEW

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Company C, a domestic private company, was established in 2004 and primarily engages in lithium-ion battery electrolyte and related new energy materials.

Company D, a domestic private company, was established in 2007 and primarily engages in the production of battery chemical products.

### Competitive Landscape of Global and China Organic Fluorochemicals Providers

The global and China organic fluorochemicals markets are characterized by a wide range of product categories and a large number of market participants. Therefore, the markets are highly fragmented. And the markets were historically dominated by overseas materials giants. In recent years, Chinese organic fluorochemical companies have experienced rapid development. Among them, the Company is one of the early entrants in the high-value-added HFPO and its downstream products segment. And most of the other Chinese companies started from other segments of the fluorochemical industry chain and subsequently expanded into this sector. In terms of global revenue from HFPO and its downstream products, the Company ranked the first among global manufacturers in 2025. Its revenue from the sector reached RMB1.6 billion globally in 2025.

### Competitive Landscape of Global and China Electronic Information Chemicals Providers

The global and China capacitor chemicals markets are also characterized by a wide range of product categories and a large number of market participants. With a revenue of RMB0.9 billion and RMB0.8 billion in 2025 from capacitor chemicals business in the global and China markets respectively, the Company is the largest player in the global and China capacitor chemicals, in terms of revenue with a market share of 28.5% and 47.7%, respectively.

Furthermore, the Company ranked first among domestic PRC companies by market share in the PRC market for semiconductor cooling liquids in 2025. And the Company’s capacitor chemicals ranked first globally by revenue from 2020 to 2025.

### Entry Barriers

- **Technology Barrier.** In the battery chemicals industry, technological advances in downstream sectors such as new energy vehicles continue to raise technical requirements for upstream suppliers, particularly for battery-grade lithium products. Battery chemicals are critical to lithium battery performance and require stringent impurity control across solutes, solvents and additives, with solvent purification representing a key technical barrier that favors companies with established technological capabilities. Furthermore, in the electronic information chemicals industry, the purification of electronic information chemicals faces major technical barriers. For instance, semiconductor manufacturing, particularly at advanced process nodes, requires that wet electronic chemicals have metal impurity levels below 10 ppt and impose stringent sub-micron level controls on both the quantity and size of particles, resulting in significant barriers for new entrants. In addition, patents and intellectual property constitute important entry barriers within the industry.
- **Client and Supply Chain Barrier.** The customer certification cycles in the battery chemicals, organic fluorine chemicals, electronic information chemicals industries are around 12 months. This poses a significant barrier to entry for new players in these industries. Furthermore, leading manufacturers in the four industries have long established cooperation relationships with upstream suppliers to ensure a stable supply of raw materials, and maintain continuous and stable production. However, for new entrants of the industry, the lack of stable supply chains would be one of the main challenges during their early stage of development.