



50 Years of Growth, Innovation and Leadership

Global and China's New Material Industry Report

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OVERVIEW OF CHINA'S NEW MATERIAL INDUSTRY

Definition and Classification of New Materials

New materials refer to materials that are newly developed or improved from traditional materials, featuring enhanced performance or specific functional properties. The new materials industry is characterized by high technological intensity, high R&D investment, and high value added, with strong international relevance and broad application fields. It is widely regarded as an important indicator of a country's comprehensive national strength and technological capability. New materials are generally classified into three categories, which are advanced basic materials, key strategic materials, and frontier new materials, as detailed below:

- **Advanced basic materials:** As high-performance upgraded iterations of traditional basic materials, advanced basic materials constitute the core support of the industrial system. Their performance is enhanced through process optimization and compositional modification, covering areas such as advanced steel and phenolic resin rubber additives for tires. With mature technologies and extensive application, these materials are well aligned with manufacturing upgrading needs.
- **Key strategic materials:** Key strategic materials are core materials that support emerging industries and major equipment, featuring high technological barriers and significant strategic importance. They focus on high-performance structural and functional materials, including high-performance fibers, semiconductor photoresist, CMP Polishing Pad, EBR, and Display photoresist. These materials determine the level of autonomy and controllability in downstream high-end manufacturing.
- **Frontier new materials:** Frontier new materials refer to innovative materials at the stage of technological breakthrough or early industrialization, including fully biodegradable materials, representing future development directions with disruptive potential and high growth prospects.

OVERVIEW OF CHINA'S RUBBER CHEMICALS INDUSTRY FOR AUTOMOTIVE TIRES

The Importance and Commercial Prospects of Rubber Products

Rubber is an important strategic material for industrial development, boasting properties such as elasticity and wear resistance, and serving as an excellent electrical insulating material. Owing to these characteristics, it is a high-quality raw material for tire production. Affected by fluctuations in external market demand, the total production volume of tire casings in China witnessed a volatile growth from 2021 to 2025, rising from 902.5 million units in 2021 to 1,207.4 million units in 2025 at a CAGR of 7.5%. Looking ahead, driven by the development of the automotive industry at home and abroad, especially the rise of NEV and the release of domestic production capacity, the total production volume of tire casings in China will achieve steady growth. It is projected to increase to 1,452.6 million units in 2030, representing a CAGR of approximately 3.8% from 2025 to 2030.

Definition and Classification of Rubber Additives

Rubber additives are specialty chemical products used in rubber processing to enhance the performance of rubber products and ensure their service life. As crucial auxiliary materials in the rubber industry, they significantly improve processing techniques and improve product quality. Although required at low volumes, they play a decisive role in enhancing product performance. High-quality rubber additives improve processing properties, elevate quality, prevent aging and degradation, and extend service life. Their primary applications include tires and sealing strips.

Rubber additives products are typically classified into five main categories, including rubber accelerators, rubber antioxidants vulcanizing agents, specialty functional additives, and processing additives. Among these, the first three types of products,

namely accelerators, antioxidants, and vulcanizing agents are commonly used in rubber products and are referred to as general-purpose rubber additives. In contrast, specialty functional additives, and processing additives are referred to as functional rubber additives.

Rubber additives are categorized into general-purpose and specialty types. General-purpose additives include antioxidants; specialty additives encompass processing aids and functional additives, with the former improving processing conditions and the latter enhancing adhesion between rubber and framework materials. Phenolic resins are vital specialty rubber additives. Phenolic resins are a broad class of synthetic resins produced by the polycondensation of phenolic compounds and aldehydes. They possess excellent acid resistance, mechanical properties and heat resistance, and are widely used in areas such as rubber products, anti-corrosion processes, adhesives, flame-retardant materials, and grinding wheels. In the automotive tire sector, they are divided into tackifying, bonding, and reinforcing resins, which respectively improve adhesion, bonding strength, and mechanical strength. Phenolic resins for automotive/tire applications drive process innovation in the tire industry, forming a close connection. Though rubber additives constitute a low proportion of final product costs, they determine the lifespan, safety, and environmental performance of rubber goods (especially tires), exerting a valuable leverage effect on downstream industries.

Policy Analysis of the Rubber Additives

Policies	Issuance Date	Issuing Authority	Main Content
Announcement on Increasing Export Tax Rebate Rates for Certain Products (Announcement No. 15 of 2020) (關於提高部分產品出口退稅率的公告(2020 年第 15 號))	2020.03	Ministry of Finance; State Taxation Administration	Includes rubber additives and related products in the scope of export tax rebate incentives.
Guiding Opinions on Promoting High-quality Development of the Petrochemical and Chemical Industry during the 14th Five-Year Plan Period (關於“十四五”推動石化化工行業高質量發展的指導意見)	2022.04	Ministry of Industry and Information Technology and five other departments	Encourages development of high-end chemical materials, including electronic chemicals and high-performance rubber materials.
Implementation Plan for Innovative Development of the Fine Chemical Industry (2024–2027) (精細化工產業創新發展實施方案(2024 – 2027 年))	2024.07	Ministry of Industry and Information Technology and eight other departments	Supports development of high-end fine chemicals, including rubber additives, and promotes regional industrial upgrading.

Work Plan for Stabilising Growth of the Petrochemical and Chemical Industry (2025 – 2026) (石化化工行業穩增長工作方案(2025 – 2026 年))	2025.09	Ministry of Industry and Information Technology and six other departments	Supports R&D and industrialisation of high-end chemical products, including electronic chemicals and specialty rubber, to meet demand from key industries such as integrated circuits and new energy.
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Commercial Prospects and Market Drivers of China's Rubber Additives Market

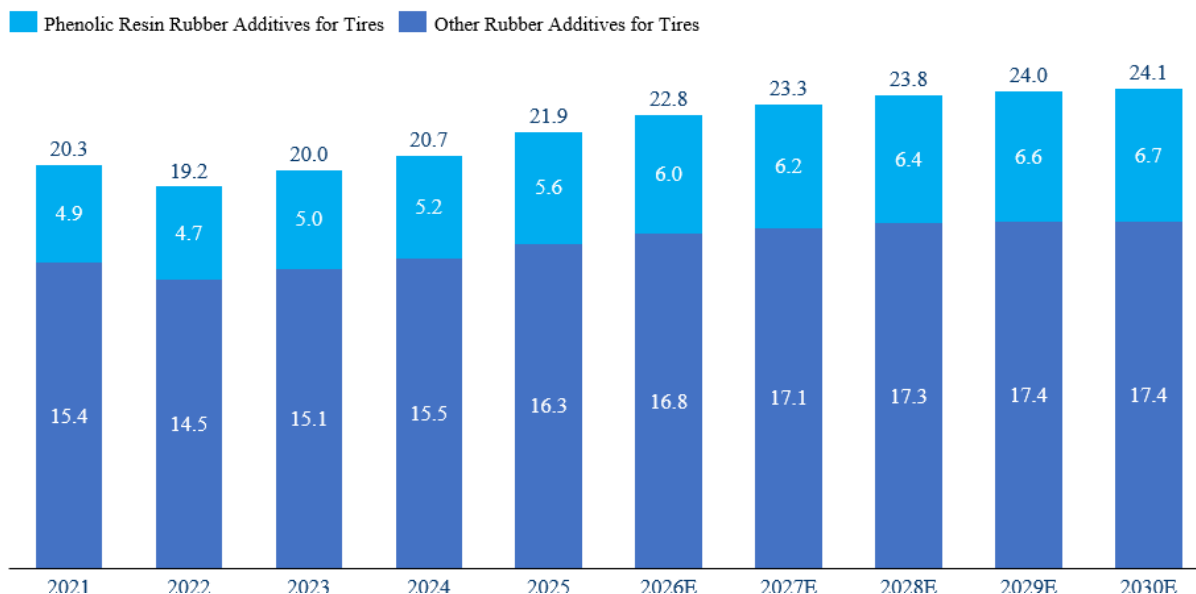
China is the world's largest producer of rubber additives, with its output accounting for approximately 78% of global production in 2025. Affected by global economic fluctuations, China's rubber additives market experienced slight fluctuations from 2021 to 2025. Total output value increased from RMB21.3 billion in 2021 to RMB22.6 billion in 2025, representing a CAGR of 1.5%. Among these, specialty rubber additives grew from RMB7.5 billion to RMB8.7 billion, achieving a CAGR of 3.6%; while other rubber additives grew from RMB13.8 billion to RMB13.9 billion, achieving a CAGR of 0.3%. Looking ahead, driven by rising demand for NEVs and expanding application scenarios, the market is projected to continue growing. Total output value is expected to rise to RMB25.7 billion in 2030, representing a CAGR of 2.6%. Among these, specialty rubber additives are projected to grow from RMB9.6 billion to RMB11.6 billion, with a CAGR of approximately 5.9%. Other rubber additives are expected to increase to RMB14.2billion, achieving a CAGR of about 0.4%.

In the global rubber additive market, with the continuous growth in the number of NEVs, rubber additives for tires maintain steady growth from 2021 to 2025. The market value of global rubber additives for tires grew from RMB20.3 billion in 2021 to RMB21.9 billion in 2025, achieving a CAGR of 2.0%. It is projected to reach approximately RMB24.1 billion by 2030, with an estimated CAGR of around 1.9% from 2025 to 2030. Specifically, the output value of phenolic resin rubber additives for tires increased from RMB4.9 billion in 2021 to RMB5.6 billion in 2025, achieving a CAGR of 3.4% during this period. In the future, since the demand for tire replacements is relatively stable, the output value of phenolic resin rubber additives for tires will grow at a slower pace. By 2030, the output value is projected to reach RMB6.7 billion, with a CAGR of approximately 3.6% from 2025 to 2030.

Market Size of Global Rubber Additives for Automotive Tires, by Output Value

RMB Billion, 2021-2030E

CAGR	2021-2025	2025-2030E
Phenolic Resin Rubber Additives for Tires	3.4%	3.6%
Other Rubber Additives for Tires	1.5%	1.3%
Total	2.0%	1.9%

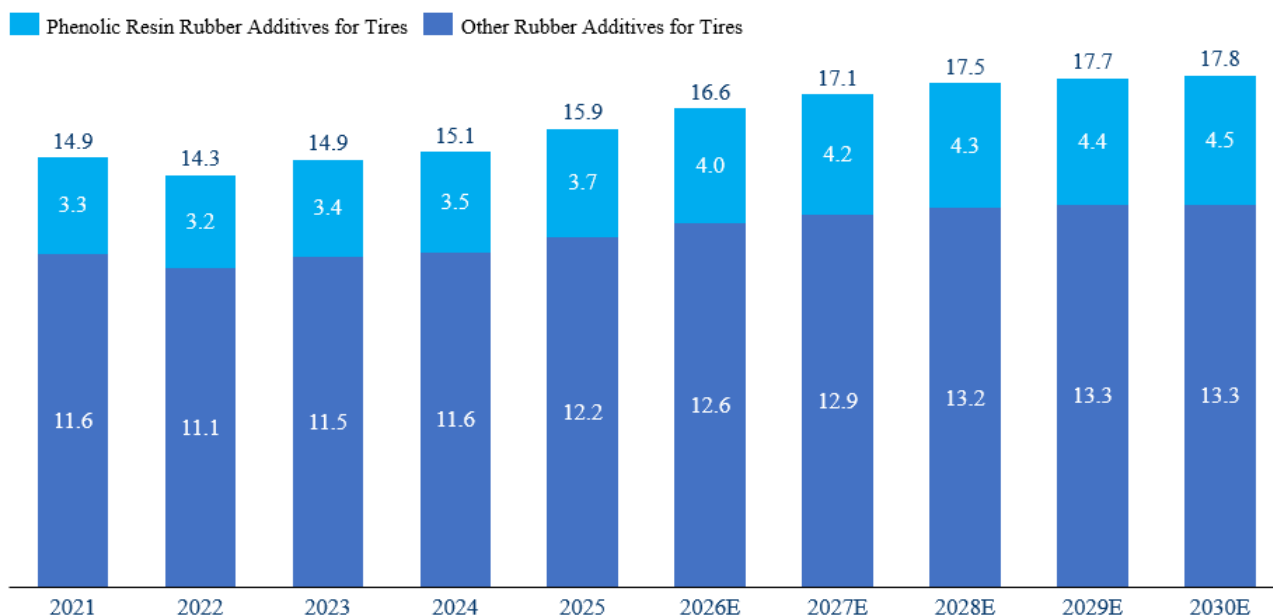


Source: Frost & Sullivan, China Rubber Industry Association, Expert Interview

In China's rubber additive market, the majority of rubber additives are used in automotive tire applications. With the rising demand for NEVs, rubber additives for tires are projected to maintain steady growth. The market value of rubber additives for tires in China grew from RMB14.9 billion in 2021 to RMB15.9 billion in 2025, achieving a CAGR of 1.6%. It is projected to reach approximately RMB17.8 billion by 2030, with an estimated CAGR of around 2.2% from 2025 to 2030. Specifically, the output value of phenolic resin rubber additives for tires increased from RMB3.3 billion in 2021 to RMB3.7 billion in 2025, achieving a CAGR of 2.9% during this period. In the future, driven by rising demand for high-performance rubber additives, the output value of phenolic resin rubber additives for tires will continue to grow. By 2030, the output value is projected to reach RMB4.5 billion, with a CAGR of approximately 3.7% from 2025 to 2030.

Market Size of China's Rubber Additives for Automotive Tires, by Output Value RMB Billion, 2021-2030E

CAGR	2021-2025	2025-2030E
Phenolic Resin Rubber Additives for Tires	2.9%	3.7%
Other Rubber Additives for Tires	1.2%	1.8%
Total	1.6%	2.2%



Source: Frost & Sullivan, China Rubber Industry Association, Expert Interview

Market Drivers and Future Trends Analysis of the China's Rubber Additives Market

- Growing Demand for NEVs:** The rapid penetration of NEVs has become a growth engine for China's automotive industry, driving expansion in the overall vehicle market and boosting demand for tires and rubber products. Compared with traditional fuel vehicles, NEVs impose stricter requirements on tire performances such as low rolling resistance and lightweighting to meet their range and energy efficiency targets. This trend drives the high-end and precision manufacturing of tires, compelling the optimization of compound systems and setting higher standards for the performance and efficiency of rubber additives.
- ESG Transformation Drives Process Optimization:** Against the backdrop of China's dual carbon goals and intensifying environmental regulations, green manufacturing and technological innovation have become the core drivers of high-quality development in the rubber additives industry. Policy and market demands are raising environmental thresholds, accelerating technological innovation and clean production upgrades across the sector. Upstream enterprises' heightened ESG transition requirements for raw material environmental standards are driving emission reductions in rubber additive production, accelerating the adoption of clean technologies and green products.
- Following Downstream Partners Overseas:** As Chinese tire manufacturers accelerate overseas factory expansion in Thailand, Vietnam, Europe, and other regions, domestic rubber additive companies are responding to globalization by implementing overseas strategies. To serve global customers and enhance localized competitiveness, domestic rubber additive companies establish overseas distribution centers or production bases. This ensures timely responses to market demands, provides technical support and delivers customized solutions. Such localized operations reduce trade and logistics risks, integrate into the global tire supply chain, strengthen partnerships with local enterprises, and boost global market share and influence.

- **Southeast Asia and Latin America Emerge as New Export Engines:** Against the backdrop of strict trade barriers imposed by traditional markets in Europe and the US, Chinese rubber chemical companies are accelerating their expansion into emerging markets like Southeast Asia, the Middle East, and Latin America. Rapidly growing demand for rubber products in these regions, coupled with relaxed access policies and low trade costs provide new opportunities.

Cost Analysis of Raw Material

The primary raw material for phenolic resin rubber additives is phenol. Since 2022, its price of phenol has been fluctuating downward, the price of phenol decreased from 10,497.5 RMB per ton to 6,929.98 RMB per ton. In the future, as the supply-demand relationship for phenol and phenolic resin rubber additives remains stable, phenol prices are expected to stabilize or rise slightly.

Key Success Factors and Competitive Landscape Analysis of the Rubber Additives Industry

- **Formulation Techniques:** Rubber additive production involves fine chemical synthesis, with specialized formulation design capabilities serving as the core competitive advantage of the industry's leading enterprises. Precise control over reaction conditions enables industry-leading product yields, purity, and batch consistency. Simultaneously, fine-tuning microstructures meets customized demands from downstream customers, with formulation design becoming more complex for high-end applications. This capability ensures product performance and reliability, serving as a key advantage for addressing market needs and delivering customized solutions.
- **Industrial Chain Integration Capability:** Key intermediates in the rubber additives industry (such as phenol, aniline, and cyclohexane) are critical to product performance. To ensure product quality and mitigate raw material price volatility risks, some enterprises pursue vertical integration by expanding into upstream key intermediates and raw materials. This strategy ensures controllable production, stable additive performance, and enhances corporate involvement in the supply chain. Self-producing core intermediates reduces reliance on external suppliers, mitigates profit margin shocks, and strengthens bargaining power and cost competitiveness..
- **Comprehensive Product Portfolio:** Leading enterprises in the industry possess a complete product portfolio spanning multiple categories such as vulcanizing agents and accelerators, enabling them to provide one-stop solutions for downstream rubber product manufacturers, particularly tire companies. Through this comprehensive product line strategy, companies meet diverse rubber product requirements.

Competitive Landscape Analysis of China's Rubber Additives Industry:

**The top 5 companies in the global phenolic resin rubber additives for tires market,
ranked by sales revenue in 2025**

Ranking	Company Name	Sales Revenue (Unit: RMB100 Million)	Market Share (%)
1	The company	23.3	41.4%
2	Company P	~13.3	~23.7%
3	Company Q	~10.2	~18.1%
4	Company R	~4.8	~8.5%
5	Company S	~2.0	~3.6%
	Top 5	53.6	~95.3%

Source: Frost & Sullivan

Note:

Company P has its headquarter in the United States. Its products include performance additives, process solutions, pharmaceuticals and chemical intermediates.

Company Q, headquartered in Japan, is a listing company. Its main products include phenolic resin, building materials, etc.

Company R, headquartered in South Korea, is a listing company. Its products include electronic materials, rubber additives, and others.

Company S, headquartered in PRC, is a listing company. Centered on synthetic resins and functional materials, the company has been expanding into semiconductor and electronic materials.

In 2025, the top 5 companies in the global phenolic resin rubber additives market for tires collectively achieved sales revenue of approximately RMB5.4 billion. Based on sales revenue in 2025, the company ranks as the world's largest company in phenolic resin rubber additives for tires.

**The top 5 companies in China's phenolic resin rubber additives for tires market,
ranked by sales revenue in 2025**

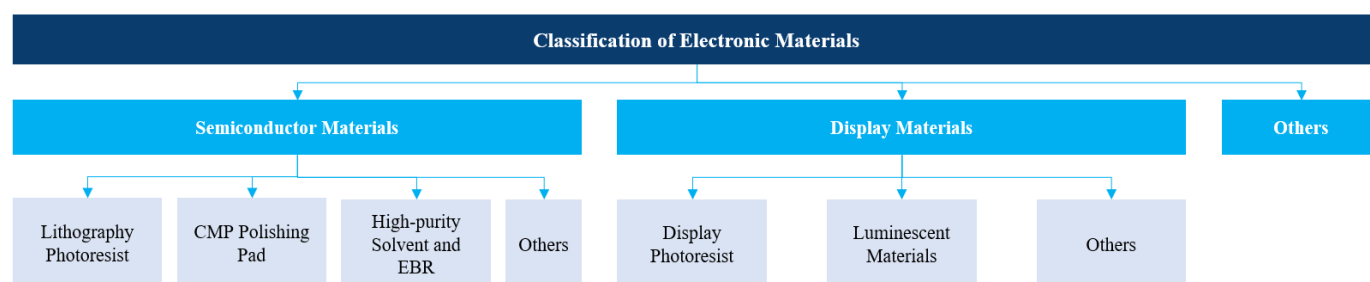
Ranking	Company Name	Sales Revenue (Unit: RMB100 Million)	Market Share (%)
1	Red Avenue	17.0	45.9%
2	Company P	~3.8	~10.3%
3	Company Q	~2.5	~6.8%
4	Company S	~2.0	~5.4%
5	Company R	~1.0	~2.7%
Top 5		26.3	~71.1%

Source: Frost & Sullivan

In 2025, the top 5 companies in China's phenolic resin rubber additives market for tires collectively achieved sales revenue of approximately RMB2.6 billion. Based on sales revenue in 2025, the company is China's largest phenolic resin rubber additive company for tires.

OVERVIEW OF ELECTRONIC MATERIALS INDUSTRY

Electronic materials include semiconductor materials, display materials, etc. Semiconductor materials consist of lithography photoresist, CMP, EBR, among others. Display materials comprise display panel photoresist, luminescent materials, and more.



Overview and Development Status of the Semiconductor Industry

China has become one of the world's largest semiconductor consumption markets. The downstream applications of the semiconductor consumption market cover numerous sectors including consumer electronics, communications, automotive electronics and artificial intelligence. Driven by market demand and supported by national policies, China's domestic chip manufacturing industry is in a stage of rapid development, with its industrial scale and local supporting capabilities rising steadily. In terms of the market size of the integrated circuit (IC) industry in mainland China, it has grown from RMB1.0 trillion in 2021 to RMB1.4 trillion in 2025, representing a CAGR of 8.2% during this period. Looking ahead, the market size of the IC industry in mainland China is expected to maintain a high-speed growth momentum, projected to reach RMB2.1 trillion by 2030 with a CAGR of 8.0% from 2025 to 2030.

Overview of the Semiconductor Photoresist Industry

Definition, Classification and Industrial Importance of Semiconductor Photoresist Products

Semiconductor photoresist is a critical material for chip manufacturing, which can accurately transfer the circuit patterns on the photomask onto the silicon wafer surface. Its performance determines the integration level of chips, exerts an impact on their computing speed, power consumption and cost, and is the key to sustaining Moore's Law and achieving the miniaturization of chip manufacturing processes. Classified by photosensitive wavelength, semiconductor photoresist includes G-line (436nm), I-line (365nm), KrF (248nm), ArF (193nm) and EUV (13.5nm) types, and it is a core material supporting the manufacturing of the semiconductor industry.

- G/I line photoresist:** As a fundamental category of semiconductor photoresists, it corresponds to the exposure wavelengths of 436 nm and 365 nm and is used in the manufacturing of basic semiconductor components such as power devices. Its core value lies in ensuring the reliability and stability of basic devices, as well as meeting the large-scale demand for power semiconductors and basic chips in downstream fields.
- KrF/ArF/EUV photoresists:** As the core category of high-end semiconductor photoresists, they meet the requirements of different advanced manufacturing processes. KrF photoresist corresponds to a wavelength of 248 nm and is applied in the mid-to-high-end manufacturing processes of logic and memory chips; ArF photoresist corresponds to a wavelength of 193 nm and serves as a critical material for the manufacturing of core devices in high-end end products; EUV photoresist corresponds to a wavelength of 13.5 nm and underpins the performance breakthroughs of chips. The industrial value of the three lies in driving the upgrading of the semiconductor industry and determining the localization capability of high-end chips. Technological breakthroughs in this field can break foreign monopolies, reduce production costs, and ensure the supply of core devices for strategic emerging industries, which stands as an important symbol for measuring the core competitiveness of a country's semiconductor industry.

Policy Analysis of the Semiconductor Photoresists Industry

The following table summarises key policies supporting the development of the semiconductor photoresists industry in China,

highlighting regulatory support for localisation and technological advancement:

Policies	Issuance Date	Issuing Authority	Main Content
Notice on Import Tax Policies for Supporting the Development of the Integrated Circuit and Software Industries (關於支持集成電路產業和軟件產業發展進口稅收政策的通知)	2021.03	Ministry of Finance; General Administration of Customs; State Taxation Administration	Grants import duty exemptions for key materials, including photoresists, where domestic supply is unavailable or insufficient.
Implementation Opinions on Promoting the Innovation and Development of Future Industries (工業和信息化部等七部門關於推動未來產業創新發展的實施意見)	2024.01	Ministry of Industry and Information Technology and six other departments	Promotes development of advanced materials, including semiconductor materials, and accelerates innovation and application of cutting-edge materials.

Market Size of the Semiconductor Photoresist Industry

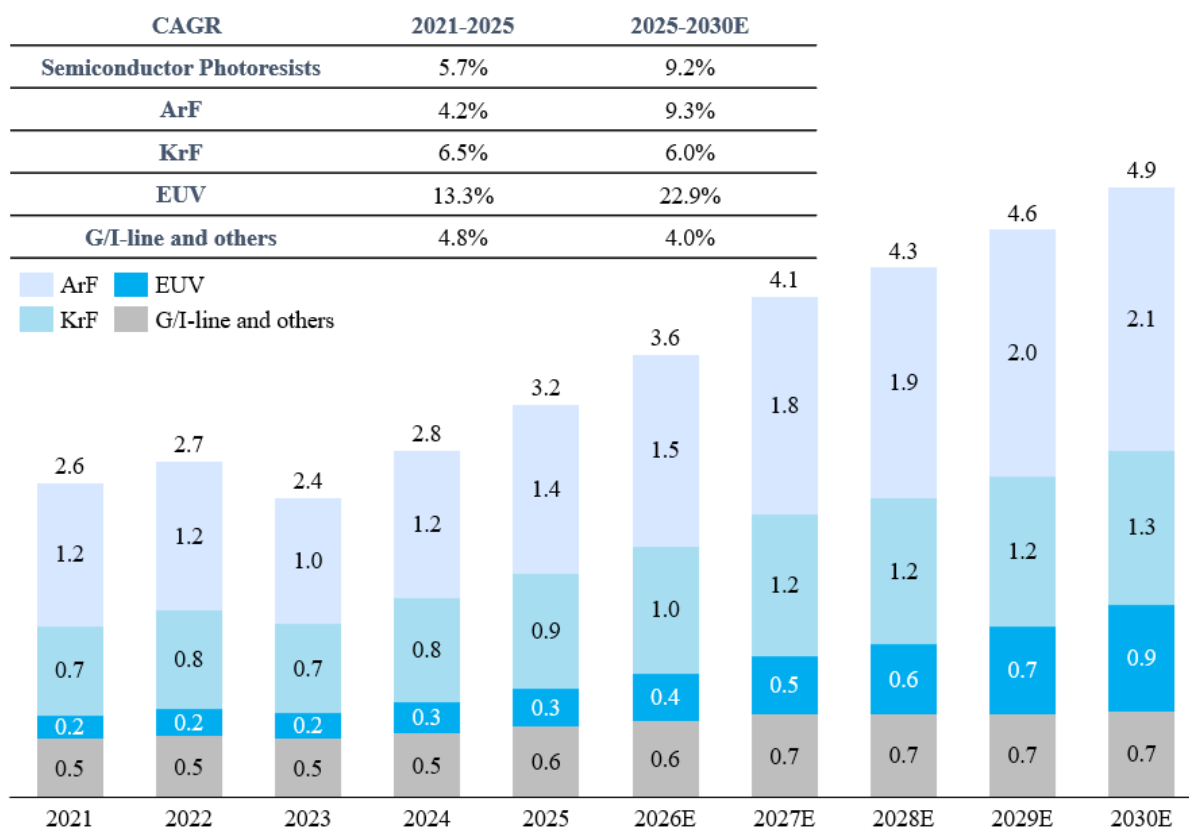
In terms of the sales value of the global semiconductor photoresist market, the sales revenue of ArF photoresist increased from USD1.2 billion in 2021 to USD1.4 billion in 2025, and is projected to reach USD2.1 billion by 2030, representing a CAGR of 9.3% during 2025 and 2030. The sales revenue of KrF photoresist rose from USD0.7 billion in 2021 to USD0.9 billion in 2025, with a CAGR of 6.5%, and is expected to reach USD1.3 billion by 2030, with a CAGR of 6.0% during 2025 and 2030. The sales revenue of EUV photoresists grew from USD0.2 billion in 2021 to USD0.3 billion in 2025, and is forecast to reach USD0.9 billion by 2030, with a CAGR of 22.9% during 2025 and 2030. The sales revenue of G/I-line and other photoresists grew from USD0.5 billion in 2021 to USD0.6 billion in 2025, and is forecast to reach USD0.7 billion by 2030.

Market Size of Global Semiconductor Photoresists, by Sales Revenue

USD Billion, 2021-2030E

Market Size of Global Semiconductor Photoresists, by Sales Revenue

Unit: USD Billion, 2021-2030E



Source: Frost & Sullivan, SEMI

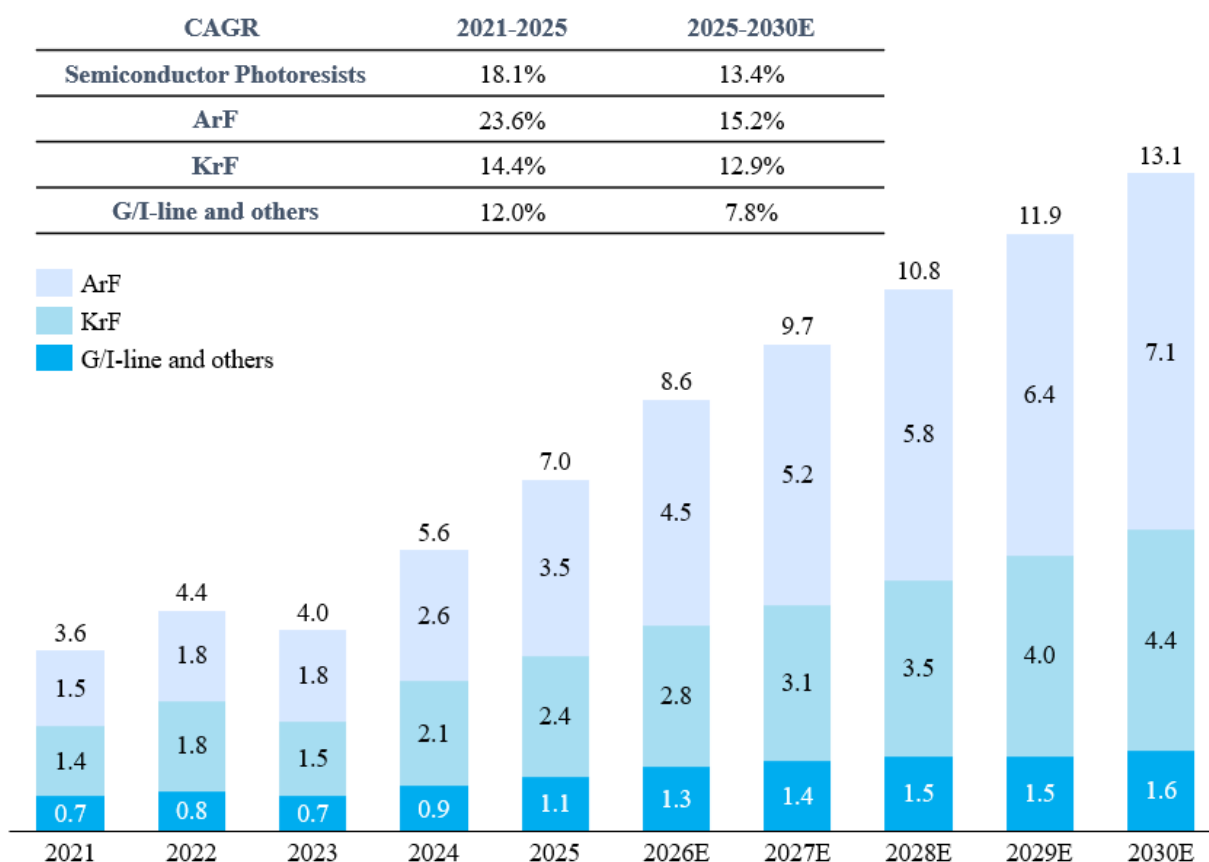
In terms of the sales value of China's semiconductor photoresist market, the sales revenue of ArF photoresist increased from RMB1.5 billion in 2021 to RMB3.5 billion in 2025, with a CAGR of 23.6%, and is projected to reach RMB7.1 billion by 2030, representing a CAGR of 15.2% for the period. The sales revenue of KrF photoresist rose from RMB1.4 billion in 2021 to RMB2.4 billion in 2025, with a CAGR of 14.4%, and is expected to reach RMB4.4 billion by 2030, with a CAGR of 12.9% for the period. The sales revenue of G/I-line and other photoresists grew from RMB0.7 billion in 2021 to RMB1.1 billion in 2025, with a CAGR of 12.0%, and is forecast to reach RMB1.6 billion by 2030, with a CAGR of 7.8% for the period.

Market Size of China's Semiconductor Photoresists, by Sales Revenue

RMB Billion, 2021-2030E

Market Size of China's Semiconductor Photoresists, by Sales Revenue

Unit: RMB Billion, 2021-2030E



Source: Frost & Sullivan, SEMI

Market Drivers and Future Trends Analysis of the Semiconductor Photoresist Industry

- **The expanding end-market demand represented by artificial intelligence is reshaping the structure of the semiconductor industry.** The increase in computing power demand for the training and inference of large models has directly driven the growth in market shipments of high-end chips such as high-performance computing chips. It has also raised the technical requirements for the lithography process, as well as the market demand for consumption volume and technical application thresholds of high-performance photoresists.
- **Wafer production capacity in China is expanding.** PRC is pushing forward the construction and capacity ramping of wafer fabs, emerging as a concentrated hub for new capacity additions. The commissioning of domestic wafer fabs has boosted production capacity and driven the growth of photoresist demand.
- **Continuous upgrading of technological routes, with high-endization as the long-term core trend:** As wafer manufacturing processes evolve toward more advanced nodes with smaller feature sizes, the lithography process demands higher resolution and stability, driving the technological upgrading of photoresists.
- **Accelerated localization process with the competitive focus shifting toward comprehensive capabilities:** Against the backdrop of the expanding wafer production capacity in mainland China and the growing demand for supply chain security, the localization process of photoresists has been accelerated. Domestic photoresists are evolving from early-stage experiments and small-batch verification to multi-production-line adoption and large-scale application, with their scope of application expanding from a single process node to multiple nodes.

Cost Analysis of Raw Material

Raw materials for photoresists include resins, photoinitiators, and others, each with a wide range of subtypes and prices. From 2021 to 2024, resin, one of the key inputs, ranged between USD1,800 and USD6,000 per ton, with moderate fluctuations, while semiconductor photoresist selling prices remained relatively stable. In 2025, resin prices are generally between USD1,800 and USD4,900 per ton and may continue to fluctuate.

Key Success Factors and Competitive Landscape Analysis of the Semiconductor Photoresist Industry

Key Success factors include:

- **Strong R&D capabilities and sustained innovation capacity:** The core driving force for the commercial success of semiconductor photoresist suppliers lies in their technological innovation capabilities. With the advancement of semiconductor manufacturing processes, the performance requirements for photoresists are constantly rising, and advanced process nodes demand breakthroughs in aspects such as resolution for photoresists. Suppliers are required to continuously invest in R&D, explore new materials and manufacturing processes, and address key technological bottlenecks.
- **Capability to pass rigorous certification by downstream wafer fabs:** Photoresist is a material with strong certification attributes, and its product adoption requires long-cycle, multi-round process verification and yield evaluation, covering stages such as pilot line verification, trial production line adoption and mass production line stability testing. Passing certification by leading wafer fabs means that the product meets mass production-level requirements for core indicators such as defect control. Meanwhile, successful certification helps forge highly sticky customer partnerships; once integrated into the mainstream material system, the high replacement cost ensures stable supply relationships.
- **Capability for independent and controllable supply of key upstream materials:** The performance of photoresists is highly dependent on the quality and stability of upstream monomers, resins and additives. Enterprises that realize the vertically integrated layout of the "monomer-resin-photoresist" industrial chain can conduct in-depth optimization of molecular structures and purification processes at the source, reducing reliance on external supplies.
- **Stable large-scale production capacity:** Scaling up photoresists from laboratory formulations to mass-produced products carries the risk of scale-up effects, with stringent requirements for production line cleanliness, process consistency and batch stability. Enterprises with large-scale production capacity typically possess high-standard production facilities, a comprehensive quality control system and mature experience in process scale-up.

Competitive Landscape Analysis of China's Semiconductor Photoresist Industry:

The Top Ten Semiconductor Photoresist Players in the Global Market, Ranked by Sales Revenue of Semiconductor Photoresist in Global Market in 2025

Ranking	Company Name	Market Share (%)	Sales Revenue (Unit: RMB100 Million)
1	Company A	18.2%	43.0
2	Company B	16.5%	39.0
3	Company C	12.7%	30.0
4	Company D	11.8%	28.0
5	Company E	11.0%	26.0
6	Company F	9.0%	21.3
7	Company G	4.2%	10.0
8	Company H	2.9%	7.0

9	The Company	1.8%	4.1
10	Company I	0.5%	1.2
Top 10		88.6%	209.6

Source: Frost & Sullivan

Note:

Company A, headquartered in Japan, is a listing company. The company's business covers semiconductor photoresists, display photoresists, supporting materials, etc.

Company B, has its headquarter in Japan. The company's business covers semiconductor photoresists, display photoresists, synthetic resins, and functional polymer materials.

Company C, headquartered in Japan, is a listing company. The company's business covers semiconductor silicon, semiconductor photoresist, electronic materials, etc.

Company D, headquartered in the U.S., is a listing company. The company's business covers semiconductor photoresist, engineered materials, electronic chemicals, etc.

Company E, headquartered in Japan, is a listing company. The company's business covers semiconductor materials, display and other electronic materials, etc.

Company F, headquartered in Japan, is a listing company. The company supplies photoresists and functional materials for semiconductor and display applications.

Company G, headquartered in South Korea, is a chemical company that provides fine chemical materials including photoresists and CMP slurries, serving the electronic components and semiconductor materials markets. It is a listing company.

Company H, headquartered in Germany, is a listing company. In the electronics segment, the company provides critical materials for the semiconductor and display industries, including photoresists, OLED materials, and other advanced electronic materials.

Company I, headquartered in PRC, provides end-to-end semiconductor material solutions, including photoresist, CMP slurries and other high-performance materials.

The Top Five Domestic Players in China's Semiconductor Photoresist Market, Ranked by the Sales Revenue of Semiconductor Photoresist in China's Market in 2025

Ranking	Company Name	Market Share (%)	Sales Revenue (Unit: RMB100 million)
1	The Company	5.8%	4.1
2	Company I	1.7%	1.2
3	Company J	1.4%	1.0
4	Company K	1.0%	0.7
5	Company L	0.6%	0.4
Top 5		10.5%	7.4

Source: Frost & Sullivan

Note:

Company J has its headquarter in Chinese Mainland. The company's business covers semiconductor photoresists, display photoresists, and supporting materials.

Company K has its headquarter in Chinese Mainland. Its products are mainly applied in the semiconductor and display

Company L has its headquarter in Chinese Mainland. Its core offerings include photoresists and related chemical materials, providing localized material solutions for integrated circuit and display manufacturing customers.

The market share of the semiconductor photoresist market is dominated by leading suppliers from Japan. In global market, the company ranks as the ninth largest overall in terms of sales value of semiconductor photoresists in 2025. In 2025, the total sales value of the top five domestic enterprises in China's semiconductor photoresist market reached approximately RMB740 million. Based on the sales value of semiconductor photoresists in the Chinese market in 2025, the issuer is the top domestic company in terms of semiconductor photoresist sales value in China's market.

Overview of the CMP Polishing Pad Industry

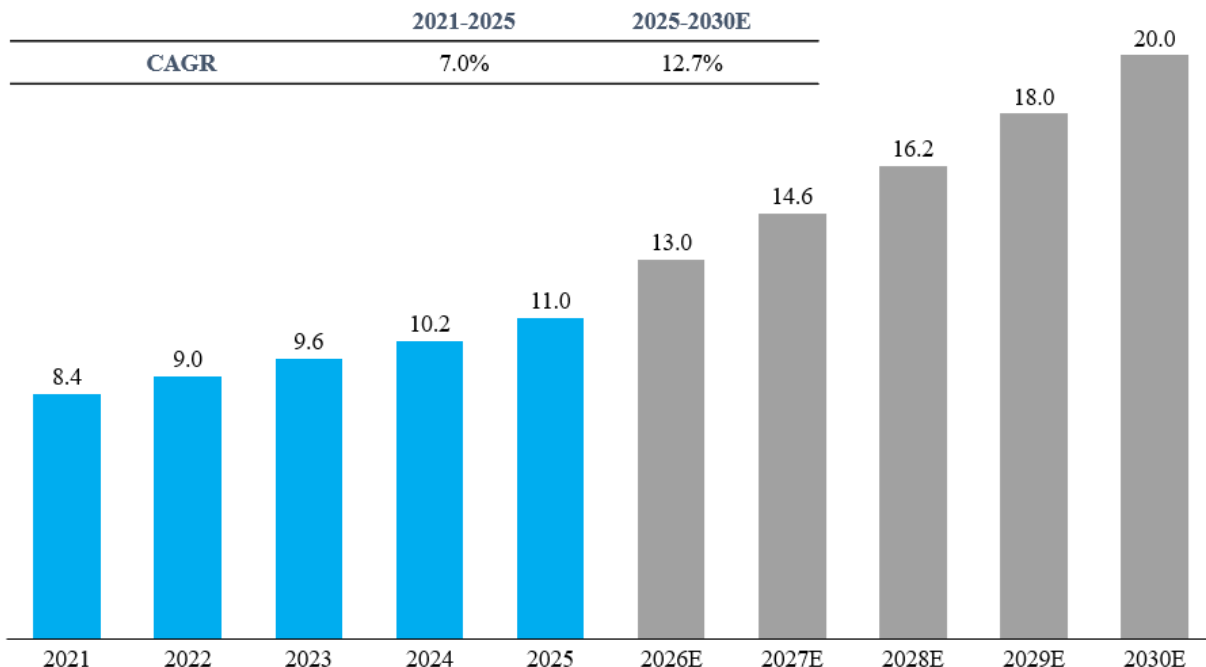
CMP polishing pads are core consumables for CMP, applied in semiconductor wafer manufacturing to perform high-precision planarization on silicon wafers and surface thin films such as silicon oxide. Working in conjunction with polishing slurries and polishing heads, they achieve the synergistic chemical and mechanical material removal under specific pressure and rotational speed, controlling the microscopic topography of wafer surfaces at the nanometer level to meet the planarization requirements of advanced manufacturing processes. From the global market perspective, the sales revenue grew from RMB8.4 billion in 2021 to RMB11.0 billion in 2025, with a CAGR of 7.0% during the period, and is projected to reach RMB20.0 billion in 2030 with a CAGR of 12.7% during 2025 and 2030.

Market Size of Global CMP Polishing Pad, by Sales Revenue

RMB Billion, 2021-2030E

Market Size of Global CMP Polishing Pad, by Sales Revenue

Unit: RMB Billion, 2021-2030E



Source: Frost & Sullivan, Expert Interview

Benefiting from the expansion of wafer manufacturing capacity in China and the growing demand for chips with mature processes, the market size of domestic CMP polishing pads has witnessed rapid growth from 2021 to 2025, with sales revenue increase from RMB1.3 billion to RMB2.8 billion at a CAGR of 21.7%. Going forward, driven by the increased

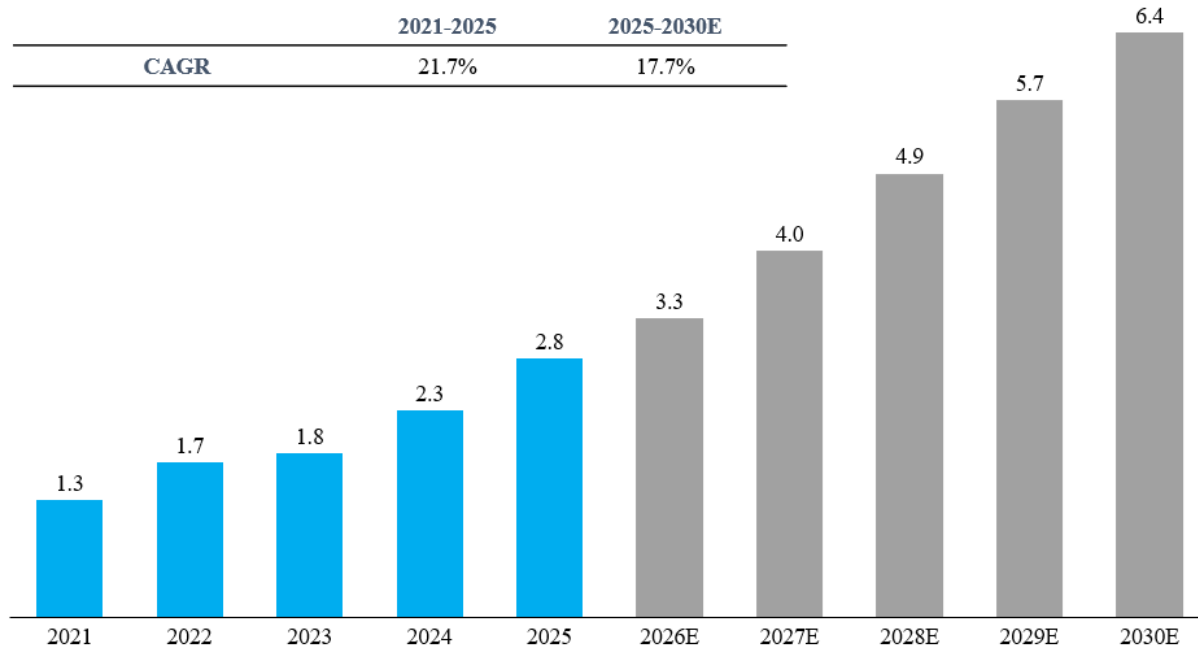
polishing processes per wafer resulting from technological iteration of advanced-process chips, the sales revenue of CMP polishing pads in China is projected to reach RMB6.4 billion by 2030, representing a CAGR of 17.7%.

Market Size of China's CMP Polishing Pad, by Sales Revenue

RMB Billion, 2021-2030E

Market Size of China's CMP Polishing Pad, by Sales Revenue

Unit: RMB Billion, 2021-2030E



Source: Frost & Sullivan, Prospectus of other Listed Company

Policy Analysis of the CMP Polishing Pad Industry

The following table summarizes key policies supporting the development of the CMP polishing pads industry in China, highlighting policy support for semiconductor consumables and localization of critical materials:

Policies	Issuance Date	Issuing Authority	Main Content
The 14th Five-Year Plan for the Development of the Raw Materials Industry (“十四五” 原材料工業發展規劃)	2021.12	Ministry of Industry and Information Technology; Ministry of Science and Technology; Ministry of Natural Resources	Advances breakthroughs in critical materials for key sectors, including integrated circuits and aerospace, covering photoresists and other key electronic materials.
Notice on Issuing the Implementation Plan for the “Three Products” Initiative in the Raw Materials Industry (關於印發原材料	2022.08	General Office of the Ministry of Industry and Information Technology; General Office of	Promotes upgrading and industrialisation of advanced materials, including photoresists, and strengthens standards systems across the full value chain.

工業“三品”實施方案的 通知)		the State-owned Assets Supervision and Administration Commission of the State Council; General Office of the State Administration for Market Regulation; Office of the China National Intellectual Property Administration	
Proposals of the Central Committee of the Communist Party of China for Formulating the 15th Five-Year Plan for National Economic and Social Development (中共中央關 於制定國民經濟和社會發 展第十五個五年規劃的建 議)	2025.10	Central Committee of the Communist Party of China	Prioritises development of emerging industries and breakthroughs in core technologies across integrated circuits, advanced materials and high-end equipment.
MIIT Work Priorities for 2026 (工業和信息化部部 署 2026 年重點工作)	2025.12	Ministry of Industry and Information Technology	Identifies integrated circuits, new displays and new materials as key priorities, supporting technological innovation and industrial cluster development.

Overview of the High-purity solvent and EBR Industry

EBR is a high-purity solvent for the semiconductor lithography process, used to remove excess photoresist from the edge of wafers. It can selectively dissolve the photoresist layer on the wafer edge, prevent interference with subsequent processes, and improve the consistency of lithography patterns, process stability and overall yield, serving as an important auxiliary material in the photoresist system. With the expansion of semiconductor wafer manufacturing capacity in China, the market size of EBR in China has grown rapidly from 2021 to 2025, with sales revenue rising from RMB0.2 billion to RMB0.7 billion at a CAGR of 36.7%. In the future, the semiconductor industry's pursuit of yield improvement and cost control will drive wafer fabs to strengthen the control of edge defects and increase the procurement demand for high-performance EBR. It is projected that the sales revenue of EBR in China will reach RMB1.7 billion by 2030, with a CAGR of 20.1%. In the global market, with the increasing application of advanced processes and the growing demand for precision in semiconductor photoresist processes, the sales revenue of EBR in 2025 was USD0.8 billion, and it is estimated to achieve USD1.9 billion, with the CAGR of 17.7% during this period.

Overview of the Display Materials Industry

Definition and Classification of the Display Photoresists

Display photoresists are critical materials in display panel manufacturing. Through photolithography processes, they enable the formation of fine patterns on substrates, thereby supporting high performance and high resolution of display devices. As core materials within the display industry, the quality and performance of display photoresists have a direct impact on panel yield rates, resolution, and color performance. With continuous global advancements in display technologies, particularly the maturation and commercialization of OLED and Micro LED technologies, the importance of display photoresists has become increasingly prominent. They not only support the upgrading of traditional LCD panels but also provide essential material foundations for the development of next-generation display technologies.

- **TFT Array Photoresists:** TFT array photoresists are used in the array process of TFT backplates to pattern electronic circuits on the substrate, featuring high resolution and high photosensitivity.
- **Color Photoresists:** Color photoresists include red, green, and blue (RGB) photoresists, as well as black matrix (BM) photoresists. Featuring high resolution, high transmittance, and high color saturation, they are used in the color filter (CF) process of LCD panel manufacturing to form color filters, which serve as core components determining display color performance.
- **Transparent Photoresists:** Transparent photoresists are mainly divided into PS spacer photoresists and OC planarization layer photoresists. PS spacer photoresists are used to fabricate elastic spacer structures that support the glass substrates and define the liquid crystal cell gap, requiring excellent elasticity and photolithographic performance. OC planarization layer photoresists are applied to smooth height differences between pixel structures, thereby improving display contrast. High planarization performance is the key technical requirement.
- **Organic Insulating Films:** Organic insulating films typically perform key functions such as isolating conductive layers, preventing electric leakage, planarizing surfaces and buffering stress. In the high-end display field, organic insulating films can be applied in the backplate of OLED, Micro-LED and other display technologies, for instance, serving as passivation layers, interlayer dielectric materials and pixel defining layers. Compared with inorganic insulating films, organic insulating films have distinct advantages in flexibility, low dielectric constant and process compatibility, and are important basic materials for realizing high-definition, thin and light, flexible and highly integrated devices.

Policy Analysis of the Display Photoresists Industry

The following table summarises key policies supporting the development of the display photoresists industry in China, reflecting policy support for new display technologies and related material supply chains:

Policies	Issuance Date	Issuing Authority	Main Content
Notice on Import Tax Policies for Supporting the Development of the New Display Industry (2021–2030) (關於 2021—2030 年支持新型顯示產業發展進口稅收政策的通知)	2021.03	Ministry of Finance; General Administration of Customs; State Taxation Administration	Provides import duty exemptions for key materials, including display photoresists, and related equipment where domestic supply is unavailable or insufficient (effective from 1 January 2021 to 31 December 2030).
Action Plan for Stabilising Growth of the Electronic Information Manufacturing Industry (2025–2026) (電子信息製造業 2025—2026)	2025.08	Ministry of Industry and Information Technology; State Administration for Market Regulation	Supports technological innovation and major project deployment in new display and semiconductor sectors, and promotes international cooperation.

Market Size and Market Drivers Analysis of the Display Photoresists

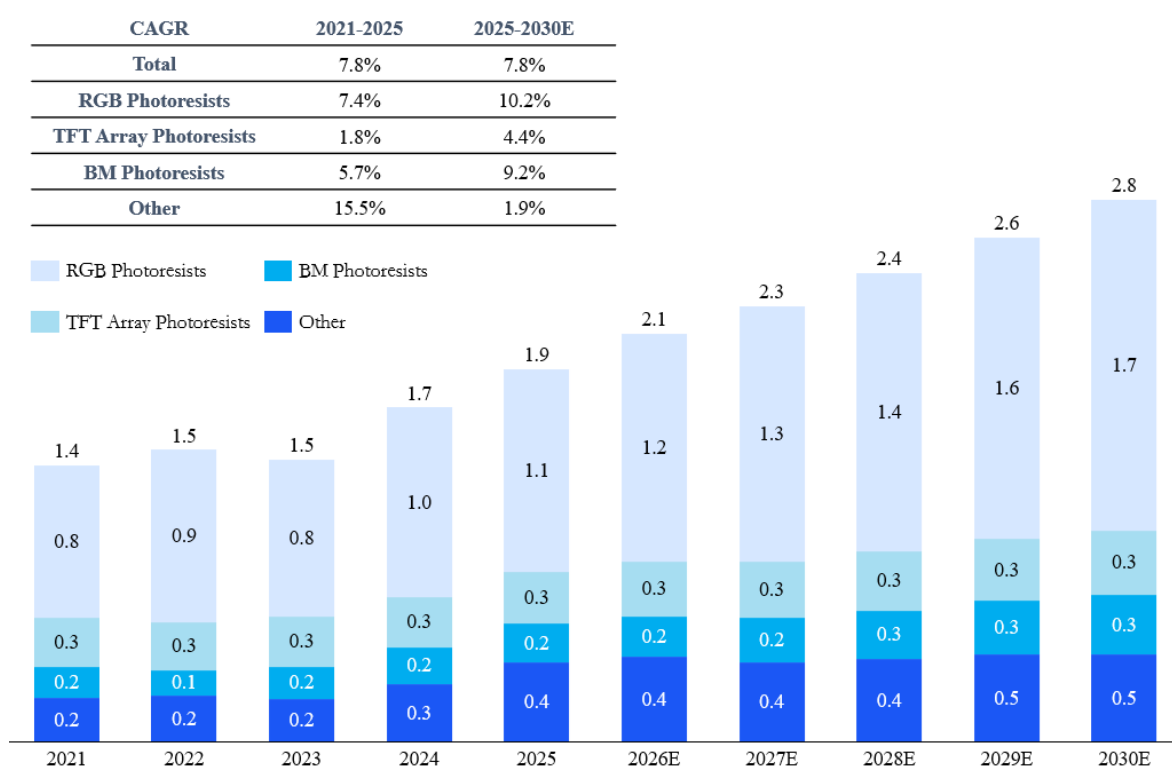
From the perspective of sales revenue in Global display photoresist market, sales revenue of RGB photoresists grew from USD0.8 billion in 2021 to USD1.1 billion in 2025, representing a CAGR of 7.4%, and is projected to reach USD1.7 billion by 2030, with a CAGR of 10.2% during 2025 and 2030. Sales revenue of BM photoresists is expected to increase from USD0.2 billion in 2025 to USD0.3 billion in 2030, with a CAGR of 9.2% from 2025 to 2030. Sales revenue of other display photoresists rose from USD0.2 billion in 2021 to USD0.4 billion in 2025, achieving a CAGR of 15.5%, and is projected to reach USD0.5 billion by 2030.

Market Size of Global Display Photoresists, by Sales Revenue

RMB Billion, 2021-2030E

Market Size of Global Display Photoresists, by Sales Revenue

Unite: USD Billion, 2021-2030E



Source: Frost & Sullivan, Expert Interview

From the perspective of sales revenue in China's display photoresist market, RGB photoresists grew from RMB3.3 billion in 2021 to RMB3.8 billion in 2025, and is projected to reach RMB5.7 billion by 2030, with a CAGR of 8.8% during 2025 and 2030. Sales revenue of TFT array photoresists increased from RMB1.2 billion in 2021 to RMB1.5 billion in 2025, and are expected to reach RMB2.2 billion by 2030, representing a CAGR of 8.4% during 2025 and 2030. Sales revenue of BM photoresists increased from RMB0.6 billion in 2021 to RMB0.8 billion in 2025, with a CAGR of 8.3%, and is expected to reach RMB1.4 billion by 2030, corresponding to a CAGR of 11.3% from 2025 to 2030. Sales revenue of other display photoresists rose from RMB1.2 billion in 2021 to RMB1.4 billion in 2025, and is projected to reach RMB1.8 billion by 2030, with a CAGR of 5.2% during 2025 and 2030.

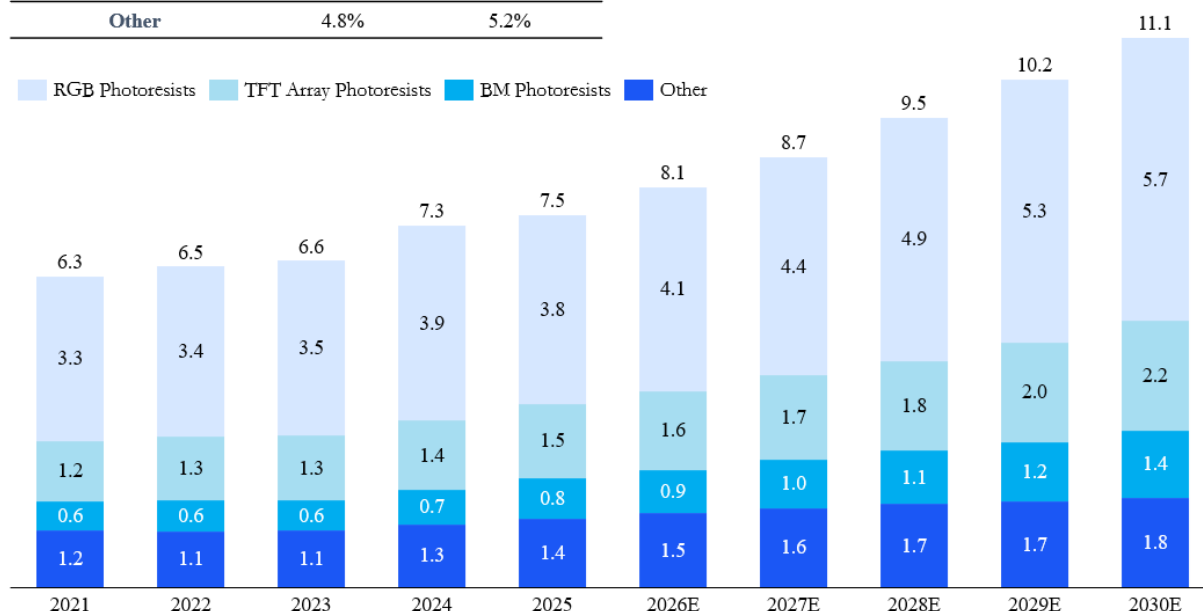
Market Size of China's Display Photoresists, by Sales Revenue

RMB Billion, 2021-2030E

Market Size of China's Display Photoresists, by Sales Revenue

Unit: RMB Billion, 2021-2030E

CAGR	2021-2025	2025-2030E
Total	4.4%	8.3%
RGB Photoresists	4.6%	8.8%
TFT Array Photoresists	3.4%	8.4%
BM Photoresists	8.3%	11.3%
Other	4.8%	5.2%



Source: Frost & Sullivan, Expert Interview

Market Divers Analysis of China's Display Photoresists Industry:

- Continued expansion of downstream panel production capacity provides a stable demand foundation:** In the global LCD panel capacity landscape, Chinese manufacturers occupy a dominant position. Leading players possess significant scale advantages in large-size LCD panels, while OLED production capacity is also expanding. The continuous expansion of panel capacity directly drives demand growth for display photoresists.
- Ongoing display technology innovation drives industry upgrading:** The display industry is evolving toward higher resolution, higher refresh rates, and increasingly complex device structures, with technologies such as 8K displays, flexible OLED, and Mini LED reaching commercialization maturity. These advanced display technologies raise the technical thresholds for high-performance photoresists.
- Accelerated release of demand for domestic substitution:** From a market structure perspective, the localization rates of TFT array photoresists, BM photoresists, and RGB photoresists remain relatively low, with core market segments long dominated by Japanese and Korean suppliers. Against the backdrop of rising global supply chain uncertainties, panel manufacturers have placed greater emphasis on the security and controllability of key materials, strengthening their willingness to introduce domestic photoresist products. On the one hand, domestic photoresists can reduce reliance on overseas suppliers and enhance supply stability; on the other hand, when performance is comparable, domestic products offer advantages in cost efficiency and delivery responsiveness.

Cost Analysis of Raw Material

Raw materials for display photoresists, including resins and photoinitiators, cover numerous subtypes with wide price ranges. Photoinitiators, a key raw material, have ranged from USD15 to USD120 per kg in recent years, showing mild fluctuations

with limited impact on photoresist prices. In 2025, prices are around USD20 to USD100 per kg and may continue moderate fluctuations.

Key Success Factors and Competitive Landscape Analysis of the Display Photoresists Industry

Key Success Factors Analysis:

- **Sustained technological innovation to achieve breakthroughs in advanced formulations:** Display photoresists are technology-intensive materials whose performance improvements rely heavily on continuous innovation in formulation systems, resin design, and process integration. Companies need to consistently increase R&D investment, attract multidisciplinary talent with expertise in chemical synthesis, materials engineering, and process development, and build a comprehensive R&D system covering basic research, application development, and mass-production commercialization.
- **Stable mass-production and quality control capabilities to ensure high purity and consistency:** Display photoresists impose stringent requirements on purity and batch-to-batch consistency, making mass-production capability critical for large-scale applications. Companies must establish robust manufacturing processes and strict quality control systems, and introduce intelligent and automated technologies to improve efficiency and reduce human-induced variability.
- **Capability to pass stringent certification by leading panel manufacturers and build deep collaborative relationships:** Display photoresists are materials with strong certification requirements, and product adoption involves long-cycle process verification and mass-production testing. To obtain certification from leading panel manufacturers, companies must meet mass-production-level standards in product performance stability, process compatibility, and long-term supply capability. This requires deep participation in customers' R&D activities and production line commissioning, provision of customized solutions, and the establishment of rapid-response mechanisms to support customers' technical improvements or process adjustments in a timely manner.

Competitive Landscape of the China's Display Photoresists Industry:

The top five global players in the display photoresist market, ranked by sales revenue of TFT array photoresists in the Chinese market in 2025

Ranking	Company Name	Market Share (%)	Sales Revenue (Unit: RMB100 Million)
1	Company H	44.8%	6.5
2	The Company	26.2%	3.8
3	Company M	10.3%	1.5
4	Company N	6.9%	1.0
5	Company O	5.5%	0.8
Top 5		93.8%	13.6

Source: Frost & Sullivan

Note:

Company M, headquartered in PRC, is a listing company. Its business focuses on the research, development, manufacturing, and sales of key materials for semiconductor and display applications.

Company N, headquartered in PRC, is a listing company. Its main products include photoresists for display and semiconductor applications, functional materials, etc.

Company O, headquartered in PRC, is a company focuses on the R&D and production of display-related materials, including photoresists, color resists, black matrix materials, and other functional materials, serving downstream panel manufacturers and the broader semiconductor and display industries.

In 2025, the sales revenue of TFT array photoresists in the Chinese market of the top five enterprises in the global display photoresist market reached approximately RMB1,360 million. Based on the sales revenue of TFT array photoresists in the Chinese market in 2025, the issuer ranks second in the Chinese market in terms of TFT array photoresist sales value.

Overview of the Luminescent Materials Industry

Definition and Current Development of the Luminescent Materials

Luminescent materials are functional materials that convert electrical energy or other forms of energy into electromagnetic radiation and visible light under external energy excitation. They are widely used in display and related application fields. In display and lighting applications, luminescent materials regulate light color and brightness by tuning energy-level structures and chemical compositions, making them one of the critical foundational materials that determine device display performance and energy efficiency.

Market Drivers Analysis:

- **Rising requirements for color gamut and display performance at the high-end:** With the continued evolution of display terminals toward higher resolution, higher brightness, higher contrast, high energy-saving and wider color gamut, downstream panel manufacturers have placed increasingly stringent performance requirements on luminescent materials. Key attributes, including luminous efficiency, color purity, and long lifetime, directly determine color reproduction accuracy and overall visual performance of display devices.
- **Significantly rising demand for domestic substitution and supply chain security:** In the high-end luminescent materials segment, certain core products have long been dominated by overseas suppliers, with high technological and process barriers. Amid growing uncertainties in the global trade environment, accelerating domestic substitution of luminescent materials has become critical to mitigating supply chain risks and optimizing manufacturing costs. Supported by favorable policies and downstream application validation, domestically produced luminescent materials are achieving accelerated technological breakthroughs, with the pace of import substitution continuously increasing.

Downstream Market Exposure and Demand Outlook

The Company's new chemical materials are primarily applied in semiconductors, display panels, and specialty tire industries. In the semiconductor sector, photoresist materials are critical in chip fabrication processes, directly linking the Company's products to downstream chip demand. With the rapid development of AI, cloud computing, and high-performance computing, demand for computing power continues to rise, driving sustained expansion in semiconductor manufacturing and underpinning strong growth prospects for related materials.

In the display panel sector, photoresist products are used in panel manufacturing processes, with downstream applications covering consumer electronics such as smartphones, tablets, and televisions. Demand in this segment is supported by continuous product upgrades and increasing display performance requirements. While the growth rate is relatively moderate compared to semiconductors, the industry demonstrates stable demand with limited volatility, contributing to consistent consumption of related chemical materials.

In the specialty tire sector, the Company's additives are applied in tire manufacturing, with demand driven by the broader automotive industry. In particular, the rapid penetration of electric vehicles has led to increasing requirements for high-performance and durable tires, thereby supporting demand for advanced chemical additives.

Overall, these downstream industries exhibit limited cyclicalities. In the near term, semiconductor demand is expected to grow rapidly, while display panels and tires are likely to maintain steady growth, collectively supporting a stable and positive outlook for the Company's products.

APPENDIX

- The Company is positioned in the midstream of the industry chain, supplying functional resins, photoresists and ancillary chemical products to downstream industries including producers of tyres, automobiles, semiconductors and display panels.
- The markets in which the company operate are expected to offer substantial growth potential. In respect of the company's electronic materials business, driven by the expansion of wafer fabrication capacity in the PRC and the growing demand from PRC display panel manufacturers for local supplies, the PRC semiconductor and display photoresists markets are expected to grow rapidly from 2025–2030. Meanwhile, the global rubber additives for automotive tyres market is expected to grow at a moderate and stable pace, underpinned by increasing demand for tyres with high-end performance and environmentally friendly materials and is expected to increase from 2025 to 2030.
- The fully biodegradable materials market (including PBAT) is expected to achieve long-term growth, supported by increasing environmental awareness and driven by more stringent performance requirements and broader application coverage in both the PRC and global markets. In light of such market potential, a number of market participants, including our Group, have entered or expanded into the PBAT market in recent years. Notwithstanding this positive long-term outlook, the growth in the market demand of fully biodegradable materials has materialised at a relatively gradual pace, due to, among other factors, the time and extent of the implementation of relevant government policies and the development of downstream applications. In particular, the adoption of fully biodegradable materials generally involves higher costs, which may constrain penetration in cost sensitive, lower value-added applications, while broader adoption of fully biodegradable materials in higher value-added sectors is expected to take time. Against this backdrop, the relatively slower than expected demand growth, together with the increase in market entrants and supply, has resulted in industry overcapacity and intensified price competition in recent years.
- It is not uncommon for chemical materials manufacturers to conduct part of their sales through resellers to leverage on their sales networks, local market knowledge and customer relationships.
- Locally supplied phenol of comparable price and quality has remained readily available in the PRC.
- The arrangement in respect of the company's transactions with the overlapping customers and suppliers are in line with industry norm.
- There are more than 300 potential targets that match the company's selection criteria in the market.
- Routine summer maintenance activities generally involve equipment inspection, repair and replacement, as well as scheduled rest periods for production personnel, which are typically arranged to mitigate the operational challenges associated with high-temperature conditions during summer.
- The company was the first PRC manufacturer to achieve commercial production of G5-grade EBR products.
- In terms of display photoresists, we are a leading local supplier of positive photoresist for LCDs in the PRC and the first PRC manufacturer to achieve commercial production of locally made positive photoresist for array applications.