Chapter 1 Enhancing Corporate Value = Chapter 2 Enhancing Value Creation / Chapter 4 Reducing the Cost of Capital — Chapter 3 Accelerating Growth

Chapter 3 Accelerating Growth

The Group is promoting growth strategies that take into account changes in the market environment and technological innovation, aiming to establish a sustainable growth trajectory. We aim to accelerate product expansion into growth areas such as AI, while strengthening R&D and intellectual property and evolving our business portfolio to create new growth opportunities.

Special Feature

AI-Driven Future

Shin-Etsu Products Driving the AI Era

Products supporting the cutting edge of AI semiconductor manufacturing and use

Since the advent of generative AI, the real-world deployment of AI has accelerated across industries and society. With the development of physical AI, which uses AI to operate robots, automobiles, drones, and other devices, it is predicted that AI will increasingly become an infrastructure technology for industry and daily life going forward. On the other hand, challenges have emerged in scaling AI in the real-world, including growing electricity demand. As AI semiconductors are pushed to deliver ever-higher performance, their energy requirements continue to rise, driving a sharp increase in data center electricity use.

Against this backdrop, utilizing AI as social infrastructure will require further improvements in the AI chip performance efficiency, reductions in data center power consumption, greater efficiency in communications and enhanced energy savings across application areas such as automobiles and robotics.

The Shin-Etsu Group not only holds the world's leading market share in silicon wafers, which serve as the substrates for all AI semiconductors, but also supplies materials necessary for manufacturing processes such as semiconductor circuit patterning and molding materials to protect chips. We are also engaged in the development and manufacture of a wide range of materials that contribute to creating an environment needed to maximize AI performance, including materials for cooling semiconductor chips and servers, building systems for storage and optical communications. Through this diverse product portfolio, we contribute not only to various technological innovations in AI semiconductors, but also to energy savings and the efficient use of resources in AI deployment environments, including data centers.

Accelerating the evolution of AI through the development and innovation of diverse materials

To improve the data processing capabilities of AI semiconductors, the process node has been reduced to a few nanometers*1 in the cutting edge devices. In terms of memory, new technologies continue to emerge, including HBM*2, which stacks multiple layers of DRAM*3. The Shin-Etsu Group contributes to improving the efficiency of AI semiconductors by providing the highest quality silicon wafers, as well as a wide range of materials to meet the advanced needs of semiconductor manufacturing processes, including high-purity deposition gases essential for circuit formation, photoresists necessary for circuit pattern formation, photomask blanks that serve as circuit pattern masters, pellicles that act as dustproofing films, and TBDB materials indispensable for the manufacturing of advanced semiconductors. In addition, we further contribute to improving the efficiency of AI semiconductors through the development of new materials. As increasing chip power consumption makes heat dissipation ever more critical, we provide effective thermal management solutions through silicone-based thermal interface material (TIM)*4.

Nevertheless, the power consumption for cooling in data centers is said to have already reached about 40% of the facility's total power consumption. As data centers continue to handle ever-larger volumes of data at higher speed, there is a growing demand for more effective cooling systems, and the adoption of cooling systems using highly electrically insulating liquids (immersion cooling) is beginning to gain momentum. Shin-Etsu Chemical is promoting the practical deployment of an immersion cooling system using silicone fluid with low environmental impact. This non-fluorine-based (non-PFAS*5) silicone fluid is highly stable and suitable for long-term use. The technology contributes to making data centers more energy-efficient while helping to conserve resources.

In the field of power semiconductors, which are essential for controlling power supply, we are working to develop wafers optimized for the growth of gallium nitride (GaN), which is attracting attention as a key next-generation material. Through these efforts, the Company aims to help address the challenge of significantly reducing the power consumption at data centers.

*1 1 Nanometer: One millionth of a millimeter
*2 HBM (High Bandwidth Memory): A type of semiconductor memory that consists of multiple DRAM chips stacked on top of each other, enabling high-speed processing of massive amounts of data.
*3 DRAM (Dynamic Random Access Memory): A type of semiconductor memory commonly used as the main memory in PCs and smartphones.
*4 TIM (Thermal Interface Material): A material that fills the gap between heat-generating components such as AI chips and heat dissipation components such as heat sinks, effectively dissipating heat.
*5 PFAS: Collective term for perfluoroalkyl compounds and polyfluoroalkyl compounds.

Advancing into the next generation through integration of manufacturing, sales, and R&D

Today, driven by advances in AI semiconductors, development and proof-of-concept validation are progressing in optoelectronic integration, a next-generation technology that aims to achieve faster data processing and lower power consumption with the goal of extending the domain of optical signal processing. Shin-Etsu Chemical stably supplies high-quality SOI wafers*6, which are expected to be used in such next-generation technologies. In addition, we are advancing the development of optical fiber preforms that deliver the properties required for next-generation platforms, as well as materials for optical modulators, which are key components in optoelectronic integration. The Shin-Etsu Group integrates manufacturing, sales, and R&D to ensure that it stays ahead of changes in social and market needs. We will continue to contribute to the realization of a sustainable society through the stable supply of products that support a wide range of industries and everyday life, including the field of AI.

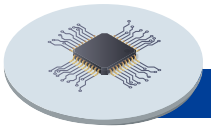
*6 SOI (Silicon on Insulator): A composite wafer in which a thin film of silicon is bonded onto an insulating layer on a silicon substrate.

Special Feature | AI-Driven Future

Shin-Etsu Products Driving the AI Era

The Shin-Etsu Group's major AI-related products

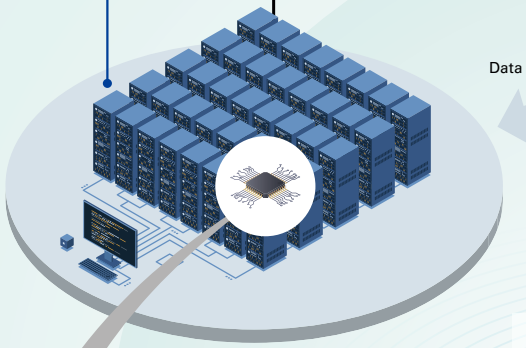
Cloud, Data Centers		
Semiconductor Devices	Semiconductor Devices e.g.) Silicon Wafers, Photoresist etc.	
Optical Components	Synthetic quartz preform for optical fiber	Material for LED
	SOI wafer	Quartz for optics
	Optical isolator, faraday rotator	Hybrid wafer
Immersion Cooling	Silicone fluid	
HDD	Rare earth magnet	PG/PBN Heater
	Photoresist	



Semiconductor Devices		
Silicon Wafers	Wafer Cases	Thermal interface materials
Synthetic quartz photomask substrates	Silane Coupling Agents	Silane gas
Photoresist	Epoxy encapsulant material	Hybrid wafer
Photomask blanks	Low dielectric material	CPO materials
Pellicles	Substrate Processing equipment	Ultra High Speed Mounter
TBDB materials	Quartz glass products, Materials for quartz glass products	

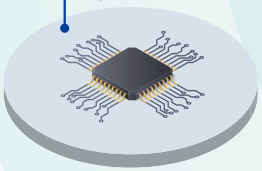
Power Supply・Cables		
Power Supply	QST™ substrate	
Cables	Synthetic quartz preform for optical fiber	PVC for cable coating

Edge Devices		
Drones	Sealing materials	Thermal interface materials
	Anode material for lithium ion batteries	
IoT Devices	Semiconductor Devices e.g.) Silicon Wafers, Photoresist etc.	
Industrial Robots	Light emitting device for 3D sensors	Rare earth magnet
Humanoid Robots	Rare earth magnet	Anode material for lithium ion batteries
EVs	Rare earth magnet	Anode material for lithium ion batteries



Cloud, Data Centers
- Semiconductor Devices
- Optical Components
- Immersion cooling
- HDD

Edge Devices
- Drones
- IoT Devices
- Industrial Robots
- Humanoid Robots
- EVs



Semiconductor Devices

Special Feature AI-Driven Future

Shin-Etsu Products Driving the AI Era

#01

Immersion Cooling

The superior properties of immersion cooling silicone contribute to energy and resource conservation in data centers

S.I.
Fluid Group,
Sales and Marketing Department I,
Silicone Division

S.F.
1st Development Department,
Silicone-Electronics Materials Research Center

Cooling the server by fully submerging it

S.I.: Traditionally, data centers have relied on air conditioning systems to cool the interior of the building. However, as data processing on servers increases in volume and speed, the amount of heat generated by the servers also increases, making it a major challenge to efficiently dissipate this heat. One solution currently under development is an immersion cooling system that cools the server directly by submerging it in liquid. Silicone fluid is a strong candidate for the cooling fluid used in such a system.

S.F.: In addition to silicone fluid, there are other candidate cooling fluids, including petroleum-based and fluorine-based fluids. However, silicone fluid has many advantages, including outstanding stability and resistance to deterioration, being PFAS-free with zero GWP (Global Warming Potential) and ODP (Ozone Layer Depletion Potential), a high flash point, excellent insulation, and, of course is so safe that it is also used in cosmetics.

S.I.: That's why we emphasize the advantages of silicone fluid to customers interested in immersion cooling. However, there are many stakeholders involved, including data-center operators, server manufacturers, their component suppliers, and manufacturers of immersion cooling systems, and even considering safety alone, standards and approaches vary by country and region. As a result, there is a wide range of priorities when it comes to selecting a cooling fluid. We are therefore gathering information from a wide range of sources, including our overseas network, and the two of us are working together to figure out such priorities.

S.F.: The Shin-Etsu Group already offers a wide lineup of silicone fluids. In addition to those existing products, we need to develop new, customized products tailored to customer requirements. Customers are still searching for a standard for immersion cooling fluids. Since customer requirements vary widely, we want to proactively propose a standard and assemble a comprehensive lineup of immersion cooling fluids.

Advantages of being able to tailor characteristics to customer requirements

S.I.: As communications technology advances from 5G to 6G, the fluid used for immersion cooling also needs to have electrical properties that minimize electrical energy loss to maximize the communication speed. Silicone fluid has excellent insulating properties and safety — so much so that it is used as insulating fluid in the transformers of Japan's Shinkansen bullet trains — and is a highly reliable product that exhibits stable performance over a long period of time.

S.F.: Another important electrical property is a low dielectric constant. A low dielectric constant of the cooling fluid results in a smaller capacitance, making it less likely for electricity to accumulate and thus providing stable insulation. Keeping it low is also an important factor in reducing electrical failures in the servers. Silicone fluid has the advantage that its dielectric constant can be controlled by changing its chemical structure, and we actively communicate that fact to our customers. However, the pace of technological innovation is fast in the AI world, and this is driving customer requirements to higher and higher levels. Accelerating our development to keep up with this pace is a major challenge for us. Therefore, in recent years, we have been trying to accelerate development by incorporating not only experimental materials research but also computer-assisted modeling approaches.

S.I.: Currently, there is no established standard for fluids for immersion cooling, so we believe it's important to work together with our customers to hone the advantages of silicone fluid and build up our track record, thereby creating a trend where silicone fluid is the go-to choice for immersion cooling.

S.F.: Indeed, the excellent stability of silicone fluid is a significant advantage when used as an fluid for immersion cooling: since it does not show any deterioration such as discoloration or increased viscosity, it can last for a long period of time without needing to be replaced. It also has the advantages of being colorless, transparent, and odorless, making it easy to visually monitor the server immersed in the liquid. Above all, Shin-Etsu Chemical's silicone fluid has a reputation for high quality and stable supply, so this is also a selling point for customers.

A future in which we can contribute to local communities and families

S.I.: Immersion cooling systems work by absorbing heat from servers into the silicone (or other) fluid, sending the fluid to a heat exchanger where it is cooled by water, and then re-using it again for immersion cooling. In the future, we hope to make effective use of the hot water from the heat exchanger for purposes such as local heating. What if heat from a data center could be used for a traditional community bathhouse (spa)? I think this would be welcomed by local residents, contribute to the community, and help create a more eco-friendly society.

S.F.: One can imagine a future in which servers are placed underneath each home and their heat converted into electrical energy for the home. A future society where silicone fluid contributes to energy conservation and decarbonization in the underfloor spaces of homes is not just a dream. In that case, immersion cooling would become a major application for silicone fluid. I want to lead the development of fluid for immersion cooling to help bring about that kind of future.

Special Feature AI-Driven Future

Shin-Etsu Products Driving the AI Era

#02

Thermal Interface Materials

Silicone heat-dissipation materials that reduce environmental impact and support the stable operation of AI

K.T.
Senior Researcher,
2nd Development Department,
Silicone-Electronics Research Center

S.A.
Product Development Group,
Sales and Marketing Department III,
Silicone Division

Heat dissipation materials are essential for the stable operation of AI

S.A.: With the emergence and widespread adoption of generative AI, AI has become a much more familiar part of our daily lives. In the future, the use of AI chips will spread beyond just servers lined up in data centers to a wide range of fields and applications including self-driving cars, autonomous robots, and drones. As the capacity of AI chips increases and the rate at which they process data accelerates, the amount of heat they generate increases as well. Letting that heat dissipate is essential for the AI chip to function to its full potential, no matter what environment it is being used in. This leads to ever more stringent requirements for the thermal interface materials (TIMs) that we are working on.

K.T.: To illustrate how important heat dissipation is, I once tried starting my own PC without any heat dissipation materials, and it wouldn't boot at all. Even if it boots up, there is a risk of it catching fire if it continues to overheat. This illustrates how big a threat of chip-generated heat is to computers and servers. There is a cooling mechanism around the chip, but if air gets into the contact surface between the chip and the cooling mechanism, heat dissipation is impaired. TIM serves to fill this gap and efficiently transfer heat.

One of silicone's advantages is the high degree of freedom it brings to product design

K.T.: TIM is a composite material consisting of a base polymer and a filler. Other materials besides silicone are also available as options for the base polymer. However, silicone has two advantages. One advantage is its excellent stability, including weather resistance, heat resistance, and cold resistance. Another advantage is that silicone can be customized to meet the customer's specific needs. That's because of its chemical structure, which features a main chain* of silicon and oxygen that can bond with a variety of organic groups that can be selected as needed. This enables a high degree of product design flexibility and the possibility of custom-made products. To take advantage of this, first and foremost, it's crucial to accurately understand the customer's requirements so that we can then proceed quickly with development.

S.A.: As a result of the rapid growth of the AI market and the rapid increase in demand for heat dissipating materials, more new manufacturers are entering the market and competition is intensifying. In this environment, Shin-Etsu Chemical already has more than 30 years of manufacturing experience in silicone heat-dissipating materials and can leverage that expertise to meet customer needs. To make the most of that advantage, I, as the sales representative, and K.T., as the R&D representative, often visit customers together. Many of our customers are located overseas and visiting them together in person allows us to accurately understand their technical requirements and challenges then and there, which helps to speed up development. In an increasingly competitive environment, development speed is becoming more and more important.

Contributing to curbing ever-increasing power consumption

S.A.: The performance of the TIM directly impacts the cooling efficiency of the equipment in which it is used. If performance is poor, heat won't be dissipated effectively, and a lot of power will be used for cooling the entire server. Therefore, designing and providing heat dissipation materials that are suited to the environment in which the chips are used contributes to reducing environmental impact, including reducing power consumption in data centers.

K.T.: In recent years, as the functionality of AI chips has grown more sophisticated, the chips have not only become more complex in shape, but their size is growing at the same time as their substrates are getting thinner, making it increasingly difficult to meet customer requirements. In addition to the main circuit, the AI chip is connected to HBM (multi-layer high-bandwidth memory circuitry) and other components. As a result, the heat generation is not uniform, and the warping and deformation that occur during chip operation are also not uniform. The TIM needs to keep up with those changes in the chip. Furthermore, if the chip's design changes and the heat-generating part shifts by a few millimeters from its original position, the TIM will not be able to adequately dissipate heat unless it is adjusted accordingly. To overcome such challenges, we must constantly keep up with the latest information on the AI chips themselves. We also ask our sales representatives to gather information on that topic, and we communicate frequently in person.

S.A.: AI is now becoming a part of our daily lives, and I feel proud knowing that the products we create are playing a role in that. We pride ourselves on providing high-quality products, and we will continue to strive to ensure that they can be used in more and more diverse fields.

K.T.: Recently, we have also been using AI in our own domain of R&D to accelerate the pace of development. Imagining how the resulting TIM will further contribute to improving the performance of AI chips in a virtuous cycle makes the work even more rewarding.

*Main chain: The core silicone backbone formed by alternating silicon and oxygen atoms, known as the siloxane bond. A key feature of silicone is that bonding various organic groups to its main chain allows it to be given a wide range of properties.

Special Feature AI-Driven Future

Shin-Etsu Products Driving the AI Era

#03

QST™ substrate

Developing next-generation power semiconductors that significantly reduce data center power demand

M.Y.
Manager,
Shin-Etsu Chemical GaN Commercializing Unit

Establishing the fundamental technology for QST™ substrate for GaN epitaxial growth

As AI becomes widespread, reducing the power consumption of the AI data centers that support it has become a major challenge. According to estimates by the International Energy Agency (IEA), worldwide electric power demand for data centers reached 415 terawatt-hours in 2024 and is expected to reach 945 terawatt-hours by 2030, exceeding the total electricity consumption of Japan as a whole. To curb this enormous demand for electricity, innovation in power semiconductors is urgently needed. Power semiconductors are devices that perform roles such as converting the high-voltage alternating current supplied to data centers into direct current, converting voltage levels, and controlling frequency. They are used in many places throughout the data center, from its power receiving infrastructure to the power supply for the servers that serve as its brain. There are therefore high expectations for the improved performance of power semiconductors to solve challenges such as reducing the electrical energy lost as heat.

Shin-Etsu Chemical is focusing on gallium nitride (GaN) as a next-generation material for these power semiconductors. In 2019, we signed a licensing agreement with Qromis, Inc. in the United States, and began full-scale development of QST™* substrate for GaN epitaxial growth. GaN is expected to offer excellent properties, such as reducing electrical energy and contributing to the miniaturization of devices, but until now it has been difficult to create substrates that can fully realize these characteristics. To overcome this challenge, we incorporated our own proprietary technologies to suppress the occurrence of defects, enabled the manufacture of large-diameter wafers, and work to enable the use of silicon carbide (SiC) and GaN as "higher-performance seed crystals" for power semiconductors. We have even made it possible to recycle the base substrate. As a result, power semiconductors using this technology can withstand high-voltage loads of up to 1200V, making them usable in the power receiving infrastructure of data centers, while also reducing energy loss by more than 80% compared to conventional devices. Furthermore, by enabling the miniaturization of power supply components and reducing the need for heat dissipation, power consumption for cooling and other related processes can be reduced, dramatically lowering the overall power demand of the AI data center. Moreover, recycling can reduce the electricity required for conventional crystal substrate manufacturing and lower the consumption of gallium (Ga), one of the rare materials.

Partnerships with Group companies and customers

The foundational technologies for these next-generation power semiconductors are built on the technologies and expertise in compound semiconductor manufacturing that Shin-Etsu Chemical has cultivated over many years. I myself have experience in the development and sales of compound semiconductors used in LEDs and other applications, and that experience has been helpful in the development of QST™ substrate. Furthermore, the cooperation of device manufacturers is essential for gathering information on customer needs and for technical verification. In this regard, our group company Shin-Etsu Handotai Co., Ltd. and our global network have been a great help. Since we are primarily a material manufacturer, we need to rely on device manufacturers and global R&D institutions to evaluate the performance of the devices incorporating our materials. We have also been conducting performance evaluations of the newly developed QST™ substrate with the cooperation of device manufacturers and research institutions that are our customers. After receiving positive feedback in 2025, we became convinced that even the large-diameter 300 mm wafers that were previously considered difficult could be commercialized.

We were this time able to make great use of our existing partnerships with our customers in the compound semiconductor field. When we spoke to OKI Electric, with whom we have had a relationship on compound semiconductors for LEDs, about recycling QST™ substrate that forms the base of GaN devices, we discovered that the company's CFB® technology could be utilized, and joint development is now underway for the real-world deployment of GaN devices. I believe that this recycling process will significantly reduce the energy and materials required for substrate manufacturing and will also allow us to make better use of valuable Ga resources by eliminating the need for GaN substrates.

Greater focus on real-world deployment

QST™ substrate has only just reached the stage where the fundamental technology is established, and there will still be many hurdles to overcome before they can be adopted as power devices worldwide. However, we have a foundation of overcoming obstacles through partnerships with our customers, and with the support from Shin-Etsu Group companies around the world, I am confident that we can clear these hurdles and deliver innovation.

*QST™: Abbreviation for Qromis Substrate Technology, a gallium nitride (GaN) technology patented by Qromis, Inc. in the United States. By incorporating its proprietary technologies, Shin-Etsu Chemical has further improved the properties of the original QST™ substrate—for example, by suppressing defects and cracking to enable larger-diameter substrates —and is now developing second- and third-generation substrates.

R&D and Intellectual Property Strategy

Viewing R&D as a "challenge" to pioneer the future, the Shin-Etsu Group is pursuing R&D to meet the needs of the times. Because the results of our R&D as important assets that directly contribute to the competitiveness of our business, we strategically manage the valuable intellectual property obtained through R&D to make effective use of it.

Tripartite Development System and Technological Advantage

Shin-Etsu Chemical's product development is closely aligned with customer needs, enabling us to develop and supply high-quality products in a short period of time. This is supported by our unique R&D system based on "tripartite teamwork" among the sales, development, and production teams. R&D centers are set up at production sites, share the market needs the sales department identifies, and work closely with the manufacturing department in order to develop products with a view to mass production. In addition, the development of technologies that create new value-generating opportunities is being carried out across departments under the direct supervision of the president. Generative AI is also being effectively deployed to continuously strengthen our R&D system. We are also constantly evolving our core production and processing technologies, including PVC polymerization technology and silicon crystal growth technology, to solidify our competitive advantage.

Intellectual Property Strategy

The Group acquires, manages, and utilizes intellectual property based on the basic policy of "applying for and acquiring valid patents to protect our business and increase business value, and not to infringe on the patents of other companies." We have established a Patent Department as a specialized unit to promote intellectual property activities by closely coordinating the Group's R&D Department and business divisions. The Patent Department encourages each researcher to always keep the idea of patents in mind and trains them to be able to draft patent application specifications themselves. In this way, we are creating a culture in which researchers see intellectual property as their own responsibility and carry out their research in a proactive manner.

In recent years, while maintaining our "defensive" intellectual property activities centered on protecting rights, we have been strengthening our "offensive" efforts aimed at establishing a competitive advantage and building barriers to market entry. For our products with distinctive product forms, we also actively acquire the design rights. We are also utilizing new tools such as generative AI to streamline various intellectual property-related tasks. In FY2025, there were no cases in which business progress was impeded due to patents, and no litigation has occurred.

Invention Awarding System

The Shin-Etsu Group has instituted Actual Compensation Awards to honor employees who have made inventions or designs that have greatly contributed to the company through patent rights and the like, and Multiple Inventor Awards for employees who have contributed to obtaining many patents through numerous inventions. In FY2025, there were 26 Actual Compensation Awards and 21 Multiple Inventor Awards.

Selected as a Clarivate Top 100 Global Innovator for the 15th Consecutive Year

Shin-Etsu Chemical has been selected by Clarivate (UK) as a Top 100 Global Innovator for the 15 consecutive years. The award is granted to companies and institutions leading global innovation. Shin-Etsu Chemical is one of only nine companies in Japan to have been selected for 15 consecutive years, and is the only chemical company among them. Among the companies and institutions selected based on the number of patents filed and held over the past five years, Shin-Etsu Chemical scored particularly high in the categories of "Rarity," which measures the originality of our inventions, and "Geographical investment," which is assessed based on demonstrating a strategic approach to international expansion. This recognition is the result of many years of continuous efforts in highly original, cutting-edge R&D, and demonstrates the strength of our technological foundation.

Selected among Innovation Momentum 2026: The Global Top 100 for the first time

For the first time, Shin-Etsu Chemical has been selected by LexisNexis (USA) for its Innovation Momentum 2026: The Global Top 100. The award is granted to 100 innovative companies leading the future of science and technology worldwide. Seven Japanese companies were selected, of which only two were in the field of chemicals and materials. Candidate companies are evaluated on factors such as technical value (based on the total number of patent citations) and market value (based on the size of the market where the patent is protected) over the past two years. The award recognizes Shin-Etsu Chemical's strength in materials development, which allows us to continuously create new technologies in a short period of time.

R&D and Intellectual Property Strategy

Message from a member of the R&D Department

We aim to develop materials for optoelectronic integration by utilizing our crystal technologies and dissimilar material bonding technology

M.K.
Advanced Functional Materials Research Center

The growing importance of optoelectronic integration in the AI era

The widespread use of AI has increased the importance of data centers (DCs), which are now required to transmit and process more information than ever before at high speed and with low power consumption. One technology that is attracting attention as a solution to these problems is "optoelectronic integration," which replaces some of the electrical wiring with light. Optoelectronic integration is an important technology for keeping the power consumption of the entire information-processing infrastructure, including the DCs and semiconductors technology, as low as possible, and the importance of the materials and substrates that support it is also increasing. I believe that its role will become even more important in the future as the amount of information processing required for AI increases.

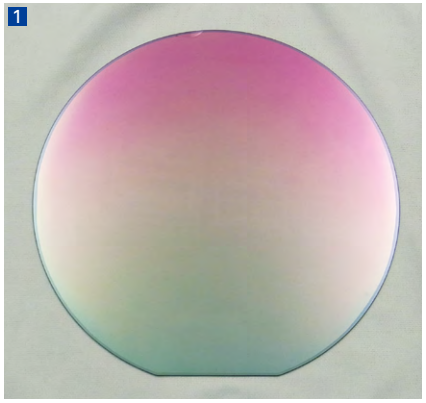
Areas where our technologies can be applied

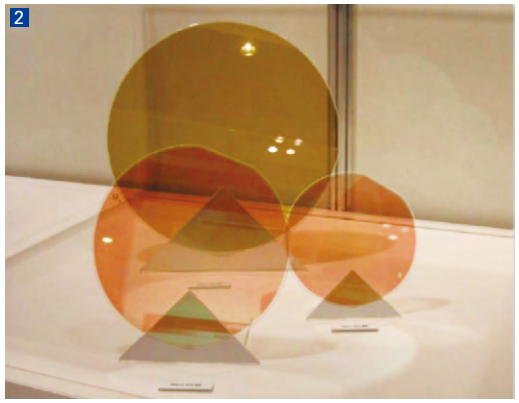
Thin-film lithium niobate (TFLN) on silicon is one optoelectronic integration technology that is attracting attention as a platform for optical modulators and photonic integrated circuits that control optical signals. Another technology is a piezoelectric-on-insulator (POI) substrate comprising a thin-film lithium tantalate layer on silicon. Currently, it is mainly used as a substrate for surface acoustic wave (SAW) devices, but in the future, it is expected to expand into new optical device fields that leverage the unique properties of lithium tantalate. As AI servers become more powerful, expectations for these advanced substrate materials will strongly increase.

Our strengths and future direction

In addition to supplying materials indispensable to the manufacture of generative AI, another competitive strength of Shin-Etsu Chemical is our in-house production of raw materials such as lithium niobate wafers and silicon wafers that will become next-generation AI-related materials. We also possess hybridization technology that bonds different types of wafers together and transfers thin films to create functional substrates. We harnessed these technologies to develop hybrid substrates such as SOQ (silicon-on-quartz), and the QST™ substrate* which we recently issued press release. Taking advantage of these strengths, we will apply our TFLN, POI, and QST™ substrates to DC optoelectronic integration materials and develop new applications to deliver medium- to long-term growth.

*QST™ is a registered trademark held by Qromis, Inc. in the United States (registration number 5277631).


1


2

1 6 inch diameter TFLN substrate for optical modules and quantum computers

2 6-12 inch diameter SOQ (silicon-on-quartz) substrate for optical devices

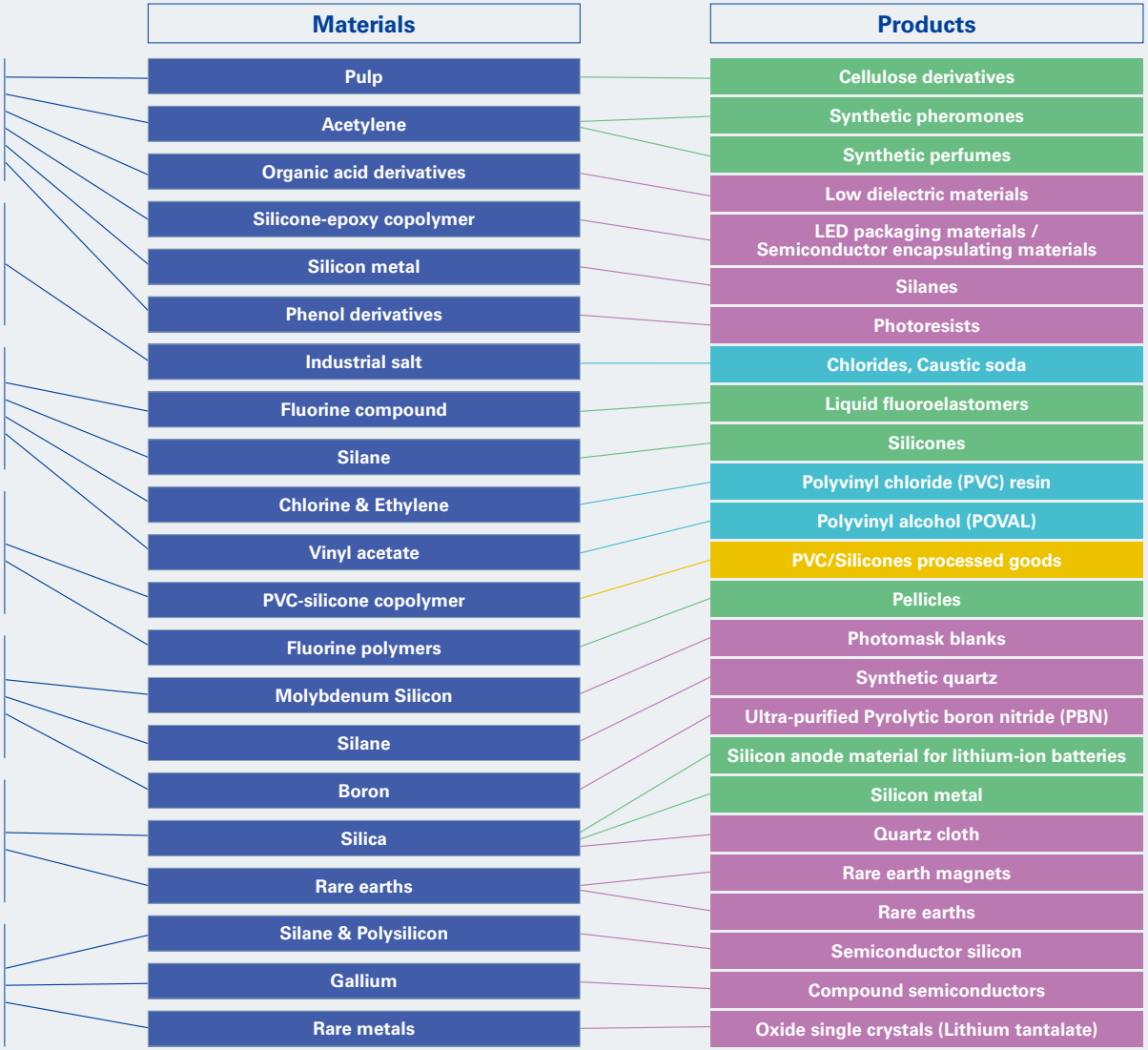
Robust Business Structure Born from Close Cooperation and Diversification

By combining the advanced technologies and know-how it has cultivated over many years, the Shin-Etsu Group has acquired the ability to reliably supply large quantities of high-purity, high-performance materials, which has become a source of competitive advantage.

Business Segment

- Electronics Materials
- Functional Materials
- Infrastructure Materials
- Processing & Specialized Services

Organic synthesis technology	A fundamental technology for synthesizing high-purity, high-performance chemical substances by precisely designing their molecular structures and functions through the sophisticated combination of various organic chemical reactions.
Electrolysis technology	A reaction technology that uses electrical energy to precisely control chemical reactions and efficiently produce high-purity products, contributing to reduced environmental impact.
Polymerization technology	A technology for chemically bonding monomers to form polymers, and then precisely controlling their molecular weight and structure to create materials with properties tailored to specific applications.
Plastic & Film processing technology	A technology for producing high-quality films with excellent mechanical properties, functionality, and durability through advanced processing techniques such as molding, stretching, lamination, and surface treatment.
CVD*1 & PVD*2	An advanced process technology for forming high-performance, high-precision thin films on the surfaces of semiconductors and electronic components from gas-phase precursors.
Powdering/ Sintering technology	A technology that precisely controls the composition and particle size of fine particles and optimizes everything from molding to high-temperature firing to create inorganic materials that combine uniformity and high strength.
Single-crystal growth technology	A technology for precisely growing single crystals with a well-ordered atomic arrangement to create high-performance and reliable semiconductor and optical materials.

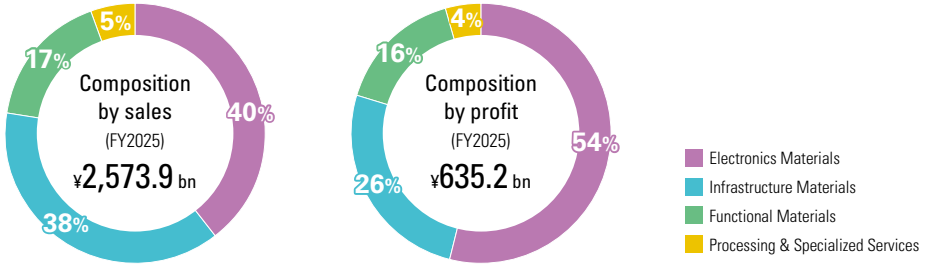


*1 Chemical vapor deposition (CVD)
A method for depositing thin film by chemical reaction on the substrate of precursors produced by applying energy such as heat, plasma, or light to raw material gases.

*2 Physical vapor deposition (PVD)
A method in which a solid source material is evaporated and dispersed by heating, sputtering, ion beam irradiation, or similar techniques, and deposited onto the substrate surface as atomic or molecular particles.

Measures for Medium- to Long-Term Growth of the Business Portfolio

The Shin-Etsu Group's business portfolio consists of growth businesses, centered on semiconductor-related materials, that supply various components to the AI sector; stable cash-generating businesses centered on PVC; and high value-added businesses based on silicones and other functional materials. By ensuring strong competitiveness in these businesses, we aim to achieve both sustainable growth and high profitability while mitigating the impact of market fluctuations on the overall business portfolio.



	Growth potential (growth factors)	Competitive advantages	Measures to promote growth
Electronics Materials (Semiconductor-related products, etc.)	■ Increase in data center investments and AI-equipped devices ■ Rapid growth in the semiconductor market due to the increase in EVs ■ Advancement of new frontiers in semiconductors ■ Increased demand for power semiconductors in a decarbonized society	■ Stable quality and stable supply to customers ■ Responding to increasingly sophisticated technological requirements ■ Synergies gained from an extensive lineup of semiconductor-related products (competitive edge in development and proposal capabilities)	■ Conduct research and development to keep pace with the growth of the semiconductor market and ongoing technological advances while expanding production capacity when the timing is right. ■ As experts in all fields of semiconductor materials, strive to be a materials company that continues to provide our customers with the convenience and value of a one-stop solution. ■ Build a resilient supply system that considers various risks, maintain stable production, and earn high trust from customers.
Infrastructure Materials (Polyvinyl chloride, etc.)	■ Increase in housing demand ■ Population growth ■ Infrastructure demand in emerging countries and infrastructure maintenance and renewal demand in developed countries	■ World's largest production capacity and high productivity ■ Stable quality and good supply capability ■ Favorable raw material economics in the U.S. ■ Integrated production plant from ethylene and chlorine ■ World wide production plant (Three plants in the U.S., two in Europe, and one in Japan.) ■ Superior sales network operated in the U.S., Europe and Japan	■ Leverage our state-of-the-art PVC plants to maintain high operating capacity. ■ Leverage our economies of scale and cost structure to maintain a competitive advantage. Continue to generate profits under any market conditions. ■ Provide meticulous service to customers worldwide and reliably supply products of stable quality.
Functional Materials (Silicones, etc.)	■ Increase in the ratio of high-value-added products that contribute to solving customer and societal issues (thermal management, weight reduction, labor saving, a substitute for PFAS, etc.) ■ Increase in demand due to population growth and economic growth	■ Thorough response to customer needs through tripartite teamwork that integrates the sales, research, and production divisions ■ Use of advanced technological capabilities and know-how cultivated over 70 years (ability to develop new products and technologies, expansion of highly functional product lineup) ■ Global production bases and a sales network in 13 countries	■ Further advance the development highly functional products and provide essential materials for our customers. ■ Introduce more new products for a variety of fields and applications with promising future growth potential. ■ Increase our points of contact with the market and further expand our sales territory.

Electronics Materials

Major Products

Semiconductor silicon, Rare earth magnets, Semiconductor encapsulating materials, LED packaging materials, Photoresists, Photomask blanks, Synthetic quartz products

For product information, please see the company brochure.
https://www.shinetsu.co.jp/wp-content/uploads/2026/06/shinetsu_kaishaannai_en.pdf

FY2025 Results and Business Environment

The growth of the AI market has brought continued high levels of data-center investment and production of advanced semiconductor devices. As a result, the semiconductor market is booming, particularly in the advanced sector. The various advanced semiconductor-related materials we handle, including silicon wafers and lithography materials, are therefore becoming even more important.

Net Sales	¥1,015.7 bn	Assets*1*2	¥1,877.5 bn	Depreciation and Amortization	¥109.5 bn
Operating Income	¥344.5 bn	Capital Expenditures	¥212.3 bn	Number of Employees*1	13,566

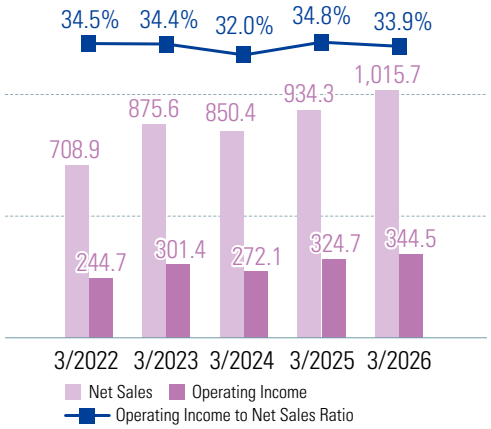
*1 As of March 31, 2026
*2 These amounts were prepared on an informal basis.

Strategies for the fiscal year ending March 31, 2027

- Provide materials and technologies essential to the semiconductor market
- Quickly establish results at the new lithography materials site (Isesaki Campus)
- Expand our capabilities to support the advancement of AI as a leading electronic materials manufacturer

Performance over the past 5 years

(¥ billion)



Competitive Advantages

Overall business

- Stable quality and stable supply to customers
- Responding to increasingly sophisticated technological requirements

Semiconductor-related products

- Synergies gained from an extensive lineup of semiconductor-related products (competitive edge in development and proposal capabilities)

Rare earth magnets

- Stable supply supported by operating multiple production bases and an established integrated production system starting from raw materials
- Development of products that substantially reduce the use of heavy rare earth materials and promotion of recycling

Growth Potential (Growth Factors) and Risks of Each Business

Growth potential (growth factors)

- Increase in data center investments and AI-equipped devices
- Rapid growth in the semiconductor market due to the increase in EVs
- Advancement of new frontiers in semiconductors
- Increased demand for power semiconductors in a decarbonized society (increased use of different substrate materials such as QST™ substrate)

Risks

- Excess supply over a considerable period
- Macroeconomic downturn
- Decoupling of the international economy

Topic

New semiconductor lithography materials facility, Isesaki Campus, begins operations

The Isesaki Campus (Gunma Prefecture) has been completed as a new base for semiconductor lithography materials. The first phase of construction was completed quickly in about 2 years, and operation began in June 2026, with a total investment of approximately ¥83 billion. The site is a response to the strong demand for lithography materials essential for advanced semiconductors used in AI and data centers.

Shin-Etsu Chemical entered the photoresist business in 1997 and began producing state-of-the-art KrF photoresist at our Naoetsu Plant. Since then, we have strengthened our lithography materials business by developing photomask blanks, ArF photoresists, multilayer materials, EUV photoresists, and other products. To develop the production system for the business, we established a second base (Takefu Plant) in Fukui Prefecture in 2016, a third base in Taiwan (Shin-Etsu Electronic Materials Co., Ltd.) in 2019, and now a fourth base on the Isesaki Campus. We have designated this campus as an advanced hub for semiconductor materials, including R&D, and have already begun the second phase of construction.

Isesaki Campus

Electronics Materials

Shin-Etsu Group Products Associated with the Overall Semiconductor Manufacturing Process

The Group supplies a wide range of materials necessary for semiconductor manufacturing processes, including silicon wafers, photoresists, photomask blanks, and encapsulating materials, supporting the development of semiconductor devices.

Products supplied by the Shin-Etsu Group

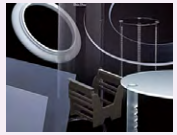

Silicon metal


Quartz crucibles


Silicon carbide fine-ground powder

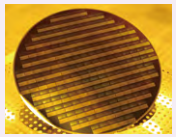

Silicon wafers

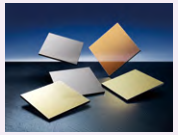

Wafer cases

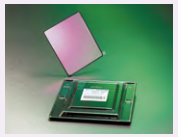

Quartz glass for use in the semiconductor manufacturing process

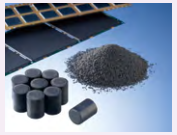

Rare earths (yttrium oxide)


Synthetic quartz photomask substrates


Photoresist


Photomask blanks


Pellicles (dust protection covers for photomask substrates)


Encapsulant materials


Liquid encapsulant materials


Thermal interface materials

Semiconductor manufacturing process

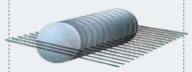
Raw materials

Polysilicon is produced from silicon metal (Si), which is made by removing the oxygen from quartzite (SiO_2).

Single crystal silicon

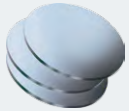
Single crystal silicon is produced in a cylindrical format by melting polysilicon.

Cutting and polishing



Single crystal silicon is cut into thin slices and polished to a mirror finish.

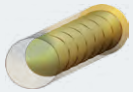
Silicon wafers



The processes shown above are used to create silicon wafers.

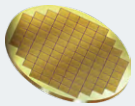
Wafers are shipped to device manufacturers.

CVD, Oxidation



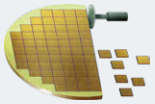
Wafers are put into a high-temperature furnace to produce a thin oxidation film on their surface.

Pattern formation



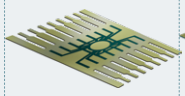
Special photosensitive materials (photoresists) are applied, circuit patterns are transferred in and developed, and the surface is processed.

Dicing



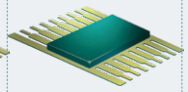
Individual wafers are cut away and made into integrated circuit chips.

Assembly



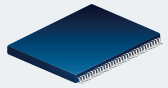
Using wire, the chips are connected electrically to a circuit board.

Resin sealing



The chip is coated in resin to protect it from heat and shocks.

Semiconductor devices



The completed semiconductor device is now embedded in the final product.

Final product

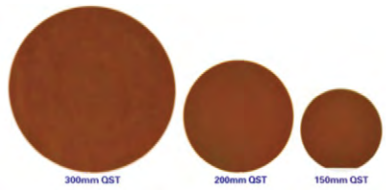
Processes where our products are used

Topic

Initiatives toward the real-world deployment of GaN devices

GaN devices are semiconductors that achieve both high breakdown voltage and high-frequency operation while maintaining low power consumption. They are expected to be put into practical use in high-speed communications and power supplies for AI data centers. To reduce production costs necessary for widespread adoption, Shin-Etsu Chemical is promoting the use of larger diameter QST™ substrates*1, which are growth substrates specifically designed for GaN devices. In 2024 we achieved a 300 mm version and began providing samples. In 2025, an IMEC*2 evaluation confirmed that our GaN device achieved a high voltage withstand capability exceeding 650V, setting a world record for a 300-mm substrate. Furthermore, on substrates with diameters of 200 mm or less, new products with improved seed crystal layers have demonstrated high voltage resistance characteristics exceeding 3000V, demonstrating steady progress towards the real-world deployment and mass production of GaN devices.

*1 QST™ substrate: A composite material substrate specifically for GaN growth, developed by Qromis, Inc. (California, USA), and licensed by Shin-Etsu Chemical in 2019.
*2 IMEC: A leading international non-profit R&D organization in semiconductor technology, headquartered in Leuven, Belgium.



Infrastructure Materials

Major Products Polyvinyl chloride (PVC) resin, Caustic soda, Methanol, Chloromethane, Polyvinyl Alcohol (POVAL)

For product information, please see the company brochure.
https://www.shinetsu.co.jp/wp-content/uploads/2026/06/shinetsu_kaishaannai_en.pdf

FY2025 Results and Business Environment

PVC is expected to see a steady increase in demand over the medium to long term. Over the past few years, excessive exports from some regions have dragged down global market prices, while demand in North America has remained stable due to a housing shortage. Furthermore, conflicts in the Middle East have reinforced the attractiveness of the U.S. as a manufacturing location.

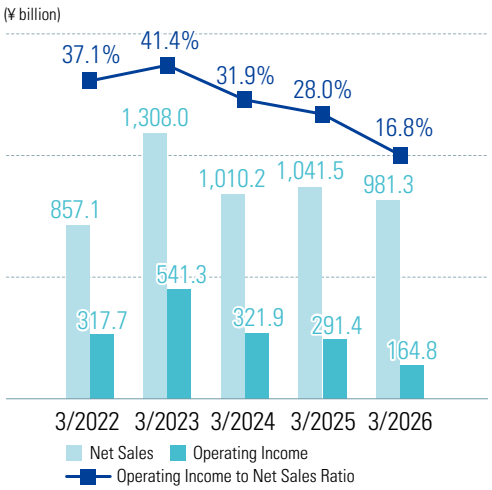
Net Sales	¥981.3 bn	Assets*1*2	¥2,444.6 bn	Depreciation and Amortization	¥86.1 bn
Operating Income	¥164.8 bn	Capital Expenditures	¥67.8 bn	Number of Employees*1	1,957

*1 As of March 31, 2026
*2 These amounts were prepared on an informal basis.

Strategies for the fiscal year ending March 31, 2027

- Fully utilize supply capacity built at U.S. bases
- Maximize value rooted in high quality and stable supply
- Leverage worldwide sales network

Performance over the past 5 years



Competitive Advantages (PVC)

- World's largest production capacity and high productivity
- Stable quality and good supply capability
- Favorable raw material economics in the U.S.
- Integrated production plant from ethylene and chlorine
- World wide production plant (Three plants in the U.S., two in Europe, and one in Japan.)
- Superior sales network centered in the U.S., Europe and Japan

Growth Potential (Growth Factors) and Risks of Each Business

Growth potential (growth factors)

- Increase in housing demand
- Population growth
- Infrastructure demand in emerging countries and infrastructure maintenance and renewal demand in developed countries
- Increasing and intensification of natural disasters

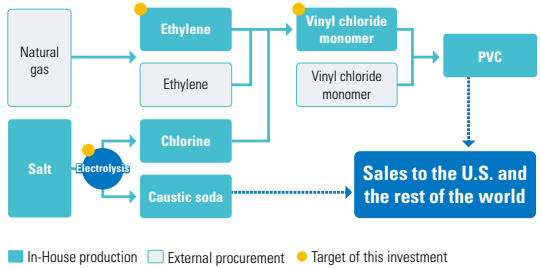
Risks

- Oversupply in a certain period
- Slowing housing demand
- Rise in raw material prices

Topic

Shintech strengthens integrated production system starting from the main raw materials of PVC

Our U.S. subsidiary Shintech, Inc., which is the world's largest PVC manufacturer, will invest approximately $3.4 billion to build a new plant in Plaquemine, Louisiana, by the end of 2030, which will produce ethylene and electrolytic vinyl chloride monomer, the main raw materials for PVC. PVC contributes to the development of infrastructure that supports daily life and society, and as a resin with a low environmental impact, demand is expected to increase in the future. This investment will strengthen our system for efficiently and stably procuring raw materials, further enhance our position in the global PVC market, and expand and strengthen our relationships with customers around the world.



	Current production capacity		Production capacity after this investment
Ethylene	0.5 million t/year	▶	1.125 million t/year
Caustic soda	1.95 million t/year	▶	2.26 million t/year
Vinyl chloride monomer	2.95 million t/year	▶	3.45 million t/year

Functional Materials

Major Products

Silicones, Cellulose derivatives, Silicon metal, Synthetic pheromones, Vinyl chloride-vinyl acetate copolymer resin, Liquid fluoroelastomers, Pellicles, Silicon anode material for lithium-ion batteries

For product information, please see the company brochure.
https://www.shinetsu.co.jp/wp-content/uploads/2026/06/shinetsu_kaishaannai_en.pdf

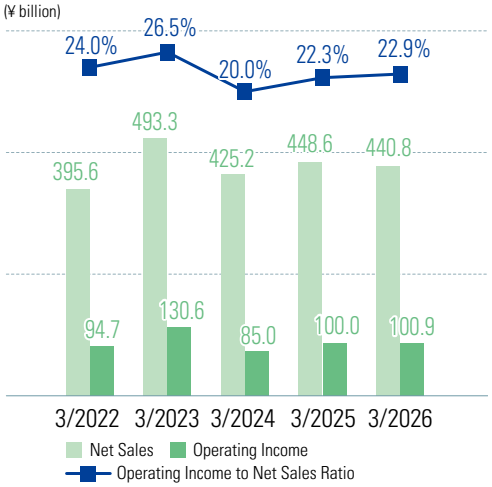
FY2025 Results and Business Environment

For both silicone and cellulose, the market for general-purpose products continues to stagnate due to an oversupply from certain regions. On the other hand, particularly in the electrical, electronics, and healthcare sectors, demand for functional and specialty products is increasing due to increasing demands for functionality and quality of materials.

Net Sales	¥440.8bn	Assets*1*2	¥675.0 bn	Depreciation and Amortization	¥40.3 bn
Operating Income	¥100.9 bn	Capital Expenditures	¥56.0 bn	Number of Employees*1	4,445

*1 As of March 31, 2026
*2 These amounts were prepared on an informal basis.

Performance over the past 5 years



Strategies for the fiscal year ending March 31, 2027

- Strengthen deployment of functional and specialized products
- Expand electrical and electronic applications, including communications and AI
- Expand cellulose products for pharmaceutical use

Competitive Advantages

Overall business

- Ability to develop a variety of high value-added products by leveraging our advanced technological capabilities
- High quality products and stable supply system

Silicones

- Thorough response to customer needs through tripartite teamwork that integrates the sales, research, and production divisions
- Use of advanced technological capabilities and know-how cultivated over 70 years (ability to develop new products and technologies, expansion of highly functional product lineup)
- Global production bases and a sales network in 13 countries

Cellulose derivatives

- World top-class production capacity
- Active capital investment for pharmaceutical applications
- Global stable supply structure secured by three manufacturing sites

Growth Potential (Growth Factors) and Risks of Each Business

Growth potential (growth factors)

- Increase in the ratio of high-value-added products that contribute to solving customer and societal issues (thermal management, weight reduction, labor saving, a substitute for PFAS, etc.)
- Increase in demand due to population growth and economic growth
- Expansion of the pharmaceutical market

Risks

- Excess supply in the general-purpose silicone market
- Rising energy and raw material prices

Topic

Aggressive investment in the pharmaceutical cellulose business

Shin-Etsu Chemical regards the pharmaceutical cellulose business as an important growth area and is strengthening its system for supplying this material. Cellulose, derived primarily from plant-based pulp, is widely used as a tablet coating agent and disintegrant because of its high safety, contributing to improved pharmaceutical functionality.

Shin-Etsu AQOAT®*1 is an enteric coating agent for tablets and related products that we developed in-house. Driven by the potential for improved absorption of poorly soluble drugs, demand is growing worldwide, and we are expanding facilities at the Naoetsu Plant. Similarly, L-HPC®*2 is a disintegrant for tablets and related products that we developed in-house. It is used to accelerate the disintegration of tablets and improve their strength. To strengthen supply stability, we are making investments to increase production capacity at our subsidiary SE Tylose GmbH & Co. KG (Germany). Through stable supply and higher quality, we will further contribute to the development of the pharmaceutical industry.

*1 Japanese Pharmacopoeia: hypromellose acetate succinate
*2 Japanese Pharmacopoeia: low-substituted hydroxypropylcellulose

Processing & Specialized Services

Major Products and Services

Processed plastics, Export of technologies and plants, Export and import of products, Engineering

For product information, please see the company brochure.
https://www.shinetsu.co.jp/wp-content/uploads/2026/06/shinetsu_kaishaannai_en.pdf

FY2025 Results and Business Environment

The automotive industry is expected to experience medium- to long-term growth, driven by advancements in autonomous driving technology and the expansion of emerging markets. Additionally, the silicon wafer container market is booming, especially in the advanced sector, driven by the expansion of the AI market.

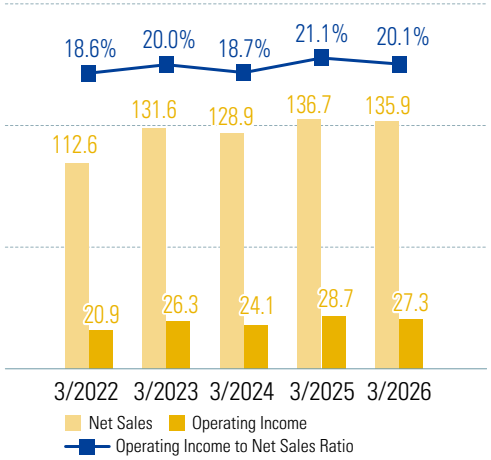
At manufacturing sites, the importance of developing processes and equipment that create new value, beyond mere labor savings and efficiency improvements, is increasing.

Net Sales	¥135.9 bn	Assets*1*2	¥281.1 bn	Depreciation and Amortization	¥8.3 bn
Operating Income	¥27.3 bn	Capital Expenditures	¥7.2 bn	Number of Employees*1	7,374

*1 As of March 31, 2026
*2 These amounts were prepared on an informal basis.

Performance over the past 5 years

(¥ billion)



Strategies for the fiscal year ending March 31, 2027

- Strengthen sales capabilities and improve productivity in core areas including input devices (Shin-Etsu Polymer Co., Ltd.)
- Capture new demand in growth areas, including semiconductor-related products (Shin-Etsu Polymer Co., Ltd.)
- Develop processes and equipment leveraging our materials technology (Shin-Etsu Engineering Co., Ltd.)

Competitive Advantages

Shin-Etsu Polymer Co., Ltd.

- Comprehensive capabilities of handling everything from material development to processing as a member of the Shin-Etsu Group
- Technological capabilities to create high value-added products with core technologies in processing various resins
- A global production system that can flexibly respond to customer needs
- Ability to propose material combinations and optimal processing methods to realize the functions required by customers

Shin-Etsu Engineering Co., Ltd.

- Technological capabilities to handle design, construction, and maintenance of domestic and overseas plants in-house

Growth Potential (Growth Factors) and Risks of Each Business

Growth potential (growth factors)

- Shift to EVs and upgrading of electrical components to achieve carbon neutrality
- Increased capabilities of semiconductor and electronic component customers due to the spread of AI
- Booming restaurant and lodging industries in Japan due to increased inbound tourism

Risks

- Slowing global car sales
- Sudden decline in demand for semiconductors
- Rising energy and raw material prices

Topic

New production base for silicon wafer cases, Tokyo Plant, begins operations

Following the expansion of the Itoigawa Plant (Itoigawa City, Niigata Prefecture), with the aim of increasing the production capacity of silicon wafer cases, we completed construction of a new building at the Tokyo Plant (Saitama City, Saitama Prefecture), which began operations in FY2025. The Tokyo Plant produces front opening shipping boxes (FOSBs) used to transport 300-mm wafers from wafer manufacturers to semiconductor device manufacturers. With the operation of this new building, our FOSB production capacity has increased by approximately 20% compared to FY2022, further strengthening our supply system to meet future demand growth. In recent years, the volume of data processing has increased rapidly due to the spread of AI, and the construction of data centers has accelerated both domestically and internationally. Given these market conditions, demand for semiconductor devices, particularly memory, remains high. Furthermore, with the expected expansion of AI-related demand and the advancement of digitalization, demand for semiconductor devices is projected to grow in the medium to long term, and we have been working to improve our production system to adequately meet this trend. Furthermore, through stable supply from two locations—the Itoigawa and Tokyo plants—we believe we can not only strengthen supply capacity but also contribute to our customers' business continuity planning (BCP) strategies. Going forward, we will continue to strive for stable supply and quality improvement to meet the diverse needs of our customers.

Tokyo Plant (Saitama City, Saitama Prefecture)