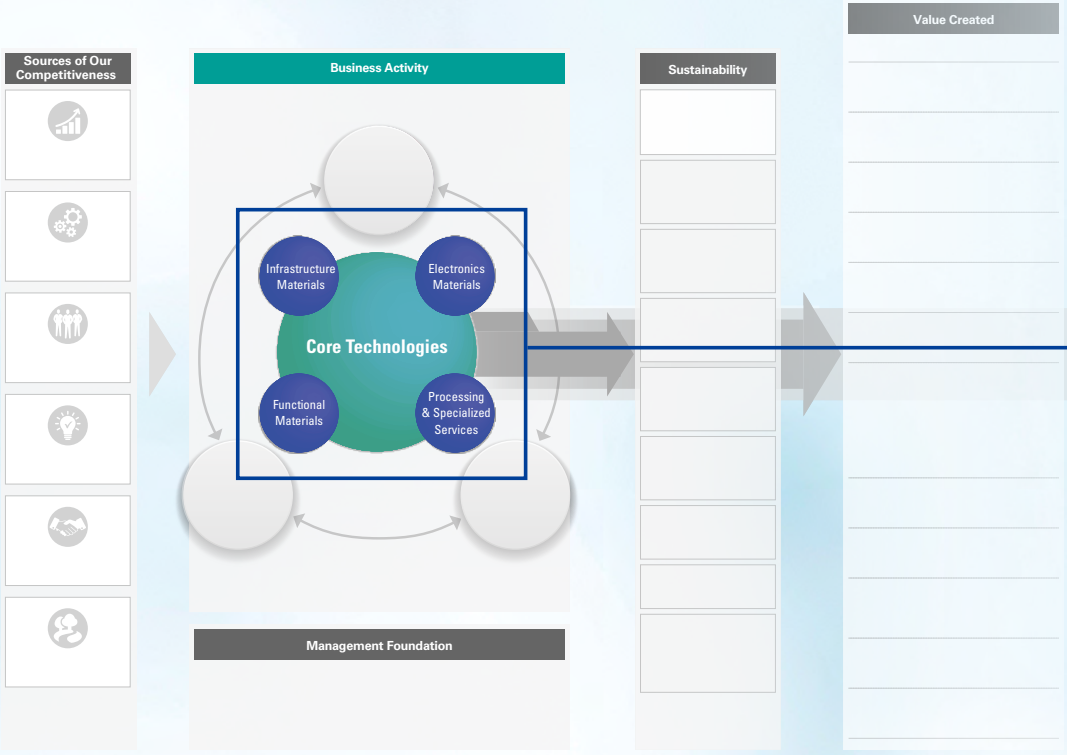
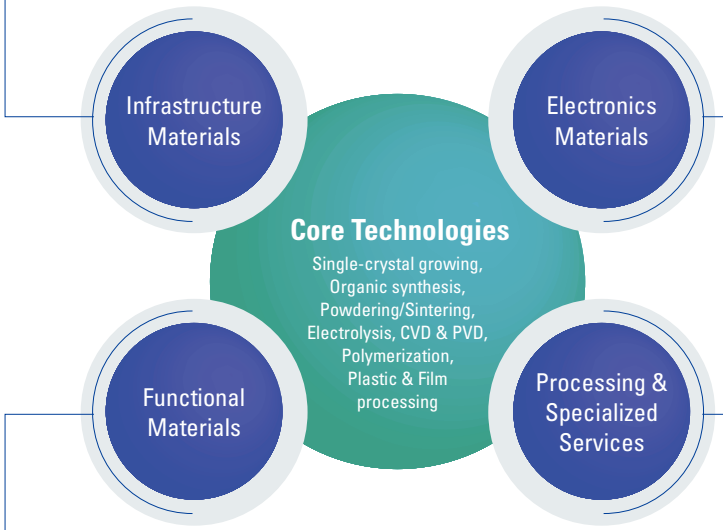
Business Activity

Leveraging our core technologies in four business fields to manufacture materials and products that underpin industries and livelihoods



As the largest manufacturer of polyvinyl chloride (PVC) resins, a material with low environmental impact, we support infrastructure, housing, and daily life.

In addition to our world-leading share in silicon wafers, we provide various materials that are essential for semiconductor manufacturing. We contribute to the digital transformation and green transformation of industry.



Along with more than 5,000 different types of silicones that support people's lives and industries, we provide a stable supply of high value-added products. These products even contribute to reducing environmental impact and alleviating food shortages.

We meet the diverse needs of customers by leveraging processed products and engineering, while utilizing the characteristics of raw materials.

Robust Business Structure Born from Close Cooperation and Diversification

The Shin-Etsu Group makes a wide array of products for use in a broad range of industrial fields by drawing on the production technologies accumulated in the process of continuously diversifying and improving its product offerings. By reciprocally maintaining close relationships, our business mix extends across many different fields and we have built a robust business structure impervious to economic conditions.

Business Segment

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

*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 for adhering and depositing on the substrate surface by evaporating and scattering solid raw materials as atomic/molecular particles by heating, sputtering, ion beam irradiation, etc.

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/shinetsu/en/book/index.html

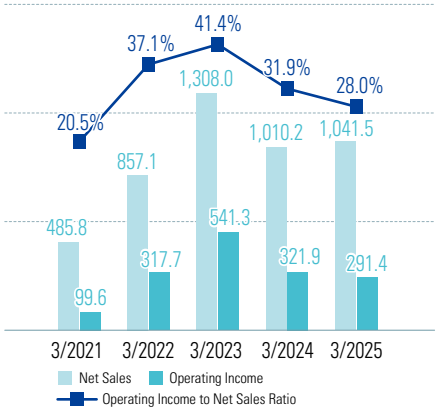
Fiscal year ended March 31, 2025

In the PVC business, we were able to raise prices in major regions in Q1 (April–June), and we sought to maintain or improve price levels in Q2 (July–September). However, Q3 (October–December) was generally weak, although the situation differed from region to region, and in Q4 (January–March), we were able to raise prices in some regions but not others. For caustic soda, we raised prices in Q1, followed by a series of ups and downs, followed by an improved market in Q4.

Assets*1*2	¥2,327.5 bn
Capital Expenditures	¥114.0 bn
Depreciation and Amortization	¥81.8 bn
Number of Employees*1	1,975

*1 As of March 31, 2025
*2 These amounts were prepared on an informal basis.

Performance over the past 5 years



Using Our Products to Solve Societal Issues (PVC)

Helping address the environmental challenges through reducing greenhouse gas emissions and QOL issues by improving social infrastructure for a growing population

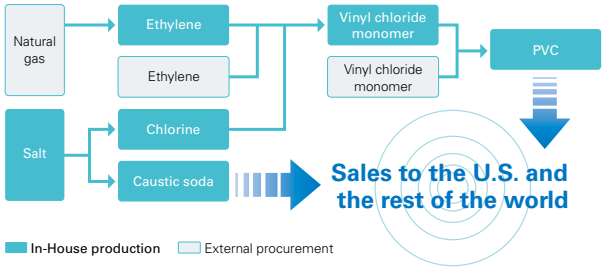
- 60% of the raw material for PVC is salt and PVC is a resource saving product with less dependent on fossil fuels. As a result, the carbon footprint of PVC production is less than that of other commodity plastics.
- Pipes and building materials are major applications of PVC. These products have a longer service life than those from other plastic products. For example, the service life of PVC pipes is around 50 years.*
- PVC window profiles (PVC-framed windows) have excellent insulating properties, which contributes to energy conservation and reducing CO_2 emissions.
- Plastic building materials such as PVC are lighter than metal building materials, helping to reduce fuel used in transportation and construction.
- In Japan, the material recycling rate for PVC products is approximately 33%*. This is a high recycling rate compared to other plastic products.

*Source: Ministry of Land, Infrastructure, Transport and Tourism, and Vinyl Environmental Council (VEC)

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 operated in the U.S., Europe and Japan

Shintech's Vertical Integrated Manufacturing System



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

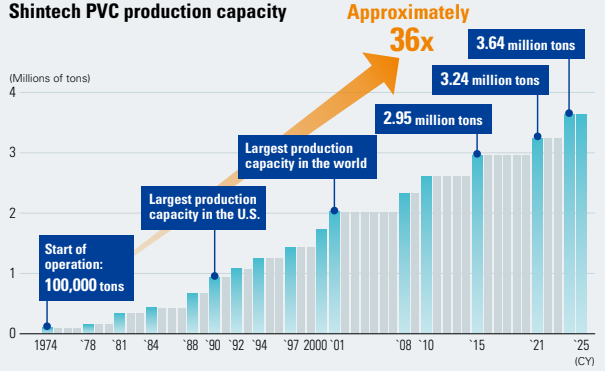
- Oversupply in a certain period
- Slowing housing demand
- Rise in raw material prices

Topic

Shintech commenced new PVC production capacity

Shintech Inc, a subsidiary of Shin-Etsu in the U.S. and the world's largest PVC manufacturer, has been continuously expanding its production capacity to meet increasing global demand. The construction of new production facility that Shintech began in 2021 has been completed and started operations since the fourth quarter of 2024. Shintech's annual PVC production capacity was increased by 10% and reached to 3.64 million tons. PVC demand in North America is expected to remain strong, supported by robust housing demand. We will continue to meet that demand and provide a stable supply of PVC to customers around the world.

Shintech PVC production capacity



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/shinetsu/en/book/index.html

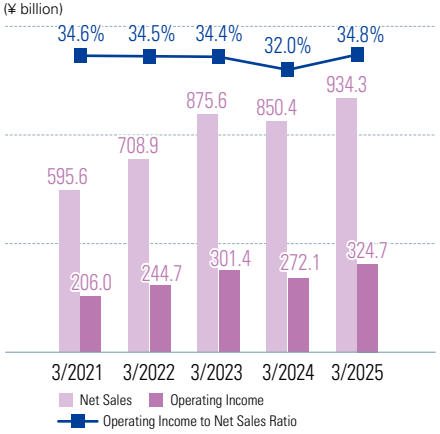
Fiscal year ended March 31, 2025

In the semiconductor market, recovery from the adjustment phase varied depending on the application and field. In this environment, we focused on the shipment of semiconductor materials such as silicon wafers, photoresists, and photomask blanks to markets where strong growth in demand was anticipated. In rare earth magnets, we worked to expand sales in the automotive market while meeting steady demand for hard disk drives.

Assets*1*2	¥1,770.2 bn
Capital Expenditures	¥245.5 bn
Depreciation and Amortization	¥110.8 bn
Number of Employees*1	13,366

*1 As of March 31, 2025
*2 These amounts were prepared on an informal basis.

Performance over the past 5 years



Using Our Products to Solve Societal Issues

Development of AI, 5G, automated driving, IoT

There is strong demand for high-performance, energy-efficient semiconductors in fields that require 5G-compatible communications devices and infrastructure, such as fully automated driving and telemedicine.
Silicon wafers, the substrate material for semiconductors, and various other semiconductor materials provided by the Shin-Etsu Group not only help to enhance performance and reduce the size and weight of electronic devices, but also contribute to improving electric power conservation and efficiency, thereby supporting the expansion and continuous growth of semiconductors on multiple fronts.

Providing technologies and materials essential for carbon neutrality

Rare earth magnets, which have about 10 times more magnetic force than conventional ferrite magnets, help enhance motor efficiency and lower power consumption, contributing to improved energy efficiency and reduced greenhouse gas emissions.

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

Mimasu Semiconductor Industry Co., Ltd. becomes a wholly owned subsidiary

We completed the tender offer for Mimasu Semiconductor Industry Co., Ltd. in August 2024, and after the subsequent formalities, it became a wholly owned subsidiary in November. In the semiconductor market, which is expected to grow in the medium term, we aim to expand our semiconductor business, including wafers, on multiple fronts. We traditionally outsourced tasks such as polishing silicon wafers to Mimasu Semiconductor Industry, and as long-term partners, we worked together to expand our respective businesses. In 2005, we acquired 27.1% of its shares through a third-party allotment, and then in 2006, we increased our stake to 40.5% in order to strengthen our alliance and expand our wafer business.

Now, through the integration of each company's respective proprietary product information, knowledge, technologies, and know-how, we will further enhance our competitiveness and presence in the semiconductor market.

Mimasu Semiconductor Industry Co., Ltd. Head Office

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 encapsulants, supporting the development of semiconductor devices.

Products supplied by the Shin-Etsu Group

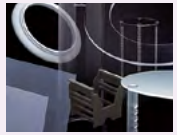

Silicon metal


Quartz crucibles


Silicon carbide fine-ground powder

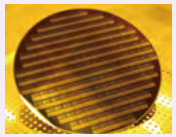

Silicon wafers


Wafer cases

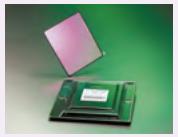

Quartz glass for use in the semiconductor manufacturing process

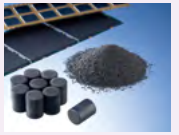

Rare earths (yttrium oxide)


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

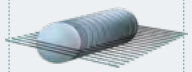
Raw materials

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

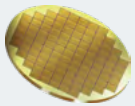
The processes shown above are used to create silicon wafers.

Wafers are shipped to device manufacturers.

CVD, Oxidation

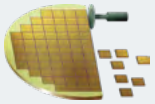
Wafers are put into a high-temperature furnace to produce a thin oxidation film on their surface.

Pattern formation



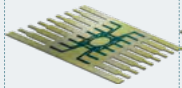
Special photosensitive materials (photoresists) are applied, circuit patterns are transferred in and developed, and the surface is processed.

Dicing



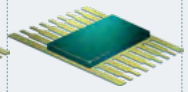
Individual wafers are cut away and made into integrated circuit chips.

Assembly



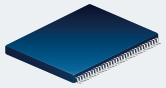
Using wire, the chips are connected electrically to a circuit board.

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

Expansion of product lineup supporting semiconductor advancement

To achieve both high performance and energy efficiency in devices used in EVs, AI data centers, and other applications, we developed the QST™ substrate to achieve large-diameter (300mm) gallium nitride (GaN) wafers, and are currently working on mass production. We produce a large number of materials that are indispensable for the semiconductor manufacturing process, and develop new products that make use of the specialized knowledge and technology we have cultivated in the process. As an example, we are developing semiconductor package substrate manufacturing equipment and new manufacturing methods that enable customers to drastically reduce costs by shortening their processes and to perform microfabrication that is difficult with conventional methods.

Semiconductor package substrate manufacturing equipment

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/shinetsu/en/book/index.html

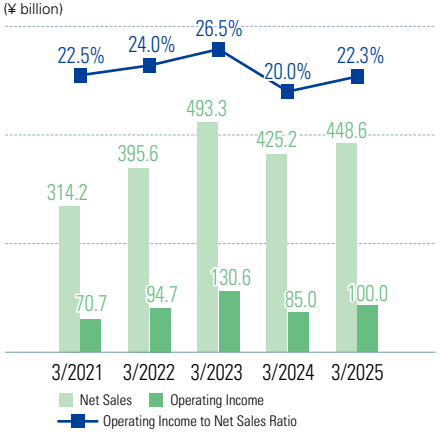
Fiscal year ended March 31, 2025

In silicone business, general-purpose products experienced inventory adjustments and softening market conditions stemming from the sluggish Chinese economy. Under these circumstances, we continued to focus on selling a range of highly functional products to secure revenue.

Assets*1*2	¥697.0 bn
Capital Expenditures	¥65.8 bn
Depreciation and Amortization	¥40.1 bn
Number of Employees*1	4,446

*1 As of March 31, 2025
*2 These amounts were prepared on an informal basis.

Performance over the past 5 years



Using Our Products to Solve Societal Issues

Low environmental impact (silicones)

Silicone is made primarily from silicon, which is the second most abundant element on earth after oxygen, making it less dependent on petroleum and thus less environmentally harmful. Silicone's outstanding properties are used in a wide range of environmentally friendly products such as electric vehicles, fuel-efficient tires, solar power generation, and LED lighting.

Addressing food shortages and environmental issues (cellulose derivatives)

Cellulose derivatives are an environmentally friendly material made from natural polymer cellulose. They help address the food shortage and environmental problems caused by population growth, with one of their uses being a binding agent for plant-based meat substitutes.

Improving food safety (synthetic pheromones)

Synthetic pheromones are an environmentally friendly agricultural pest control agent that has no impact on beneficial insects or other organisms, and helps improve food safety by reducing the amount of insecticides and pesticides sprayed on fields.

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

Promoting silicon chemistry-based problem-solving

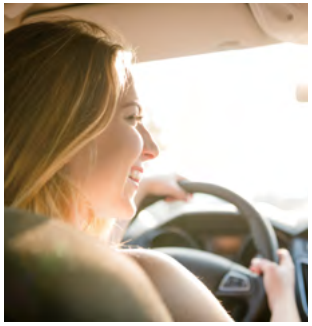
As part of the company's initiative in silicon chemistry-based problem-solving, which is known as Shin-Etsu Silicones Solution-Engineering™, we are expanding our lineup of silicone products that are indispensable for enhancing added value in a variety of applications, such as addressing environmental issues, in addition to meeting diversifying needs.

For example, we have developed hydrophilic silicone that improves the usability of cosmetics and other products. In addition to its high affinity for water, it imparts the excellent characteristics of silicone, such as high fluidity and a smooth, non-sticky feel, to cosmetics and other products. Furthermore, our silicone elastomer gels with excellent light diffusivity give cosmetics a soft focus and powdery feel, and as an alternative ingredient to microplastic beads, contribute to the creation of eco-friendly products. As these examples illustrate, we are dedicated to solving a wide range of problems for our customers and society by developing and supplying high-value-added silicone products based on the unique properties of silicone and the silicon chemistry know-how we have cultivated.

Newly developed water-soluble silicone wax

Spreads and blends smoothly on the skin

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/shinetsu/en/book/index.html

Fiscal year ended March 31, 2025

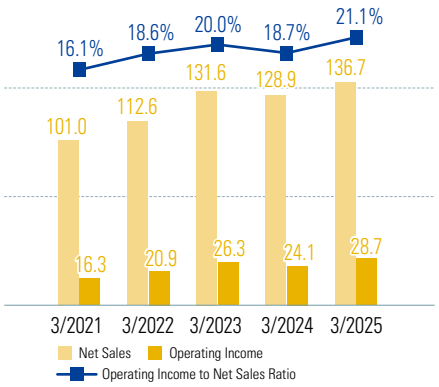
Demand for semiconductor-related containers remained firm, mainly for in-process applications. In automotive-related products, we started production of fire prevention cushions for EV batteries.

Assets*1*2	¥272.7 bn
Capital Expenditures	¥12.6 bn
Depreciation and Amortization	¥6.8 bn
Number of Employees*1	7,487

*1 As of March 31, 2025
*2 These amounts were prepared on an informal basis.

Performance over the past 5 years

(¥ billion)



Using Our Products to Solve Societal Issues (Shin-Etsu Polymer Co., Ltd.)

- Advancing IoT in society by developing communications infrastructure and improving the performance of facilities and equipment
- Contributing to the technological innovation of the automobile industry through the development of various products that utilize our advanced material compounding techniques and processing know-how, including input components, components for the interior & exterior trim, and materials
- Contributing to advanced processes for silicon wafers and electronic components through transport materials that utilize precision molding technology and analysis/evaluation technologies to meet precise customer requirements
- Contributing to improved convenience and food safety and security through the pursuit of ultra-thin and highly stretchable films based on our thin film forming technology and the development of products with added functions such as coloring and antibacterial properties
- Contributing to the advancement of medical care and the promotion of health through medical instruments such as catheters and drainage tubes as well as parts for medical instruments based on our proprietary silicone compounding and processing technologies
- Contributing to the realization of a sustainable society by taking advantage of adhesive technologies based on silicone materials to promote the longevity of aging public infrastructure such as bridges, roads, and railways

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 demand for semiconductors and electronic components due to the spread of AI
- Expansion of restaurant market in Japan due to increased inbound tourism

Risks

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

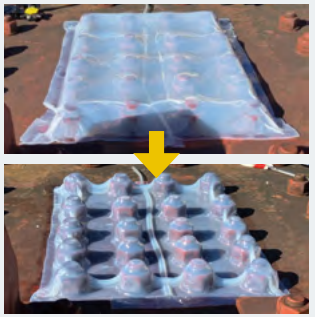
Topic

"Polymer ACE" and P-VAC method for a more sustainable future

Japan's infrastructure was intensively developed during the postwar period of high economic growth, and is therefore rapidly becoming obsolete. It is predicted that by 2030, approximately 55% of Japan's road bridges will be more than 50 years old.* Meanwhile, the number of construction workers continues to decrease due to the rapid aging population and declining birthrate. In these circumstances, efforts to repair infrastructure and extend its service life are attracting attention.

In FY2019, Shin-Etsu Polymer began selling silicone-based infrastructure maintenance materials for repair purposes, and these materials have been adopted in a variety of facilities, including road bridges, train stations, tunnels, and sewers. "Polymer Ace" is a silicone-based adhesive sheet that can be easily affixed to bolts, nuts, and other steel parts for waterproofing and corrosion protection. It is resistant to ultraviolet rays and capable of withstanding temperatures from -50 to 200°C. We have also developed the P-VAC method, which applies "Polymer Ace" to multiple bolts simultaneously, as one of an array of construction methods tailored to the environment of the construction site. Amid aging infrastructure, a declining working population, and rising raw material costs due to high resource prices, Shin-Etsu Polymer's infrastructure maintenance materials and application methods are contributing to the realization of a sustainable society by simplifying construction and reducing the labor required.

*Source: "Current State and Future Projections of Social Capital" (Ministry of Land, Infrastructure, Transport and Tourism)



Patented P-VAC method applies "Polymer Ace" to multiple bolts and nuts simultaneously in a short time.