



## Sustainability Report 2023



**Shin-Etsu Chemical Co., Ltd.**

# Contents of Shin-Etsu Chemical Sustainability Report 2023

About This Site .....	1
Top Message .....	2
 <b>Shin-Etsu Group and Climate Change .....</b>	<b>5</b>
<b>Achieving a Sustainable Society .....</b>	<b>17</b>
Solving social issues through the products	
With the environment .....	17
Comfortable living .....	22
Reduction of environmental impact in plants	
Shin-Etsu Chemical Gunma Complex .....	28
Shin-Etsu Chemical Naoetsu Plant .....	33
<b>Shin-Etsu Group and SDGs .....</b>	<b>36</b>
 <b>Management</b>	
Structure of Sustainability Initiatives .....	40
Corporate Governance .....	47
Risk Management .....	54
 <b>Shin-Etsu Group Key Sustainability Issues</b>	
Shin-Etsu Group Key Sustainability Issues .....	56
Risks and Opportunities for Shin-Etsu Group Key Sustainability Issues .....	58
The foundation of all activities: legal compliance, fair corporate activities .....	63
Health and safety of employees and contractors .....	67
Energy-saving, resource-saving, and reduction of environmental impacts .....	74
Product quality improvements and product safety control .....	100
Promoting CSR Procurement and the Diversification of Supply Sources .....	104
Respect for Human Rights, the Development of Human Resources, and the Promotion of Diversity .....	109
Respect for and protection of intellectual property .....	123
Contribution to industry and social initiatives .....	127
Accurate and timely information disclosure and communication with stakeholders .....	131
 <b>Sustainability Data .....</b>	<b>134</b>
 <b>Responsible Care Audit (only Japanese available) .....</b>	<b>141</b>
 <b>Verification of Greenhouse Gas Emissions (only Japanese available) .....</b>	<b>142</b>

### Editorial Policy

The Shin-Etsu Group started issuing the "Environmental Report" in 2000. In 2004, the report was renamed the "Environmental and Social Report" after expanding its contents to include corporate social responsibility in general, and in 2016, the report was retitled the "CSR Report" and has been issued without interruption. Furthermore, the Group has renamed "CSR Report" to "Sustainability Report" starting in 2019 since we have begun integrating SDGs into business management, expanding the scope of our business activities to realize a sustainable society. The Report also serves as a report on our Responsible Care programs<sup>1</sup>.

### Referenced Guidelines

GRI Standards

Ministry of the Environment "Environmental Reporting Guidelines 2018"

Ministry of the Environment "Environmental Accounting Guidelines 2005 Edition" Global Compact Ten Principles

Universal Declaration of Human Rights

UN Guiding Principles on Business and Human Rights

[> GRI Standards Content Index](#) 

### Period Covered by the Report (indicated where otherwise)

Japan: April 1, 2022 to March 31, 2023

Overseas: January 1, 2022 to December 31, 2022

### Issue information

Issued: June 2023 (Previous issue: June 2022)

Next issue: scheduled for June 2024

### Organizations Covered by the Report

The scope of the reporting organization was changed from Shin-Etsu Chemical and its 99\* consolidated companies. Where otherwise, this is indicated in a separate note.

---

\*1 company decreased, 1 company increased from the end of FY2021.

## — Membership

Keidanren (Japan Business Federation)

Japan Chemical Industry Association

Vinyl Environmental Council

Plastic Waste Management Institute

The International Friendship Exchange Council

The Japan Committee for UNICEF

Global Compact Network Japan

SDGs Promise Japan, etc.

---

<sup>1</sup> Responsible Care programs

A campaign encouraging enterprises that handle chemical substances to voluntarily ensure protection of the environment, health and safety in all processes, from the development of chemical substances through manufacture, distribution and utilization to final consumption, disposal or recycling, to publish the results of their activity, and to engage in dialogue and communication with society.

<sup>2</sup> For a report on the Shin-Etsu Polymer Group, see "Shin-Etsu Polymer Sustainability Report 2023" (to be published at the end of September 2023).



With huge waves sweeping over us such as the pandemic, further divisions afflicting the world, and the soaring prices of natural resources and raw materials, the environment surrounding our business is becoming even more uncertain. Nevertheless, we have continued to grow, deftly steering through such challenges.

Aiming for continuous growth by strengthening each business, we have been focusing on correctly getting our jobs done by allocating limited human resources and time to daily management and operations. You will see our performance records as proof that such efforts have resulted in our mid-to-long-term growth. Aside from aiming for continuous growth, we have put into practice sustainability initiatives as a key management issue for half a century, since long before the concept of sustainability gained currency.



## — Environmental

We have been taking on challenges to improve our technologies that contribute to the environment and have implemented in our plants the innovative technologies thus developed. One prime example is Shintech Inc., our U.S. subsidiary. Having started the production of polyvinyl chloride (PVC) in 1974, Shintech has scrupulously adhered to this policy since the beginning of this production, continuously investing in technologies that reduce environmental impact. Shintech also strives to earnestly develop a trusting relationship with local communities and has been welcomed by the local governments and communities as a company highly supportive of their development. Backed by meticulous environmental measures and favorable relationships with local communities, Shintech has kept investing to carry out major plant expansions, steadily capturing the increasing demand for PVC worldwide, eventually becoming the world's largest PVC manufacturer. We follow the same practices in all our businesses and group companies.

In May 2023, we announced our “Plan for Realizing Carbon Neutrality by 2050.” To reduce greenhouse gas emissions, we will promote “switching to renewable energy”, and advance “Utilization of green and blue hydrogen,” “Continued improvement of manufacturing technologies,” “CCUS<sup>1</sup>,” and “Utilization of biomass fuel.” For material manufacturers that use materials and energy in production, achieving carbon neutrality is a huge challenge. However, for the last 30 years, our engineers have constantly taken on challenges for rationalization, productivity improvement, and technological innovations, eventually reducing greenhouse gas emissions per production intensity to almost half that of 1990. Going forward, we will continue to work on carbon neutrality with the technologies and the prowess we have developed to solve issues, and our strong resolve to tackle challenging objectives.

Many of our products help reduce greenhouse gas emissions, thereby contributing to the reduction of environmental impact and the realization of a sustainable society. In June 2021, the Japanese government announced, “Green Growth Strategy Through Achieving Carbon Neutrality in 2050,” citing 14 areas that need to be worked on to go carbon neutral by 2050. The sales of our products for these 14 areas now account for 70% of our consolidated sales. We will expand the product lineup that will solve our customers' and societies' issues to bring about a sustainable society.

---

<sup>1</sup>CCUS: Carbon dioxide Capture, Utilization and Storage technology



## — Social:

The Group policy is to grow together with the regional communities in which we operate. Business brings employment, the growth of business increases employment, and its economic effects spread to the regional communities. And we contribute to the development of the nations and regional communities through tax payment.

Respect for human rights is one of our core values. In business locations around the world, we have been fully ensuring people-first management. Aside from adhering to the international codes of conduct related to human rights<sup>2</sup>, we have established our own human rights policy and conduct surveys to ensure that our businesses are undertaken in accordance with this policy. Furthermore, we have expanded our human rights initiatives to our supply chains. In FY2022, we conducted a survey with about 70% of the Group's primary suppliers to find out the current state of their sustainability initiatives including for human rights. Going forward we will steadily manage our businesses with respect for human rights at the core.

Our management also incorporate SDGs. When new investments are considered or new products are developed, we require that there will be an evaluation as to which of the SDG targets they contribute to. Furthermore, since 2006, we have been sending employee donations every year to the UNHCR's refugee support activities.

---

<sup>2</sup> International codes of conduct related to human rights: Refers to global human rights rules such as the Universal Declaration of Human Rights, ILO International Labour Standards, UN Guiding Principles on Business and Human Rights, The Ten principles of the UN Global Compact, etc.

## — Governance:

We also actively work on corporate governance. In 2001, our then President Chihiro Kanagawa invited Mr. Frank Popoff, the former Chairman and CEO of Dow Chemical (U.S.), to become our Outside Director, saying "We have continuously attained record-high sales and profit but sometimes things go unnoticed by internal directors. I want someone outside to look at our management stringently and give candid opinions." We have invited top professionals from various sectors to become our Outside Directors, who have since given us wide-ranging advice such as on shareholder returns, capital investment, ESG, and carbon neutrality. As the Outside Directors have fully played their roles, our corporate governance has steadily advanced. Since June 2023, 5 of our 9 Directors are independent Outside Directors (1 U.S. national, and 1 woman,) and 3 of our 4 Audit & Supervisory Board members are Outside Audit & Supervisory Board members (of whom 2 are women.) Our Board of Directors, comprising Outside Directors with diversity including in nationality, gender and tenure of service and our Managing Corporate Officers, will continue to work on continuous growth.

## — Human capital and intellectual properties:

What drives our growth is people. People grow through their work, and people's growth results in the company's growth. In developing human resources, we are strongly supporting the enhancement of people's ability to work and grow. With OJT (on the job training) as the basis, we provide various learning programs in such fields as globalization, manager training, AI training, legal knowledge training etc. Operating businesses in 21 countries around the world, we have employees of diverse nationalities, genders, and fields of expertise.

Technology is also a source of our competitiveness. Protecting our technologies is an extremely critical issue, and we have long been taking strict and effective measures in this regard. Our efforts for intellectual property have been commended by an external institution for 12 consecutive years, for the superiority of our patent ideas and for the continuity in creating ideas.

## — Preparing for risks

Business goes hand in hand with risks, and risk management has increasingly become an important management issue amid the heightened uncertainty in world affairs and world economy. We have made capital investments with careful evaluation of country risks and spread our material procurement over multiple regions and suppliers, while selling our products to wide-ranging customers. We have also never ceased to ensure cybersecurity measures. Aside from these management measures, our continuous growth has been underpinned by preparedness for other risks, such as executing contracts, hedging risks with insurance, adhering to laws and regulations and ensuring compliance.

## — As an essential supplier

As an essential supplier supporting the lives and industries of people around the world, the more our products and technologies are used, the more can we play our part in bringing a sustainable world— That's our goal "Shin-Etsu Everywhere". We will work with society on sustainable growth by providing products that will improve the quality of life and contribute to solving social issues.

In January 2023, our chairman, Chihiro Kanagawa, passed away. It was a great loss for our company. We will carry on his torch and move forward with vigor.

We would greatly appreciate your continued understanding and support as we move ahead.

I would appreciate it if you could refer to this report for the description of our individual sustainability programs.

June 2023  
President Yasuhiko Saitoh

Plan for Realizing  
Carbon Neutrality



Disclosure of TCFD-  
Recommended Items



## Plan for Realizing Carbon Neutrality by 2050

The Shin-Etsu Group has formulated a plan to reduce **greenhouse gas emissions (Scope 1 and Scope 2) to net zero**, with the aim of achieving carbon neutrality by 2050.

### — Our Efforts to Date

#### 1) Efforts to reduce greenhouse gas emissions that are included in the Company's management

In various economic activities, there is a need to attain both sustainable development and higher living standards while reducing environmental impact. Meanwhile, businesses must strive to keep their cost competitiveness in order to grow. In this light, the Group has long focused on maximizing the efficiency of its resource and energy use. Such efforts will lead to reducing greenhouse gas emissions and are considered highly compatible with carbon neutrality.

A leading example of our initiatives to attain the maximization of efficiency is the polyvinyl chloride (PVC) business. In the 1970s, to sustain our business in the highly competitive domestic PVC industry, our technical team took on the challenge of maximizing efficiency, including in the production of monomers, the raw materials for PVC. In other words, the aim was "to extract the highest possible production volume from the input raw materials" and "to minimize consumption of energy such as electricity and gas."

Our proprietary PVC manufacturing technology developed and introduced at the Shin-Etsu Chemical Kashima Plant was also introduced to our US subsidiary Shintech Inc., which began production in 1974. It was the former Chairman Chihiro Kanagawa who proposed and planned the Company's establishment. Since then, Shin-Etsu Chemical's PVC manufacturing technology has been combined with Kanagawa's streamlined management to eliminate waste, and Shintech has kept its costs low enough to stay competitive in the fierce global PVC market. There are no bounds to Kanagawa's efforts to push the envelope in terms of efficiency. Indeed, we have grown into the world's largest PVC manufacturer by introducing a stream of innovative technologies to that lift productivity to the utmost in regard to plant construction and expansion.

In 1990 when Kanagawa assumed the position of President of Shin-Etsu Chemical, the rational management and production efforts that Shintech had practiced were reimported to Shin-Etsu Chemical. Under Kanagawa's leadership, the G-Committee, a committee structure for rationalization, was established in 1992, and Shunichi Koyanagi, Executive Vice President, became the chairman of the committee. The motivated G-Committee worked without rest to rationalize and improve productivity in the manufacturing sector. When current Representative Director, Chairman of the Board Meeting Fumio Akiya succeeded as chairman of the committee in 2004, the G-Committee grew even more active and expanded its scope to include Shin-Etsu Handotai and other group companies. In addition, the G-Committee has achieved significant rationalization every year through synergies with Six Sigma programs<sup>1</sup>. In fact to date, the committee has handled more than 25,000 rationalization projects for Shin-Etsu Chemical alone, helping to strengthen our global competitiveness.

<sup>1</sup> Six Sigma programs

Quality improvement method developed by Motorola in the 1980s. Focusing on processes with quality variation, it is designed to minimize variations within the processes, thereby reducing the incidence of quality defects. This approach has been adopted across the Group.

## 2) Our reduction results to date

The Group established the medium-term goal in FY2010, which is to “reduce greenhouse gas emissions in terms of intensity to 50% of the FY1990 level by FY2015.” Furthermore, the Group established the new medium-term goal in FY2016, which is to “reduce greenhouse gas emissions in terms of intensity to 45% (i.e. down 55%) of the FY1990 level by FY2025,” and has strived to attain this objective through energy conservation and the introduction of a cogeneration system.

The actual results for the FY2022 are 54.2% (i.e. down 45.8%) from the FY1990 level for the Group, and 46.8% (i.e. down 53.2%) for Shin-Etsu Chemical from the same level.

Energy usage accounts for 94% of the Group's greenhouse gas emissions. Japan's Act on Rationalizing Energy Use (Energy Conservation Law) sets a target of attempting to reduce energy consumption by at least 1% per year in terms of intensity. If the annual reduction is 1% from FY1990, the “to-date” reduction rate in the FY2022 would be approximately 28% compared to the FY1990 level. Our track record of reducing greenhouse gas emissions, however, significantly exceeds the target set by the Energy Conservation Law.

## — Measures for Achieving Carbon Neutrality by 2050

As mentioned above, the Group has been striving to reduce greenhouse gas emissions in terms of intensity. In addition to the reductions in terms of intensity we have been working on so far, we have formulated a plan to achieve carbon neutrality by cutting greenhouse gas emissions in absolute quantities.

### 1) Current reduction measures

In addition to further strengthening the initiatives described in the preceding paragraph, we are currently working on the following reduction measures. We will also focus on considering new reduction measures.

Reduction measures	Details
(1)Power-related	<ul style="list-style-type: none"><li>• Reduce CO<sub>2</sub> emission factor</li><li>• Purchase of renewable energy</li><li>• Installation of solar power generation equipment</li></ul>
(2)Improvement and innovation of manufacturing technologies, etc.	<ul style="list-style-type: none"><li>• Improvement of heat recovery capacity</li><li>• Introduction of energy-efficient equipment</li><li>• Switching from boilers to heat pumps</li><li>• Expansion in order to increase the production of charcoal reducing agents</li></ul>
(3)Utilization of carbon-neutral natural gas (natural gas with emission credits), hydrogen, etc.	<ul style="list-style-type: none"><li>• Co-firing in cogeneration systems</li></ul>
(4)Promotion of recycling	<ul style="list-style-type: none"><li>• Further promotion of recycling of PVC products and rare-earth contained in rare-earth magnets that has already been implemented</li></ul>

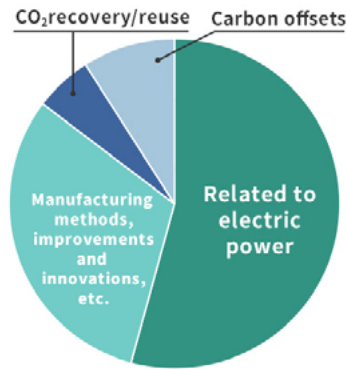
### 2) Initiatives toward 2050

Measures of the reductions currently supposed are as follows.

Reduction measures	Details
(1)Power-related	<ul style="list-style-type: none"><li>• Carbon neutralization of electricity</li></ul>
(2)Utilization of green and blue hydrogen	<ul style="list-style-type: none"><li>• Single fuel firing in cogeneration systems</li><li>• Use as boiler fuel</li></ul>
(3)Continued improvement of manufacturing technologies, etc.	<ul style="list-style-type: none"><li>• Continuous thorough rationalization and efficiency improvement</li></ul>
(4)CO <sub>2</sub> separation and recovery, and utilization	<ul style="list-style-type: none"><li>• Full-scale introduction of separation and recovery equipment, and utilization of methanation technology</li></ul>
(5)Utilization of biomass fuel	<ul style="list-style-type: none"><li>• Power and steam supply through introducing biomass cogeneration systems, etc.</li></ul>
(6)Promotion of recycling	<ul style="list-style-type: none"><li>• Establishment of a recycling system for products other than PVC and rare-earth magnets that have already been implemented</li></ul>
(7)Carbon offset	<ul style="list-style-type: none"><li>• Examination of a wide range of carbon offsets, including those from tree planting</li></ul>



## The Group's reduction measures



\* "Manufacturing methods, improvements and innovations, etc." includes the use of hydrogen, use of biomass fuel, and promotion of recycling. "Related to electric power" includes the purchase of renewable energy and the installation of solar power generation equipment.

The components of reduction measures toward 2050 that the Company currently supposes are as described in the above pie chart. We will select the optimal ways to reduce emissions as technology evolves in the future.

As our US subsidiary Shintech Inc., plans to increase its production capacity in the years ahead, the Group's greenhouse gas emissions are expected to increase around 2025, but then fall as the aforementioned measures take effect.

## — Other Initiatives to Help Realize a Carbon-Neutral Society

### 1) Initiatives for carrying out Life Cycle Assessment

By conducting life cycle assessment, the Group will contribute to the reduction of greenhouse gases throughout the supply chain.

### 2) Reduction of greenhouse gas emissions in logistics

We are working to reduce greenhouse gas emissions during product transportation. This initiative will contribute to the reduction of scope 3 greenhouse gas emissions.

Reduction in logistics	
Examples	Scope 3 emissions categories contributing to reductions
Modal shift* in methanol transport (switched from tank truck to railcar)	Category 4: "Emissions from product transport"
Modal shift in silicon wafer transport (switched from aircraft to ocean vessel)	
Modal shift in silicone products transport (switched from truck to railcar)	

\*Modal shift

Shifting from trucks and other freight transports to railways or ships with less environmental impact.

## Shin-Etsu Chemical Naoetsu Plant Certified as Eco-Rail Mark Company

In March 2022, Shin-Etsu Chemical Naoetsu Plant was certified by the Ministry of Land, Infrastructure, Transport and Tourism as an Eco-Rail Mark company. Compared to other modes of transportation, rail cargo transportation is an environmentally friendly means of transportation that emits much less CO<sub>2</sub>. The Eco-Rail Mark is a system that certifies companies that are actively switching to rail cargo transportation as eco-friendly companies. We have been promoting a modal shift in the transportation of products from Naoetsu Plant and have now been certified as an Eco-Rail company because our annual rail usage volume meets the requirements for certification under the Eco-Rail Mark system.



Products being loaded onto freight cars at the freight terminal of JR Freight Kuroi Station.



Products are transported from Naoetsu Plant in tank containers on trucks.

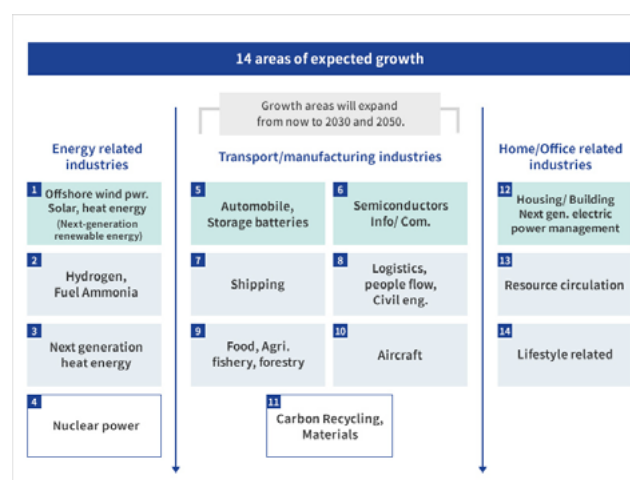
### 3) Expand manufacturing and sales of products that contribute to reducing greenhouse gas emissions

Our group's products are used in a wide range of fields, including housing, infrastructure, electric vehicles, DX and GX, and support the foundations of people's lives and industries. Many of these products also help reduce greenhouse gases. In June 2021, The Japanese government has identified 14 essential areas to aim for carbon neutrality in 2050. The ratio of sales in these 14 areas to the Group's consolidated sales in FY2022 is approximately 70%. We will continue to contribute to the carbon neutrality of society as a whole by focusing on developing, manufacturing, and expanding sales of these products.

> Sustainability > Achieving a Sustainable Society > Comfortable living




> Sustainability > Shin-Etsu Group and Climate Change > Strategies for addressing climate change > 2) Business opportunities arising from climate change






#### 14 areas of expected growth







Source: Green Growth Strategy Through Achieving Carbon Neutrality in 2050 (announced by the Japanese government in June 2021)  
<https://www.meti.go.jp/press/2021/06/20210618005/20210618005-3.pdf>

## Shin-Etsu Chemical Group Products and Technologies Contributing to the Realization of a Carbon Neutral Society

14 areas of expected growth <sup>1</sup>		Products and technologies listed in the Green Growth Strategy	Shin-Etsu Chemical Group products and technologies that contribute to green growth strategies <sup>2</sup>
	(1) Offshore wind, solar and geothermal industries (Next-generation renewable energy)	<ul style="list-style-type: none"> <li>• Offshore wind power generation</li> <li>• Photovoltaic power generation (next-generation technologies such as perovskite, next-generation inverter and grid control system technologies)</li> <li>• Geothermal power generation</li> </ul>	<ul style="list-style-type: none"> <li>• PVC (wire coating)</li> <li>• Semiconductor materials<sup>3</sup></li> <li>• Rare earth magnet</li> <li>• Silicone</li> <li>• Photocatalyst Coatings</li> <li>• Low Friction Compound(Wire coating)</li> <li>• Photovoltaic power generation related technology (initial deterioration prevention technology)</li> </ul>
	(2) Hydrogen and fuel ammonia industry	<ul style="list-style-type: none"> <li>• Hydrogen power generation</li> <li>• Hydrogen vehicles (fuel cell vehicles)</li> <li>• Fuel cells for household use</li> <li>• Hydrogen transportation and storage (e.g., liquefied hydrogen carriers,)</li> <li>• Hydrogen production (e.g., water electrolyzers)</li> <li>• Burners for power generation, such as ammonia co-firing burners</li> <li>• Ammonia production plants</li> </ul>	<ul style="list-style-type: none"> <li>• PVC (wire coating)</li> <li>• Semiconductor materials<sup>3</sup></li> <li>• Rare earth magnet</li> <li>• Silicone</li> <li>• Cellulose derivative (fuel cell parts)</li> <li>• Liquid Fluoroelastomers</li> <li>• Low Friction Compound(Wire coating)</li> <li>• Hydrogen associated with soda industry, etc.</li> </ul>
	(3) Next-generation heat energy industry	<ul style="list-style-type: none"> <li>• Gas decarbonization (e.g., directly using of synthetic methane and hydrogen, introducing LNG with carbon offsets, using CO<sub>2</sub> separation, recovery and utilization technologies, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Semiconductor materials<sup>3</sup></li> </ul>
	(4) Nuclear power industry	<ul style="list-style-type: none"> <li>• Fast reactors</li> <li>• Small modular reactors</li> <li>• High-temperature gas reactors</li> <li>• Nuclear fusion</li> </ul>	<ul style="list-style-type: none"> <li>• Semiconductor materials<sup>3</sup></li> </ul>
	(5) Automotive and storage battery industry	<ul style="list-style-type: none"> <li>• Electric vehicles, fuel cell vehicles, plug-in hybrids and hybrids</li> <li>• Various infrastructures for autonomous driving, etc.</li> <li>• Storage batteries</li> </ul>	<ul style="list-style-type: none"> <li>• PVC (wire coating)</li> <li>• Semiconductor materials<sup>3</sup></li> <li>• Rare earth magnet</li> <li>• Silicone</li> <li>• Cellulose derivative (battery part)</li> <li>• Anode material for storage batteries</li> <li>• Liquid Fluoroelastomers</li> <li>• Fluorinated Anti-smudge Coating</li> <li>• Viewing angle, optical path control film</li> <li>• Input device Touch switch</li> <li>• Wafer vacuum superposition device</li> <li>• FPD panel vacuum superposition device</li> </ul>

	(6) Semiconductor and information and communication industry	<ul style="list-style-type: none"> <li>•Semiconductors such as power semiconductors and memory</li> <li>•Optoelectronics</li> <li>•Data centers</li> <li>•Information and telecommunications infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>•PVC (wire coating)</li> <li>•Semiconductor materials (silicon wafers, photoresists, mask blanks, sealing materials, pellicles, synthetic quartz, high-purity silane, etc.)</li> <li>•Rare earth magnet</li> <li>•Rare earth (Spray coating of semiconductor manufacturing equipment)</li> <li>•Preform for optical fiber</li> <li>•Silicone</li> <li>•Wafer Cases</li> <li>•Input device Touch switch</li> <li>•Electronic component transport tape</li> <li>•Wafer vacuum superposition device</li> <li>•FPD panel vacuum superposition device</li> <li>•Micro LED Process Equipment</li> </ul>
	(7) Shipbuilding industry	<ul style="list-style-type: none"> <li>•Ships with hydrogen and ammonia engines</li> <li>•Highly efficient LNG-fueled vessels</li> <li>•Introducing energy-efficient vessels</li> </ul>	<ul style="list-style-type: none"> <li>•Semiconductor materials<sup>3</sup></li> <li>•Silicone(Ship bottom paint)</li> <li>•Room temperature curing type silicone rubber tape(Maintenance of piping inside the ship)</li> </ul>
	(8) Logistics, people flow and civil engineering infrastructure industry	<ul style="list-style-type: none"> <li>•Smart transportation (e.g., autonomous driving)</li> <li>•Green logistics (e.g., introducing fuel cell railroads)</li> <li>•Saving energy in sewage systems and promoting waste heat utilization</li> <li>•Utilizing ICT in construction work</li> <li>•Drone logistics (e.g., cargo transport using drones)</li> <li>•LED road lighting</li> </ul>	<ul style="list-style-type: none"> <li>•PVC (wire coating)</li> <li>•Semiconductor materials<sup>3</sup></li> <li>•LED encapsulant</li> <li>•Silicone</li> <li>•Cellulose derivative (fuel cell parts)</li> <li>•Room temperature curing type silicone rubber tape(Maintenance of transportation infrastructure)</li> </ul>
	(9) Food industry, agriculture, forestry and fisheries	<ul style="list-style-type: none"> <li>•Reducing chemical pesticides and fertilizers, curtailing fossil fuel use</li> <li>•CO<sub>2</sub> absorption and fixation</li> <li>•Blue carbon (carbon storage by marine ecosystems)</li> <li>•Promoting use of new materials such as modified lignin and cellulose nanofiber (CNF)</li> <li>•Reducing methane and other emissions from agricultural and livestock industry</li> <li>•Developing and promoting new materials derived from woody biomass Utilizing unused wood as energy Developing new food production technologies using plant proteins</li> </ul>	<ul style="list-style-type: none"> <li>•PVC (agricultural film)</li> <li>•Semiconductor materials<sup>3</sup></li> <li>•Cellulose derivative (plant-based meat binder)</li> <li>•Synthetic pheromones(Pest control agent)</li> <li>•Biodegradable runner clips(Crop fixing material)</li> <li>•Biodegradable pest control sheet</li> </ul>
	(10) Aircraft industry	<ul style="list-style-type: none"> <li>•Hydrogen Aircraft</li> <li>•Reducing weight and improving efficiency of airframes and engines</li> <li>•Bio-jet fuel, synthetic fuel</li> </ul>	<ul style="list-style-type: none"> <li>•Semiconductor materials<sup>3</sup></li> <li>•Rare earth magnet</li> <li>•Silicone</li> <li>•Cellulose derivative (fuel cell parts)</li> <li>•Viewing angle, optical path control film</li> </ul>



	(11) Carbon recycling and materials industry	<ul style="list-style-type: none"> <li>•CO<sub>2</sub>-absorbing concrete</li> <li>•Carbon-recycled fuels (synthetic fuels)</li> <li>•Synthetic methane</li> <li>•Green LNG</li> <li>•Plastic raw materials by artificial photosynthesis</li> <li>•Plastic raw materials such as waste plastic, waste rubber and direct CO<sub>2</sub> synthesis</li> <li>•Technology to separate and recover CO<sub>2</sub> in exhaust gas</li> <li>•Developing and supplying zero-carbon steel using carbon-free electricity and carbon-free hydrogen</li> <li>•Expanding resource recycling and extending service life</li> <li>•Decarbonizing heat sources and petrochemical complexes</li> </ul>	<ul style="list-style-type: none"> <li>•PVC recycling</li> <li>•Semiconductor materials<sup>3</sup></li> </ul>
	(12) Housing, building industry, and next-generation electric power management industry	<ul style="list-style-type: none"> <li>•ZEH and ZEB (zero energy homes and buildings)</li> <li>•Energy management using AI, IoT and electric vehicles</li> <li>•Improving energy efficiency of houses (expanded use of building materials such as heat-insulating sashes and equipment such as high-efficiency air conditioners)</li> <li>•Reducing cost and expanding use of stationary storage batteries</li> <li>•Promoting local production for local consumption of electricity and heat energy</li> </ul>	<ul style="list-style-type: none"> <li>•PVC (resin window, PVC pipe, wire coating)</li> <li>•Semiconductor materials<sup>3</sup></li> <li>•Rare earth magnet</li> <li>•Silicone</li> <li>•Anode material for storage batteries</li> <li>•Photocatalyst Coatings</li> <li>•Room temperature curing type silicone rubber tape (Infrastructure maintenance)</li> </ul>
	(13) Resource circulation industry	<ul style="list-style-type: none"> <li>•CCU (Carbon Capture and Utilization) plants at waste incineration facilities</li> <li>•Technology to generate methane and ethanol from exhaust gases</li> </ul>	<ul style="list-style-type: none"> <li>•PVC recycling</li> <li>•Rare earth magnet recycling</li> <li>•Semiconductor materials<sup>3</sup></li> </ul>
	(14) Lifestyle-related industries	<ul style="list-style-type: none"> <li>•Total management of housing and transportation (combination and optimization of ZEH, ZEB, demand-side equipment, local renewable energy, electric vehicles and fuel cell vehicles, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>•PVC (resin window, PVC pipe, wire coating)</li> <li>•Semiconductor materials<sup>3</sup></li> <li>•Rare earth magnet</li> <li>•Silicone</li> <li>•Anode material for storage batteries</li> <li>•Photocatalyst Coatings</li> <li>•Low Friction Compound(Wire coating)</li> </ul>

<sup>1</sup> Source: "Green Growth Strategy Through Achieving Carbon Neutrality in 2050" (announced by the Japanese government in June 2021) [https://www.meti.go.jp/policy/energy\\_environment/global\\_warming/ggs/index.html](https://www.meti.go.jp/policy/energy_environment/global_warming/ggs/index.html)

<sup>2</sup> Future products are included. The colors of the letters of products and technologies indicate business segments.

【Business segments】 [Infrastructure Materials](#) [Electronics Materials](#) [Functional Materials](#) [Processing, Trading & Specialized Services](#)

<sup>3</sup> Semiconductor materials refer to silicon wafers, photoresists, mask blanks, sealing materials, pellicles, synthetic quartz, high-purity silane, etc. Semiconductor materials fall under the semiconductor industry in field (6), but semiconductors manufactured using semiconductor materials contribute to control systems and other applications in a variety of fields, so they are also listed in fields other than (6).

## > Sustainability > Shin-Etsu Group and Climate Change > Strategies for addressing climate change

### > 2) Business opportunities arising from climate change

## Disclosure of TCFD-Recommended Items

### — Governance

The Sustainability Committee is working with each of the Group's business divisions to address climate change. The Sustainability Committee is one of the committees for each material management task in the Group's corporate governance system. Chaired by the president, the committee consists of about 60 members, including directors, corporate officers and divisional managers of Shin-Etsu Chemical, as well as persons in charge of sustainability at Group companies, and develop initiatives that integrate business and sustainability initiatives.

#### > Sustainability > Management > Structure of Sustainability Initiatives

In FY2021, we established a Carbon Neutral Task Force within the Committee to examine each issue related to climate change. The Task Force held a general meeting every three months and reported the latest information to the president, who received this report and decided on a policy. Based on this policy, the Task Force conducted investigations and deliberations, and reported on climate change-related initiatives at meetings of the Managing Directors' Meeting and the Board of Directors attended by all directors, audit & supervisory board members and corporate officers. After these efforts, we formulated a plan to achieve carbon neutrality in 2050 and announced it at the end of May 2023.

### — Strategy

The Group considers the promotion of plans to achieve carbon neutrality by 2050 as an important management issue. While promoting information disclosure based on the TCFD recommendations, including scenario analysis, we identify important risks and opportunities that affect our business through these analyses, and reflect them in our management.

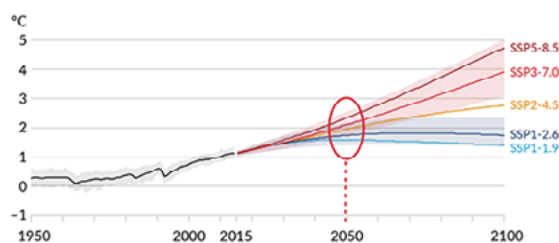
### — Scenario analysis

In FY2021, we conducted a scenario analysis of some of our businesses to identify the risks and opportunities that climate change poses to our business activities.

#### 1) Assumed scenarios

Considering the impact of climate change, we have assumed scenarios for a 1.5°C rise and a 4°C rise for the year 2050.

Changes in global average temperature from 1850~1900 period.



#### A scenario for a 4°C rise :

If no measures are taken to prevent global warming beyond the current level, the temperature will rise by 3.2 to 5.4°C in 2100 compared to the Industrial Revolution period.

#### A scenario for a 1.5°C rise:

If more stringent measures are taken, the increase will be limited to 1.5°C by 2100, compared to the Industrial Revolution.

Source: Sixth Assessment Report, Intergovernmental Panel on Climate Change (IPCC)

Event	1.5°C scenario	4°C scenario
Extreme high temperatures on land areas	The frequency of extreme high temperatures (+1.9°C compared to 1850–1900) on a once-in-a-decade scale will increase 4.1 times in 2081–2100.	The frequency of extreme high temperatures (+5.1°C compared to 1850–1900) on a once-in-a-decade scale will increase 9.4 times in 2081–2100.
Heavy rainfall on land	The frequency of extreme wetting (+10.5% compared to 1850–1900) on a once-in-a-decade scale will increase 1.5 times in 2081–2100.	The frequency of extreme wetting (+30.2% compared to 1850–1900) on a once-in-a-decade scale will increase 2.7 times in 2081–2100.
Global mean sea level	Compared to the 1995–2014 average, global mean sea level will increase by 28 cm to 55 cm by 2100.	Compared to the 1995–2014 average, global mean sea level will increase by 63 cm to 101 cm by 2100.
Percentage of renewable energy in power supply composition	Renewable energy ratio will account for 90% of total electricity generation in 2050.	
Financial impact	Economic slowdown due to the introduction of the carbon tax and the impact of higher electricity prices on corporate profits.	Economic stagnation and increased insurance premiums due to severe wind and flood damage.

Source:

Sixth Assessment Report, Intergovernmental Panel on Climate Change (IPCC)

International Energy Agency (IEA) "Net Zero by 2050"

Mitsubishi Research Institute "Climate Change Response / Environmental Disclosure (TCFD)"

## ① Business opportunities arising from climate change: A scenario for a 1.5°C rise

Applications	Details	Revenue Impact
Resin windows	<ul style="list-style-type: none"> <li>Polyvinyl chloride resin is used for resin windows because of its excellent heat insulation properties. Demand for resin windows is expected to increase along with the spread of energy-saving homes.</li> </ul>	Large
Electric vehicles, hybrid vehicles, fuel cell vehicles	<ul style="list-style-type: none"> <li>Semiconductor silicon is used in power semiconductor devices such as inverters to control the number of rotations of motors, logic semiconductor devices for automatic driving system and AI. High-performance and compact rare-earth magnets can reduce the overall weight of a vehicle and improve its fuel efficiency, which will expand their use in the drive motors of electric, hybrid, and fuel cell vehicles, as well as in a variety of other motors in vehicles.</li> <li>Silicone heat-dissipating materials are used in lithium-ion batteries and various electronic control devices. Demand is expected to grow as it helps prevent malfunctions and failures caused by heat.</li> </ul> <p>&gt; Sustainability -Achieving a Sustainable Society -With the environment</p>	Large
Wind power generators	<ul style="list-style-type: none"> <li>Demand for rare earth magnets is expected to grow as they contribute to higher efficiency in offshore wind turbines and lower maintenance costs for generators.</li> <li>Demand for vinyl chloride used for wire sheathing is also expected to increase due to the development and expansion of the power grid.</li> </ul>	Large
Air conditioners	<ul style="list-style-type: none"> <li>Demand for semiconductor silicon is expanding as it is used in inverter control devices for compressor motors and contributes to power saving by adjusting the rotation speed of the motor to an appropriate level.</li> <li>Demand for rare earth magnets is expected to grow as they improve the energy efficiency of air conditioner compressor motors and reduce energy consumption.</li> </ul>	Medium
Aircrafts	<ul style="list-style-type: none"> <li>Rare earth magnets are indispensable for the electrification and hybridization of small aircraft and for the electrification of hydraulic drive units in large aircraft. Demand for rare earth magnets is expected to increase as their small size and high power will help reduce the weight of the aircraft and improve fuel efficiency.</li> </ul>	Medium
Motors for industrial use	<ul style="list-style-type: none"> <li>Demand for rare earth magnets is expected to grow as they increase the efficiency of industrial motors and reduce the amount of electricity consumed.</li> </ul>	Medium

Robots for services	<ul style="list-style-type: none"> <li>• Semiconductor silicon is increasingly being used in semiconductors for energy-saving robot control motors for manufacturing, logistics, agriculture, and other applications, as well as in medical and disaster response robots.</li> </ul>	Medium
Binder for plant-based meat alternatives	<ul style="list-style-type: none"> <li>• A diet centered on plant-based foods may reduce CO<sub>2</sub> emissions by 1.6 gigatons per year *. " Metolose MCE-100TS", one of the products of cellulose derivatives, is used as a binder for alternative meats derived from plants. The global market for plant-based meat is expected to grow at a double-digit rate annually, and further market expansion is expected.</li> </ul> <p>&gt; Sustainability -Achieving a Sustainable Society-Comfortable living</p>	Medium

\* From "DRAWDOWN – The Most Comprehensive Plan Ever Proposed to Reverse Global Warming" edited by Paul Hawken

## ② Business risks due to climate change and countermeasures: 1.5 °C scenario (transition risk)

Events	Risks to the Company	Impact	Countermeasures
Introduction of carbon taxes and establishment of carbon emission quotas around the world	<ul style="list-style-type: none"> <li>• Payment of carbon tax</li> <li>• Incurring costs of purchasing emission credits to meet carbon emission quotas</li> <li>• Increased costs of measures to reduce greenhouse gas emissions</li> </ul>	Large	<ul style="list-style-type: none"> <li>• Reduce scope 1 emissions <ul style="list-style-type: none"> <li>▶ Further promotion of more efficient production processes and introduction of highly efficient equipment, etc.</li> <li>▶ Use of energy sources that do not emit carbon dioxide, such as hydrogen and ammonia</li> <li>▶ Use of CCUS</li> <li>▶ Use of carbon-neutral natural gas(natural gas with emission credits) as a heat source</li> </ul> </li> <li>• Use of hydrogen-reduced iron materials</li> <li>• Achievement of reduction targets in the absolute amount of greenhouse gas emissions</li> <li>• Collection of information on environmental regulations such as carbon taxes in each country and implementation of countermeasures</li> </ul>
Widespread use of electricity derived from renewable energy sources and rising electricity prices resulting from tightening regulations on greenhouse gas emissions	<ul style="list-style-type: none"> <li>• Increase in electricity costs</li> </ul>	Large	<ul style="list-style-type: none"> <li>• Reduce scope 2 emissions <ul style="list-style-type: none"> <li>▶ Further promotion of production processes that use less electricity, introduction of high-efficiency equipment, etc.</li> <li>▶ Introduction of cogeneration systems using carbon-neutral natural gas (natural gas with emission credits)</li> </ul> </li> </ul>



### ③ Business risks due to climate change and countermeasures: 1.5°C scenario (Physical risk)

Events	Risks to the Company	Impact	Countermeasures
Increase in the frequency of extreme weather events  Increased frequency of flooding caused by changes in precipitation patterns, etc.	<ul style="list-style-type: none"> <li>• Flooding of production sites</li> <li>• Disruption of the supply chain</li> </ul>	Large	<ul style="list-style-type: none"> <li>• Raising the ground level of production sites, installation of watertight walls around critical facilities, installation of instrument rooms in areas with low risk of flooding, installation of seawalls at production sites close to ports</li> <li>• Multiple production bases</li> <li>• Diversification of raw material procurement sources</li> <li>• Securing product inventory</li> <li>• Enrollment in damage insurance</li> </ul>
Introduction of carbon taxes and establishment of carbon emission quotas in some countries	<ul style="list-style-type: none"> <li>• Payment of carbon tax imposed on greenhouse gases emitted from production sites in the said countries</li> <li>• Costs of purchasing emission credits and payment of surcharges will be incurred if our greenhouse gas emissions do not meet the carbon emission targets established by the said countries.</li> </ul>	Small	<ul style="list-style-type: none"> <li>• Reduce scope 1 emissions               <ul style="list-style-type: none"> <li>▶ Further promotion of more efficient production processes and introduction of highly efficient equipment, etc.</li> <li>▶ Use of energy sources that do not emit carbon dioxide, such as hydrogen and ammonia</li> <li>▶ Use of CCUS</li> <li>▶ Use of carbon-neutral natural gas(natural gas with emission credits) as a heat source</li> </ul> </li> <li>• Use of hydrogen-reduced iron materials</li> <li>• Achievement of reduction targets in the absolute amount of greenhouse gas emissions</li> <li>• Collection of information on environmental regulations such as carbon taxes in each country and implementation of countermeasures</li> </ul>
Electricity price	<ul style="list-style-type: none"> <li>• According to the IEA scenario analysis (current measures scenario), electricity prices will not increase. Therefore, there is no risk to the Company.</li> </ul>	—	—

## — Risk management

The Risk Management Committee works to prepare for and eliminate the various risks surrounding our business, including risks posed by climate change. The Committee is chaired by a managing corporate officer and consists of approximately 20 members, including our directors, corporate officers, and department managers.

Our Group has established Risk Management Regulations to identify potential risks associated with our business activities and address these risks appropriately. The Risk Management Regulations clearly state specific risks, risk management systems, and responses to risks that materialize. The Risk Management Committee reports to the Board of Directors, Managing Directors' Meeting, Audit & Supervisory Board, and relevant parties in a timely manner on important risk management issues, and works to address them appropriately. With regard to the risks related to climate change, which have become increasingly important in recent years, the Sustainability Committee works with the Risk Management Committee to ascertain risks through scenario analysis.

### > Sustainability > Management > Risk management

Climate-related physical risks include increased spending due to CO<sub>2</sub> emissions trading and carbon taxes, transition risks such as rising manufacturing costs due to rising energy prices, damage to equipment due to the wind disaster, and damage to electrical equipment due to flooding, or plant shutdown resulting from such cases. Among these risks, we defined serious risks such as accidents, explosions, fires, and other major disasters that cause operations to be stopped for one day or more, and environmental pollution incidents that exceed legal standards values or regulation values.

## — Metrics and Targets

The Shin-Etsu Group aims to achieve net zero greenhouse gas emissions (Scope 1 and 2) by 2050. Furthermore, we will continue to promote the reduction of greenhouse gas emissions in terms of intensity. We will work to achieve the new medium-term target set in FY2016 of “Reduce greenhouse gas emissions in terms of intensity to 45% of the FY1990 level by FY2025.”

### Long-term target

Achieve carbon neutrality by 2050 (scopes 1 and 2)

### Result in FY2022

6,613 thousand t-CO<sub>2</sub> (scope1 2,246 thousand t-CO<sub>2</sub>, scope2 4,367 thousand t-CO<sub>2</sub>)

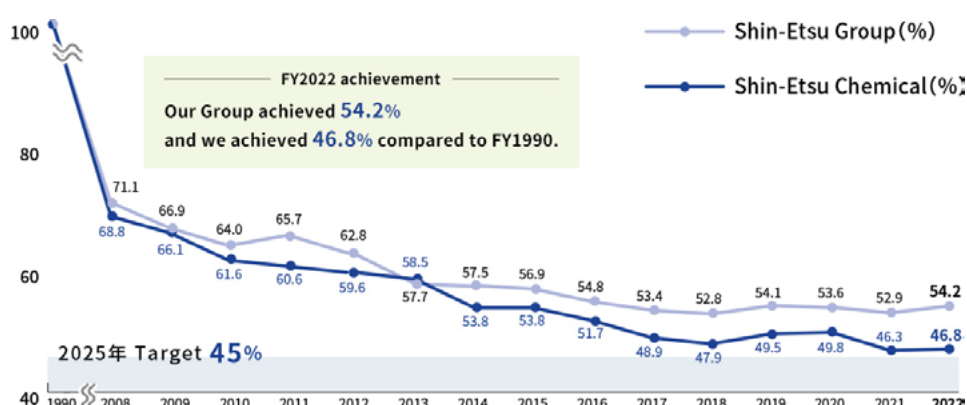
### Mid-term target

Reduce greenhouse gas emissions in terms of production intensity to 45% (i.e. down 55%) of the FY1990 level by FY2025.<sup>1</sup>

### Result in FY2022

Achieves reduction to 54.2% (i.e. down 45.8%) for the Shin-Etsu Group<sup>2</sup> and 46.8% (i.e. down 53.2%) for Shin-Etsu Chemical.

## Changes in Greenhouse Gas Emissions in Terms of Production Intensity Relative to the FY1990 Level



<sup>1</sup> For the calculation of emissions, CO<sub>2</sub> emission factors for electricity are averaged from 2000 to 2009 so that efforts to reduce electricity can be clarified.

<sup>2</sup> Includes non-consolidated group companies.

> Sustainability > Key Sustainability Issues > Energy-saving, resource-saving, and reduction of environmental impacts > Response to Climate Change

## — Our company's initiative

Achieving a Sustainable Society



Shin-Etsu Group and SDGs



# Achieving a Sustainable Society

## Solving social issues through the products: With the environments

### Products

Silicones	Polyvinyl chloride resin (PVC)	Rare earth magnets
-----------	--------------------------------	--------------------

### Eco friendly

## Shin-Etsu Group Products and Technologies that Contribute to Environmental Conservation

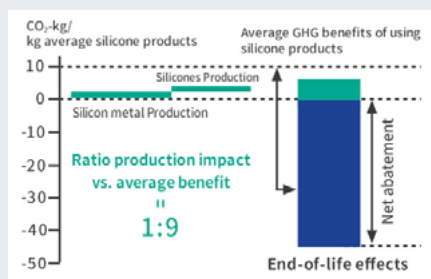
The Shin-Etsu Group's various products are developed while considering their contributions to reducing greenhouse gas emissions, energy conservation, and resource conservation at the stage of use. These products are used in a wide range of fields such as industry, daily life, and renewable energy. We will continue to develop products that contribute to carbon neutrality.

### Silicones

The Group produces over 5,000 silicone products, such as household products, automobiles, construction, and solar cells. While being put to each of their uses, these products are contributing to reductions in greenhouse gas emissions.

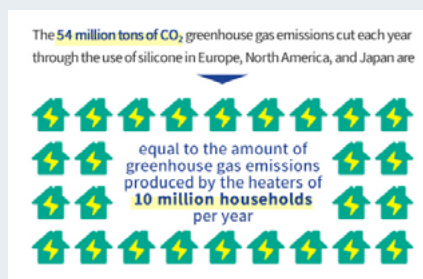
We, together with other members of the global silicone industry, carried out a study of the entire silicone market, examining silicone greenhouse gas emissions at the phase of production and how much greenhouse gas emissions are curbed by the use of silicone, in comparison to silicone substitutes and alternative methods. The study found that the silicone used as a product has the effect of reducing emissions<sup>1</sup> by 9 times that of greenhouse gases emitted during the manufacturing and disposal of silicones. This is equivalent to a reduction of 54 million CO<sub>2</sub>-tons of greenhouse gases<sup>2</sup> annually. Silicone used in automobiles, construction, and solar cells account for the greatest share of overall silicone greenhouse gas emissions reductions. Silicone is contributing significantly to the improvement of sustainability.

#### <sup>1</sup> Greenhouse Gas Emission Reduction Effects

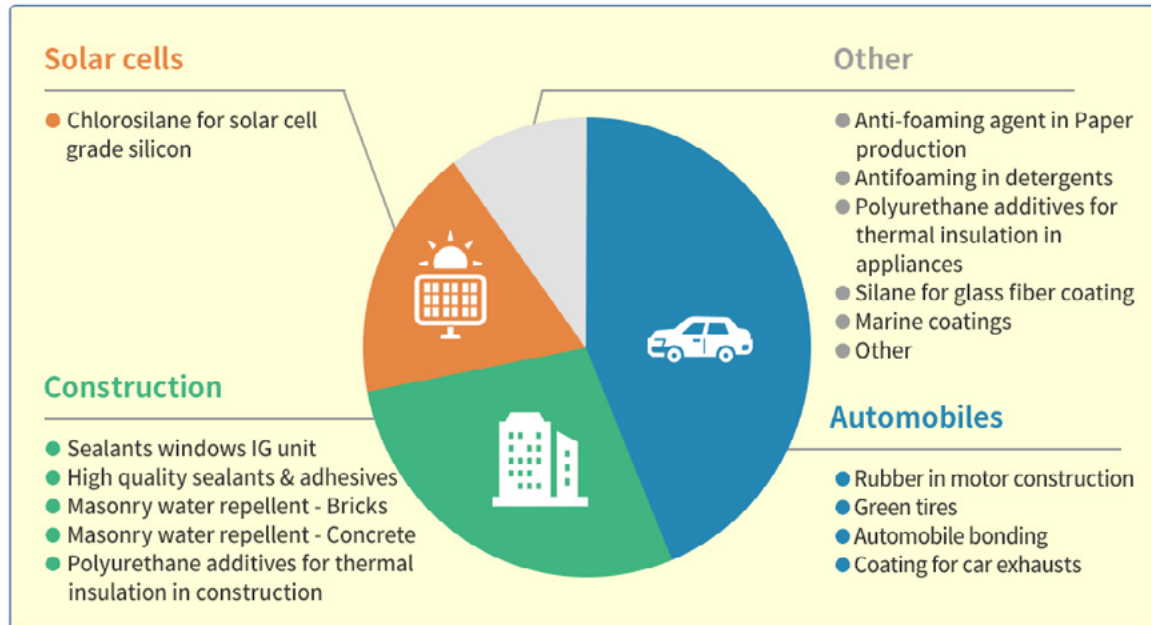


※2012 survey results

#### <sup>2</sup> Examples of Greenhouse Gas Emission Reductions



## Fields in Which Silicone Use is Reducing Greenhouse Gas Emissions, and Major Silicone Uses



**Silicone products reduce greenhouse gas,  
thereby greatly reduce energy and material usage**

Source: Silicone Industry Association of Japan "Silicone-Chemistry Carbon Balance"

> [Global Silicones Council](#)

> [Silicone Industry Association of Japan](#)



## Polyvinyl chloride resin (PVC)

---

Approximately 60% of the raw materials used in PVC are salts, which are abundant throughout the world. Compared to other general-purpose resins, the benefits of PVC include a low dependence on petroleum resources, placing a relatively small burden on the environment. The process of manufacturing PVC from raw materials uses around 60% of the energy required to make other general-purpose resins. Highly durable and easy to recycle, PVC is used for a wide range of social infrastructure materials, including vinyl windows, water and sewerage pipes, public works and other construction. Compared to aluminum, PVC resin windows have lower thermal conductivity and are superior in insulating properties, so they are expected to protect indoors from the heat and cold of the outside air and save energy. In addition to being mainstream in Europe and the United States, it is also popular in China and Japan. According to the Vinyl Environmental Council (VEC), shipments of window frames in FY2021 reached a record high of 31,708 tons, and continued to remain at a high level of 30,654 tons in FY2022. Furthermore, according to the results of a survey released by the Japan Sash Manufacturers Association in March 2023, the ratio of resin windows in detached houses increased by 2.6% from the previous year to 28.5%. Looking at the ratio by region, 99.5% of the windows of detached houses and 95.3% of the windows of condominiums are made of resin in Hokkaido, which is a cold region. Compared to ductile cast-iron pipes<sup>1</sup>, PVC pipes have lower total carbon-dioxide emissions<sup>2</sup> over their lifecycles, contributing to the prevention of global warming.

<sup>1</sup>Ductile cast-iron pipe

Tubes produced by spheroidal graphite cast iron, in which the precipitated graphite shape in the cast iron structure was changed from flaky to spheroidal. Has more than twice the strength and high toughness of the flaky graphite cast iron.

<sup>2</sup>Lifecycle carbon-dioxide emissions

Total carbon dioxide emissions for a product, from the gathering of raw materials, through the production, use, disposal, and recycling stages.

Source:

Japan Chemical Industry Association "Lifecycle Analysis of Chemical Products in Japan and around the World", third edition  
Vinyl Environmental Council website "Living with PVC Windows", "PVC production and shipment results: Breakdown by product"  
Japan Sash Manufacturers Association "March 2023: Residential building material usage survey"

[> Japan Chemical Industry Association](#)

[> Vinyl Environmental Council](#)

[> Japan Sash Manufacturers Association](#)

## Rare Earth Magnets

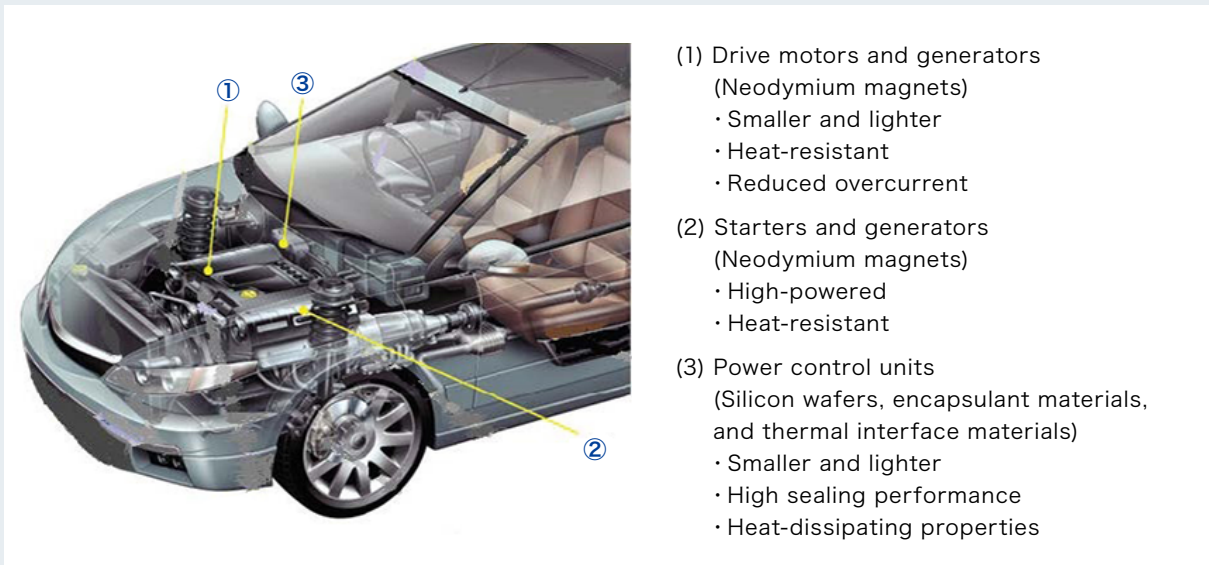
---

Rare-earth magnets are roughly 10 times as strong as conventional ferrite magnets, offering a great deal of magnetic force despite their compact size. These properties allow them to contribute to making motors for hybrid and electric vehicles, energy saving air conditioning compressor motors, and the like more compact, lightweight, and high powered.

For example, using rare-earth magnets in air conditioning compressors can improve energy efficiency by 5 to 10%. This cuts overall power usage, helping to reduce carbon-dioxide emissions. Rare-earth magnets are also used in wind power generation motors, contributing to the spread of renewable energy.

[> Shin-Etsu rare-earth magnets](#)

## Better Mobility - Better means of transportation Shin-Etsu Group's products support Eco-friendly cars



The Company's neodymium magnets<sup>1</sup> are used in drive motors and generators, which are the most important core unit of eco-friendly electric vehicles (EVs) and hybrid vehicles (HVs). The Company's silicon wafers, sealing materials, and heat dissipation materials are also used in power control units for system control. Compared to gasoline cars, HVs can reduce carbon dioxide emissions by about 40%, while EVs can reduce emissions by 100%.\* In addition, the location of the factory incorporates a carbon-neutral perspective. Our manufacturing bases for neodymium magnets are located in Fukui Prefecture of Japan and Vietnam, and at the plant in Fukui prefecture, more than 29% of the purchased electricity is renewable energy, and at the plant in Vietnam, 36%<sup>2</sup> is renewable energy. Both of which far exceed the average ratio in Japan. The Company is promoting the stable supply of various products used in eco-friendly cars and the development of new products, and the shipment volume of such products is increasing year by year. The Company's products are making a significant contribution to reducing CO<sub>2</sub> emissions.

<sup>1</sup>Neodymium magnet

A type of rare earth magnet with very strong magnetic force, composed mainly of neodymium, iron, and boron. It contributes to the miniaturization and reduction of energy consumption of motors and other devices with its strong magnetic force.

<sup>2</sup>The renewable energy ratio of the Vietnam plant is data for FY2020.

\* Source: "Contributing to Lower Emissions through the Global Value Chain" by Keidanren (Japan Business Federation)

Contributions of the Company's neodymium magnet to reducing CO<sub>2</sub> emissions due to its use in eco-friendly car

According to the results of our calculations, the use of our neodymium magnets in eco-friendly cars reduced CO<sub>2</sub> emissions by approximately 2.7million tons in FY2021. Assuming that cars are used for 16 years, this means that we can reduce CO<sub>2</sub> emissions by approximately 43 million tons over the next 16 years.

As a result of global carbon neutrality policies, the percentage of eco-friendly cars has risen rapidly, and the penetration rate of EVs worldwide is expected to reach 100% by 2050.\* Demand for neodymium magnets for eco-friendly cars are expected to continue to grow. The Company will steadily respond to growing demand.

\* Source: "Energy Technology Perspective 2017" by IEA

### ■Future issues and challenges

- Neodymium magnets: Promote a stable supply system by expanding production facilities and recycling technologies, and improve the performance of magnets while reducing their size and weight
- Silicon wafers: Stable supply of high-quality silicon wafers that support miniaturization and other requirements
- Encapsulant materials: High sealing performance and insulation properties
- Heat dissipation materials: High heat dissipation properties

## — Achieving a Sustainable Society

### Solving social issues through the products



#### With the environment

---

- > Silicones
- > Polyvinyl chloride resin (PVC)
- > Rare Earth Magnets

#### Comfortable living

---

- > Polyvinyl chloride resin (PVC)
- > Caustic soda
- > Silicon wafers/ Magnet
- > Silicone
- > Electrophysiological Dry Electrodes / High-Stretchable Wiring Material
- > Cellulose derivatives

### Reduction of environmental impact in plants



#### Shin-Etsu Chemical Gunma Complex

---

- > Promotion of Energy Efficiency and Reduction of Greenhouse Gas Emissions
- > Approaches to the preservation of water resources
- > Approaches to Reducing Waste Materials and Preventing Air Pollution

#### Shin-Etsu Chemical Naoetsu Plant

---

- > Promotion of Energy Efficiency and Reduction of Greenhouse Gas Emissions
- > Approaches to the preservation of water resources
- > Approaches to Reducing Waste Materials

# Achieving a Sustainable Society

## Solving social issues through the products: Comfortable living

### Products

Polyvinyl chloride resin (PVC) ▼	Caustic soda ▼	Silicon wafers/ Magnet ▼	Silicone ▼
Electrophysiological Dry Electrodes /High-Stretchable Wiring Material ▼	Cellulose derivatives ▼		

### Health and wellbeing

#### Shin-Etsu Group's materials that contribute to healthy and secure living

Many of our products contribute to the realization of a healthy and secure living society in which all people actively participate in society. We will continue to play a role as a material manufacturer for a sustainable world by developing, manufacturing, and offering products that meet the needs of society.

### — Materials that contribute to healthy and secure living

#### Polyvinyl chloride resin (PVC)



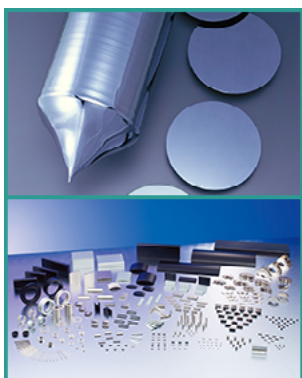
PVC window frames can reduce the amount of heat lost through the windows compared to aluminum windows.

#### Caustic soda



It is used as a raw material for superabsorbent polymers, which is essential as a water absorbent in paper diapers.

#### Silicon wafers / Magnet



It is used in automatic braking of automobiles and contributes to accident prevention.

It is used as a motor for various medical equipment such as nursing care support robots, electric wheelchairs, CT, MRI and other inspection equipment, and supports people's health.



It is used as a material for various medical supplies and contributes to the maintenance of people's health.

It is used as a material for various nursing care products and daily necessities, and supports people's comfortable lives.

## Silicone oil that realizes technology for a skin surface that mosquitoes dislike



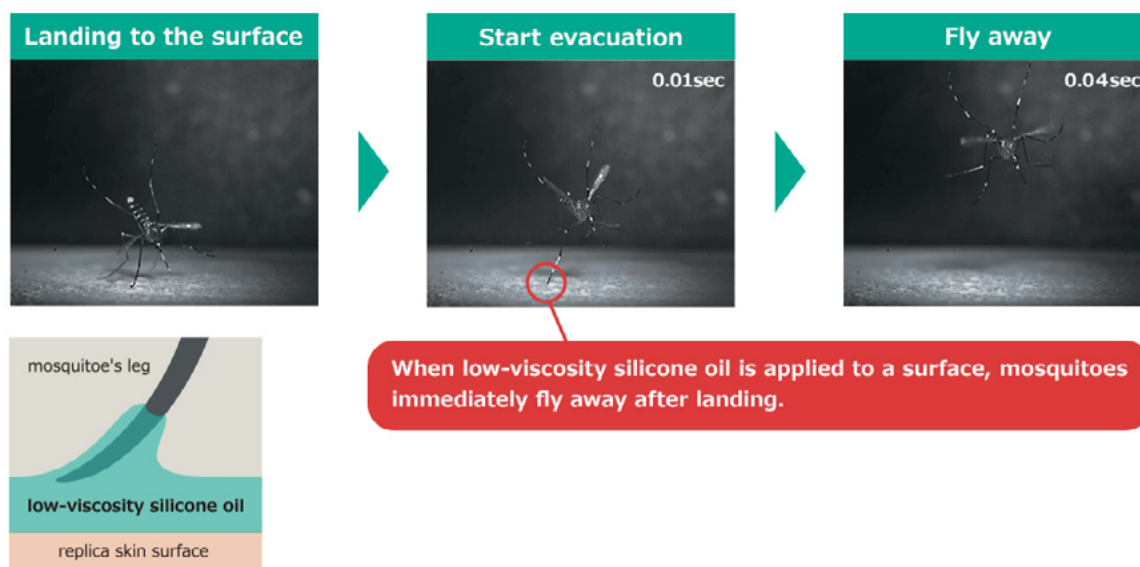
Mosquitoes are said to have killed more people than any other creature on earth. Many people face life-threatening danger from the infectious diseases that mosquitoes carry as vectors. Kao Corporation used Shin-Etsu Chemical's silicone oil to develop a mosquito repellent that can be used safely, and it launched this product in Thailand.

Silicone oil has many advantageous characteristics, such as (1) an extensive track record as a raw ingredient in cosmetics; (2) low surface tension; and (3) a wide range of viscosities. Utilizing silicone oil with all these advantages in a repellent has enabled a skin surface that mosquitoes dislike. This repellent has a different approach from conventional products; it prevents mosquitoes from stabilizing their posture to feed, and so they fly away without biting. Going forward, we will develop products and technologies to help solve issues faced by our customers and society.

## Technology for a skin surface that makes mosquitoes fly away immediately

The behavior of mosquitoes on a replica skin surface was captured with a high-speed camera.

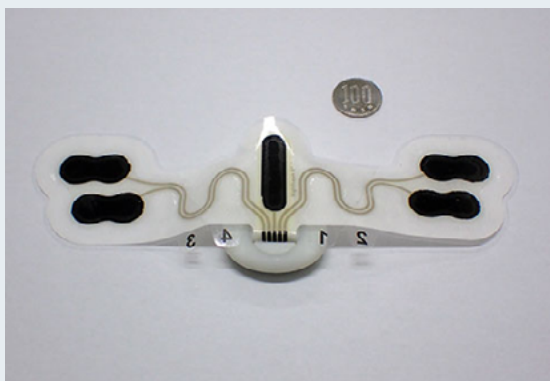
When low-viscosity silicone oil is applied to a surface, mosquitoes immediately fly away after landing.



> Video of technology for a skin surface that makes mosquitoes fly away immediately



### Electrophysiological Dry Electrodes /High-Stretchable Wiring Material



Shin-Etsu Chemical's newly developed innovative materials are being used for this wearable "health patch." (The black-colored parts are the electrophysiological dry electrodes and the gold-colored lines connecting them are the high-stretchable wiring.)

As the awareness of the need for better health management and the necessity for home medical treatments are rising, the opportunities to measure a person's electrical bio signals by means of these advanced wearable devices\* are increasing. Particularly, in the case of the use of smart "health patches," because people wear them directly on their skin for more than 24 hours while the device is obtaining bio signal data, a degree of stress is created because it can become uncomfortable for the wearer. Moreover, when the measurement period takes a long time, perhaps extending to one week, it is possible that the process of obtaining of the bio signal data could become unstable.

By using our company's Electrophysiological Dry Electrodes and High-Stretchable Wiring Material, a wearable device's function, fit and ease-of-use is dramatically improved. This makes it possible to offer a higher quality of life to users who wear the devices.

By offering materials that contribute to the advancement of wearable devices\*, Shin-Etsu Chemical is working together with its customers to reduce the anxiety level of people who are dealing with health concerns and to make medical care more efficient, and we will endeavor to contribute to the realization of a society where people can enjoy healthier and longer lives.

\*Wearable devices enable remote measurement and transmission of a person's electrical bio signals, including such vital signs as heart rate and electrocardiogram (ECG) waveform, while a person is wearing the device on their body.

#### ◆Electrophysiological Dry Electrodes

We developed the materials for electrophysiological dry electrodes to get bio signal data for a wearable device. The health patch that uses the electrophysiological dry electrodes that make possible the acquiring of stable bio signal data, even when a person is continuously wearing the device extending for a week. The electrode based on silicone is superior in biocompatibility, and its characteristics are as follows:

①Better Wearing Feel:Shin-Etsu's silicone material adapts itself to the skin and makes it very unlikely for the skin to become irritated, and at the same time, by making the thickness about as thin as a human hair, it becomes soft and flexible to the extent that you do not feel that you are wearing the device.

②Signal acquiring performance: By optimizing the silicone's adhesiveness, the electrophysiological dry electrodes will allow the device to track and follow the movement of the wearer and realize the acquiring of stable electrocardiogram signals.

③Water repellent property: Because of the silicone's original water repellent property, while wearing the device, taking a bath is made possible, which was not possible when using an existing gel-type electrode.

#### ◆High-Stretchable Wiring Material

This is a material for wiring to transmit the acquired bio signal data to the signal processing device. For the wiring of the health patch, stretchability that follows the movement of the wearer is required. Even after repeated stretchability testing, it maintained conductivity, and this is the most appropriate health patch material that has the needed strength to endure long hours of wearing.



It is used as a binding agent and texture improver for alternative meats and supports a healthy diet.

It is used in supplement tablets to maintain and improve health and in additives for the treatment of adult diseases such as diabetes, hyperlipidemia, hypertension.

### Binder for plant-based meat alternatives "Metolose MCE-100TS"



Meat alternatives made from protein-rich soybeans and peas have come into practical use. It is attracting attention of not only for people who are vegan and health conscious and actively eating vegetable foods, but also as a food that contributes to solving food shortages and environmental problems due to population growth.

The Company has developed "Metolose MCE 100TS", which is one of the products of cellulose derivatives, with a view of using it as a binder for plant based meat alternatives. This makes it possible to create a similar texture to real meat, which cannot be achieved with soy or other raw materials alone.

Our binder has already been adopted by a major hamburger chain. The global market for plant-based meat is expected to grow at a double-digit rate annually, and further market expansion is expected.

## Interview with the staff in charge in the Metolose MCE-100TS

### 1. Please tell us about your job.

Mr. KH and Ms. CA: We are in charge of the domestic sales of cellulose products in the food field. We also handle cellulose used in the fields of construction materials, ceramics, cosmetics, and chemical industry.

Mr. HH: I am in charge of the overseas sales of cellulose for food applications, including sales for SE Tylose, a subsidiary that produces and sells cellulose derivatives in Germany.



Mr. HH

### 2. Please tell us what inspired you to develop Metolose MCE-100TS.

Mr. HH: We received inquiries from overseas customers about product functionality, and our technical sales representatives and laboratory personnel collaborated and developed this product.

An aqueous solution of Metolose will turn into gel when heated to a certain temperature, and revert back to solution when cooled. We thought that if we could lower the temperature at which the gel turns into solution and maintain its gelatinous state at room temperature, we might be able to expand its use in food as a substitute for egg whites, which is used as a binder.

### 3. Were there any difficulties or anything that you put extra effort into in developing Metolose MCE-100TS?

Mr. KH: Europe and North America have taken the lead in the technology for plant-based meat. In order to spread plant-based meat in Japan, it is necessary to provide foods that Japanese people like, which suits the dietary habits of Japanese people. We are working to create a new Japanese food culture, so even food manufacturers are still groping to develop such products.

We need to solve various problems, in order to propose a new product like Metolose MCE-100TS to such food manufacturers. We had a hard time to reach the quality that our customers demanded, because we had to take into consideration various factors: the food must taste good; we must be adjust a production line to fit for it, and the food must be sold at a fair market price.



Mr. KH

It was a new product development, so there were times when customers were cautious about taking the plunge. We work with our customers to find out how they can utilize their existing equipment without making major improvements in order to commercialize the products.

Mr. HH: In overseas markets, we have explained our products features to each customer to make them understand. Starting with the functional evaluation of the product at the customer's research laboratory, we carry out prototyping, actual equipment testing, and stability evaluation in sequence, so we need to work closely with customers. At each stage of evaluation, we need to provide observations and technical advice as appropriate to meet the quality requirements of the customer.

### 4. What did you think of the actual taste of the plant-based meat added with Metolose MCE-100TS?

Ms. CA: It was very delicious. I think it is good that it has low calories compared to real meat, so it is healthy. With such a remarkable improvement in quality, I see a great potential for future demand for plant-based meat. This product can satisfy the various preferences of consumers because its texture and flavor vary greatly depending on the ingredients used and how they are formulated.



Ms. CA

### 5. Please let us know if there is anything else you would like to add to promote the product.

Mr. HH, Mr. KH, Ms. CA: Metolose is a material that makes it possible to do what was previously considered impossible in the food industry. We will continue to strive to expand sales worldwide, with the catchphrase "a material that makes your wish come true."

## — Achieving a Sustainable Society

### Solving social issues through the products



#### With the environment

---

- > Silicones
- > Polyvinyl chloride resin (PVC)
- > Rare Earth Magnets

#### Comfortable living

---

- > Polyvinyl chloride resin (PVC)
- > Caustic soda
- > Silicon wafers/ Magnet
- > Silicone
- > Electrophysiological Dry Electrodes / High-Stretchable Wiring Material
- > Cellulose derivatives

### Reduction of environmental impact in plants



#### Shin-Etsu Chemical Gunma Complex

---

- > Promotion of Energy Efficiency and Reduction of Greenhouse Gas Emissions
- > Approaches to the preservation of water resources
- > Approaches to Reducing Waste Materials and Preventing Air Pollution

#### Shin-Etsu Chemical Naoetsu Plant

---

- > Promotion of Energy Efficiency and Reduction of Greenhouse Gas Emissions
- > Approaches to the preservation of water resources
- > Approaches to Reducing Waste Materials

# Achieving a Sustainable Society

## Reduction of environmental impact in plants: Gunma Complex

### Initiatives

Promotion of Energy Efficiency ▼	Reduction of Greenhouse Gas Emissions ▼	Approaches to the preservation of water resources ▼	Approaches to Reducing Waste Materials ▼
----------------------------------	---	---	--

### — Efforts to reduce the environmental impact at Shin-Etsu Chemical Gunma Complex

Shin-Etsu Chemical Gunma Complex is located in Annaka City, which is located in the western part of Gunma Prefecture and is surrounded by an environment rich in nature. It is continuously developing as a research and production base for state-of-the-art silicon chemistry and plays a role as the main production hub for the products of Shin-Etsu Silicone.

In 1996, Gunma Complex was the first among major domestic chemical companies to acquire International Standard ISO 14001 certification concerning the environmental management system. Since then, it has positively approached sustainability activities and has steadily obtained good results.

### — Promotion of Energy Efficiency and Reduction of Greenhouse Gas Emissions

Gunma Complex uses electricity and natural gas with low emissions of greenhouse gases as energy sources. Although energy consumption in this Complex rises as the production of silicone products increases, it approaches the promotion of energy savings (reduction of average annual rate of 1% in original units) and the reduction of greenhouse gas emissions (reduction of 45% in comparison with 1990 by 2025 in original units) by introducing a cogeneration system and renewable energy and by implementing measures to save energy in the manufacturing processes.

### Examples of Approaches in Gunma Complex

#### Introduction of Cogeneration System\*

Both electric power and steam are generated from the cogeneration system using natural gas as fuel to supply the plants. The electric power is used for motors and lighting, and the steam is used as the heating sources for manufacturing facilities. In addition, power is generated by steam turbines using the pressure difference of steam. The energy utilization efficiency of the system is higher than that of commercial power supply and steam supply from boilers and thus greatly contributes to energy savings and the reduction of greenhouse gas emissions.



\* Cogeneration (heat and power supply) system System where electric power is generated by engines, turbines, and fuel cells using natural gas and petroleum as fuel, and the heat generated at that time is collected as steam and warm water simultaneously. Energy consumption efficiency is higher than that of a power company.

#### Point of Cogeneration

Electric power is supplied from a power company and cogeneration system to the plant in parallel. The system was constructed so that, even if a problem occurred at the power company, the cogeneration system could supply power independently by disconnecting the line to the power company and is useful for emergency measures and continuous production.



### Collection of Waste Heat



The reactive heat generated in the production processes are collected and effectively used as steam generation and product heating. In addition, part of the steam generated in the cogeneration system produces cold water using absorption type refrigerators, and the cold water is used as the cooling source for the manufacturing facility and the air conditioners in the clean rooms.

### Energy Saving Measures in Manufacturing Processes in Each Plant



Operation aimed at saving energy is promoted in each manufacturing process.

### Introduction of Solar Panels



Solar panels with a power generation capacity of approx.148 kW were installed at the Goubara plant, and operation started in March 2021. They cover part of the power used at the plant, and the reduction of CO<sub>2</sub> emissions of approx.72.3 tons per year is expected from annual power generation of approx.160 MWh.\*

\*Trial calculation from sunlight irradiation in Gunma Prefecture

## TOPICS

### Approaches Contributing to Carbon Neutrality Enhanced by the Silicone Business

By focusing on contribution to carbon neutrality as an important task of management, our company invests a total of 20 billion yen in Gunma Complex as the major production hub of the silicone business to further enhance the approaches to the reduction of greenhouse gas emissions from both sides through our products and manufacturing processes. Please refer to our [press release](#) for details.

## — Approaches to the preservation of water resources by Gunma Complex

Gunma Complex is surrounded by an environment rich in nature and takes in almost all amounts of the water necessary for the production of silicones from peripheral rivers. Since the manufacturing of chemical products requires a large amount of water, this Complex recirculates the water taken in and reutilizes it for production facilities and cooling water as much as possible in order to minimize the amount of water taken in from rivers. In addition, we perform the purification treatment before discharging water to rivers to control the water quality thoroughly.

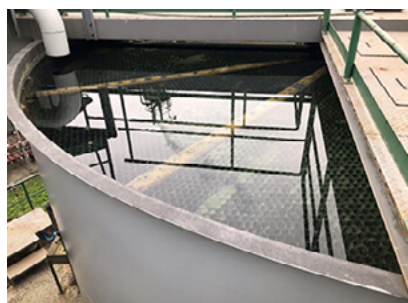
### Examples of Approaches in Gunma Complex

#### Various facilities for preservation of water resources in Gunma Complex



##### Water intake facility

The Isobe and Matsuida plants take in water from the Yanagise River flowing in the plant and a waterway divided from the Usui River in the vicinity of the plant, respectively, to use it as water sources of industrial water for producing silicones. In addition, city water is also partly used.



##### Purification facility for river water

River water taken in is subjected to purification treatment similar to that of waterworks to remove turbidity for use as industrial water to produce silicones.



##### Rainwater pit

Rainwater is stored to be effectively utilized for miscellaneous application.



##### Installation of detectors (TOC (total organic carbon) meter and oil film detector)

A TOC meter is installed at the end of the discharge port of the plant so that when the leakage of chemical substances to drain ditches for rainwater occurs, it can be detected as early as possible. In addition, continuous monitoring is performed using pH meters. Furthermore, oil film detectors are installed at many places in the plant so that when the leakage of silicone fluid occurs, it can also be detected as early as possible.



##### Cooling tower

This is a cooling facility for removing the reaction heat generated during silicone production and the condensing heat generated in the distillation process. Pumps supply water to the production facilities and the water warmed in the cooling process returns to the cooling tower. It is cooled by the tower and supplied again to the production facilities. The tower removes the heat efficiently by using circulating water only by replenishing water that evaporates during heat dissipation.



##### Emergency pit

When the TOC meter or the oil film detector operates and an automatic gate shuts off the water in the rainwater ditch, the drainage is temporarily stored in the emergency pit. The stored water is transferred to a wastewater treatment facility and discharged into the rivers after purification.

## — Approaches to Reducing Waste Materials and Preventing Air Pollution

Efforts are underway at the Gunma Complex to achieve the Shin-Etsu Group's goal of zero waste emissions (a 1% or less ratio of final landfill disposal volume to waste generation volume). These efforts also include promoting waste generation reduction in terms of emission intensity. Besides, emissions reduction targets have been set to prevent air pollution. Measures to reduce emissions have been implemented, such as switching to fuels with a lower environmental load.

### Examples of Approaches in Gunma Complex

#### Incineration Facility

Industrial waste materials from each plant are collected for incineration and disposal at the incineration facility at the Isobe plant. To reduce dioxin emissions from this incineration facility, the Isobe plant is working on operation management optimization through around-the-clock operation and stable incineration at high temperatures. Its efforts also extend to utilizing the heat generated at the incineration facility to produce steam for each plant.



#### Switching to Natural Gas for Air Pollution Prevention

The Gunma Complex positively uses natural gas as an environment-friendly energy source along with electricity. Natural gas is an ideal energy source: it does not produce much nitrogen oxide (NOx) emissions, which are deemed responsible for acid rain and air pollution, and produces no sulfur oxide (SOx) emissions (see the figure above). Accordingly, the Gunma Complex stays well below the emission standard for NOx, and its SOx emissions remain below the measurable lower limit.



### TOPICS

#### Cleaning activities for roads around the office

Every year, the Gunma Complex cleans the roads around the plant as part of its environmental beautification campaign. We spend about two hours each time collecting empty cans, PET bottles, and paper scraps that have been thrown away along the road. In addition to contributing to the local community, this activity is also useful for raising employees' environmental awareness and enlightening their manners.

## — Achieving a Sustainable Society

### Solving social issues through the products



#### With the environment

---

- > Silicones
- > Polyvinyl chloride resin (PVC)
- > Rare Earth Magnets

#### Comfortable living

---

- > Polyvinyl chloride resin (PVC)
- > Caustic soda
- > Silicon wafers/ Magnet
- > Silicone
- > Electrophysiological Dry Electrodes / High-Stretchable Wiring Material
- > Cellulose derivatives

### Reduction of environmental impact in plants



#### Shin-Etsu Chemical Gunma Complex

---

- > Promotion of Energy Efficiency and Reduction of Greenhouse Gas Emissions
- > Approaches to the preservation of water resources
- > Approaches to Reducing Waste Materials and Preventing Air Pollution

#### Shin-Etsu Chemical Naoetsu Plant

---

- > Promotion of Energy Efficiency and Reduction of Greenhouse Gas Emissions
- > Approaches to the preservation of water resources
- > Approaches to Reducing Waste Materials



# Achieving a Sustainable Society

## Reduction of environmental impact in plants : Naoetsu Plant

### Initiatives

Promotion of Energy Efficiency ▼

Reduction of Greenhouse Gas Emissions ▼

Approaches to the preservation of water resources ▼

Approaches to Reducing Waste Materials ▼

### — Efforts to reduce the environmental impact of the Shin-Etsu Chemical Naoetsu Plant

Shin-Etsu Chemical Naoetsu Plant is located in the north of Joetsu City, which is at the southeast of Niigata Prefecture in the center of the coastal area facing the Sea of Japan. With the expansive Sea of Japan to the north, as well as Joshin'etsu-kogen National Park and the lush Kubiki Plain to the south, the area is surrounded by natural landscapes that change with the seasons. This region has prospered as a key area for transportation for centuries. It has a favorable environment for going to and from local communities, the Kansai region, or the Greater Tokyo Area, with the vital harbor of Naoetsu Port, the Hokuriku Expressway and Joshin-etsu Expressway for land travel, as well as the Hokuriku Shinkansen. The Naoetsu Plant produces a wide range of chemical products and highly functional products, as well as promotes research and development to cater to the latest needs, including caustic soda, chloromethane, chlorosilanes, silicone products, cellulose derivatives, synthetic pheromones products, synthetic quartz, photomask blanks, photo resists, and low dielectric materials for 5G. We engage in activities with the aim of helping to achieve a sustainable society and contributing to people's lifestyles, communities, and industries.

### — Promotion of Energy Efficiency and Reduction of Greenhouse Gas Emissions

#### Introduction of Cogeneration System

The Naoetsu Plant has two power generators (in a cogeneration system using gas turbines), and it generates electricity and steam using natural gas as a fuel with low emissions of greenhouse and toxic gases. The steam is used for heating processes within the plant, as well as for generating electricity with steam turbines (in a combined system). We proactively promote initiatives for saving energy and reducing greenhouse gas emissions.



Gas turbine generator



Steam turbine generator

## Introduction of nitrogen recovery equipment

The plant uses large quantities of oxygen and nitrogen for chemical reaction processes and for ensuring safety in the facility. To this end, we use an air separator to isolate oxygen and nitrogen from the air to obtain these two gases at a stable level of quality. The exhaust gas from this process contains a high proportion of nitrogen, and we collect and reuse it to obtain more nitrogen gas while also saving energy.



Nitrogen recovery equipment

We are proactively engaging in many other efforts to save energy, such as reducing the amount of steam used in distillation and solvent recovery in chemical processes, updating our equipment with high-efficiency coolers and gas compressors, and achieving greater efficiency in our clean room air conditioners. While we avoid holding in-person meetings in light of the COVID-19 pandemic, we collaborate across the plant to seek out ideas for reducing greenhouse gas emissions, and we are discussing the use of advanced technologies for waste heat recovery, CO<sub>2</sub> recovery, and other applications. Going forward, we will continue to drive initiatives to realize a decarbonized society.



Implementing LEDs for plant lighting

## — Approaches to the preservation of water resources

The Naoetsu Plant has two large anaerobic wastewater treatment facilities. The methane (biogas) generated as a product of the wastewater purification process is effectively used as boiler fuel. In addition, we have deployed a carrier\* that immobilizes fungi and bacteria in our aerobic wastewater facilities, thereby aiming to achieve high densities in the activated sludge process and thereby boost processing capabilities. We also have a sedimentation treatment facility that isolates the solids suspended in the water and purifies the water to be clean and clear.

\* Carrier

A substance that serves as a base for affixing to other substances, such as adsorbing exhaust gas components or rare metals.



## — Approaches to Reducing Waste Materials

The plant promotes activities to reduce waste materials generated in manufacturing and processing. For example, we take the paper materials that would otherwise be discarded in the manufacturing process, and we effectively utilize them by making recycled paper. We are also proactively considering ways to recycle the solvents from chemical reaction processes or create formulations that allow them to be reused.



Crushing device for unnecessary paper materials



Converting unnecessary paper materials into raw materials

## — Achieving a Sustainable Society

### Solving social issues through the products



#### With the environment

- > Silicones
- > Polyvinyl chloride resin (PVC)
- > Rare Earth Magnets

#### Comfortable living

- > Polyvinyl chloride resin (PVC)
- > Caustic soda
- > Silicon wafers/ Magnet
- > Silicone
- > Electrophysiological Dry Electrodes / High-Stretchable Wiring Material
- > Cellulose derivatives

### Reduction of environmental impact in plants



#### Shin-Etsu Chemical Gunma Complex

- > Promotion of Energy Efficiency and Reduction of Greenhouse Gas Emissions
- > Approaches to the preservation of water resources
- > Approaches to Reducing Waste Materials and Preventing Air Pollution

#### Shin-Etsu Chemical Naoetsu Plant

- > Promotion of Energy Efficiency and Reduction of Greenhouse Gas Emissions
- > Approaches to the preservation of water resources
- > Approaches to Reducing Waste Materials

Infrastructure Materials ▾

Electronics Materials ▾

Functional Materials ▾

Processing, Trading & Specialized Services ▾

## Contributing to the Achievement of SDGs Through Product

### Infrastructure Materials



#### Polyvinyl chloride (PVC) resin

Approximately 60% of the raw materials used in PVC are salts, which are abundant throughout the world. Compared to other general-purpose resins, the benefits of PVC include a low dependence on petroleum resources, placing a relatively small burden on the environment. The process of manufacturing PVC from raw materials uses around 60% of the energy required to make other general-purpose resins. Highly durable and easy to recycle, PVC is used for a wide range of social infrastructure materials, including vinyl windows, water and sewerage pipes, public works and other construction. PVC window frames have excellent heat insulation properties, which is effective for energy saving and contributes to the reduction of greenhouse gas emissions..



#### Sodium hypochlorite

Sodium hypochlorite, which is used as a water disinfectant, has received Japan Water Supply Association (JWWA) water chemistry certification due to low impurities and high quality. It contributes not only to safety but also to the provision of delicious water. In addition to tap water, it is also used for sterilizing food manufacturing water and industrial water, contributing to ensuring safe and hygienic water.

### Electronics Materials



#### Silicon Wafers

Silicon wafer is a material for the substrate that is widely used to manufacture smartphones, personal computers, digital home appliances and automobiles which are the essential products around us. We will continue to support the development of the semiconductor industry, which creates life with a dream such as self-driving cars and AI robots, and contribute to society.



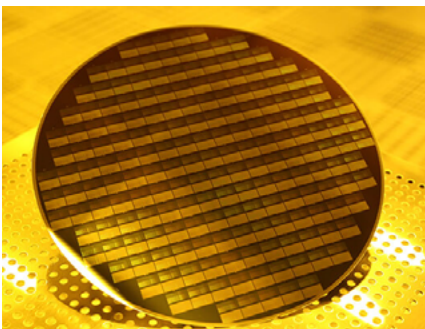
### Rare earth magnet

Rare earth magnet has about 10 times the magnetic force of conventional ferrite magnets and are used to reduce the weight of motors and increase electrical power regeneration. These magnets help reduce greenhouse gas emissions while increasing the power efficiency of a variety of products, including environmentally friendly vehicles and energy-saving air conditioners.



### High-purity transparent silicone / Epoxy material for LED device

Transparent silicone and epoxy material are encapsulation materials and sealing materials for LED devices that consumes less power than conventional lighting and fluorescent lamps. In particular, by using our materials, we can achieve a long life and improve high heat resistance, so it is also used in electric vehicles (EV vehicles) and contributes not only to energy saving but also to CO<sub>2</sub> reduction.



### Photoresist, Photomask blanks

Photoresist is the photosensitive resin that are used in the lithography process to transfer circuit patterns, such as those for semiconductors, on a silicone wafer. Photomask blanks are the base material of photomasks that are light-shielding thin films on a synthetic quartz substrate, are used as the patterning template of circuits to be transferred on a silicon wafer in the semiconductor lithography process. Both of them support the high integration, high speed, and high functionality of semiconductors that contribute to power saving and energy saving of automobiles and electronic devices.



### Synthetic quartz preform for optical fiber

It is a rod made of synthetic quartz of high purity, and is designed so precisely that any incident light passes through without attenuation. By being used in medical endoscopes, it contributes to reducing the burden on patients and making accurate diagnoses. It is also used as materials for optical fibers, which are essential for the information society.



## Silicone

Silicone primarily consists of silicon (Si), which is the second-most abundant element found in the outer layer of the earth's crust, behind oxygen. It is associated with a low dependence on petroleum resources and a low environmental footprint. In addition, taking advantage of its heat resistance, cold resistance, electrical properties, and water resistance it is used for environmentally friendly products such as electric vehicles, eco tires, LED lights, and solar power generation, thereby contributing to the achievement sustainable society.



## Anode material for lithium ion batteries

Shin-Etsu has succeeded in putting electrical conductivity on SiO particles by using our own proprietary method, and has put it to practical use as an anode material for high-capacity and high-output lithium-ion batteries. High-capacity batteries help reduce the weight and increase the mileage of electric vehicles, thereby contributing to the reduction of environmental impact.



## Cellulose derivatives

Cellulose derivatives made from natural polymer cellulose are environmentally friendly materials, and used in a wide range of fields such as pharmaceuticals, food, construction and civil engineering work. Industrial cellulose derivatives reduce the separation of concrete in water, enabling concrete to be poured without polluting water. This contributes to environmental preservation by preventing water pollution



## Synthetic pheromones

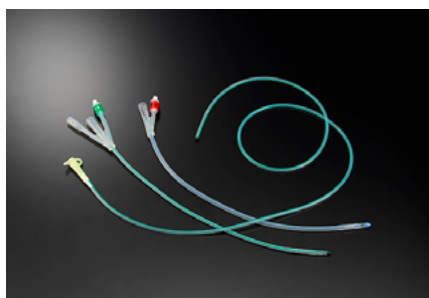
Synthetic pheromones provide a new type of agricultural material that inhibits the mating of pests to reduce the next generation of them. By using synthetic pheromones, it aims only at eliminating agricultural pests, agricultural products can be cultivated while maintaining the ecosystem of many living creatures such as these pests' natural enemies. Also, it is possible to reduce the spread of agricultural chemicals that cause contamination of groundwater and rivers, thereby contributes to the conservation of water resources.





### Biodegradable runner clip

Biodegradable runner clip is an agricultural materials used to divide crops with runners (stems) that crawl on the ground, such as strawberries and melons. Made of biodegradable plastic, it gradually becomes brittle due to ultraviolet rays and hydrolysis after use, and is decomposed by microorganisms in the soil in 1 to 2 years. Since it is composed of the materials certified as biodegradable plastic and biomass plastic, it does not lead to an increase in CO<sub>2</sub>, and it also contributes to global warming countermeasures and reduction of plastic waste.



### Medical catheter

Medical catheter is a medical device that is inserted into the body of a patient whose physical function has deteriorated due to illness or surgery, and is mainly composed of silicone rubber, which is said to be less prone to allergic reactions. In modern medicine, it is used for various medical procedures such as blood collection, body fluid drainage, examination and treatment, and contributes to the provision of high-quality basic healthcare services.

## — Our company's initiative

Achieving a Sustainable Society



Shin-Etsu Group and Climate Change



# Management Structure of Sustainability Initiatives

Structure of Sustainability Initiatives

Corporate Governance

Risk Management

Shin-Etsu Group Business Principle/ Basic Sustainability Policy	Structure of initiatives	List of executives in charge of Sustainability initiatives	Participant in UN Global Compact
Evaluation from Society	Utilization of Supply Chain CSR Management Systems		

## Shin-Etsu Group's Sustainability

What We Strive for

**Contribution to the Earth's future**

Our Mission

**To provide products that contribute to solving social issues**

### Business Principle

The Group strictly complies with all laws and regulations, conducts fair business practices and creates unrivaled value for society and industry through the provision of key materials and technologies.

### Basic Sustainability Policy

#### The Foundation of Activities

**The foundation of all activities**  
Legal compliance,  
fair corporate activities

Health and safety of  
employees and contractors

Energy-saving,  
resource-saving, and reduction  
of environmental impact

Product quality improvements  
and product safety control

Promoting CSR procurement  
and the diversification of  
supply sources

Respect for human rights, the  
development of human resources,  
and the promotion of diversity

Contribution to industry and  
social initiatives

Respect for and protection of  
intellectual property

Accurate and timely information  
disclosure and communication  
with stakeholders



## — Shin-Etsu Group Business Principle

The Group strictly complies with all laws and regulations, conducts fair business practices and creates unrivaled value for society and industry through the provision of key materials and technologies.

## — Basic Sustainability Policy

The Shin-Etsu Group will:

1. Do our best to increase the Group's corporate value through sustainable growth and make multifaceted contributions to society.
2. Carry out all our company activities while always placing the utmost priority on safety.
3. Expand those businesses that contribute to the reduction of greenhouse gas emissions.
4. Maximize the efficiency of product development and manufacturing, and contribute to higher efficiency of society by supplying our products thus produced.
5. Engage in business activities while taking biodiversity into account and seeking harmony with the global environment.
6. Strive to respect human rights, assure equality in employment opportunities, and support the self-fulfillment of our employees.
7. Appropriately disclose information in a timely manner.
8. Carry out healthy, trustworthy, transparent corporate activities based on the integrity of the Group's ethical values.

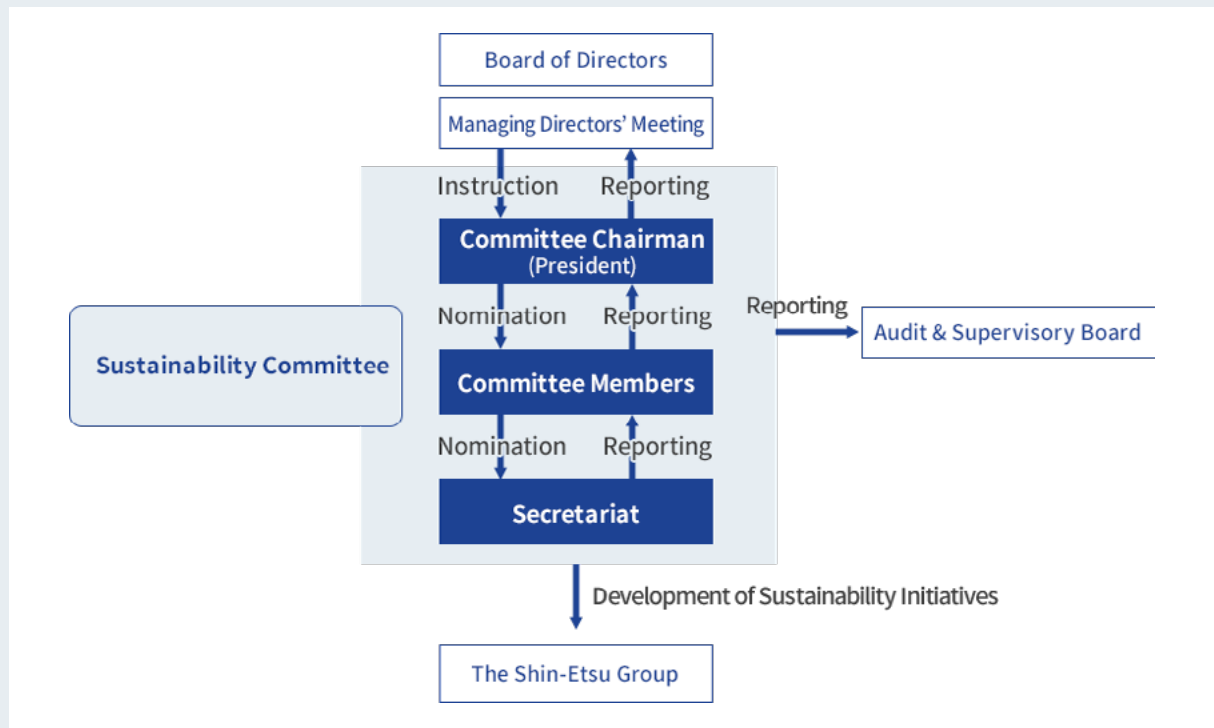
Revised December 2021

## — Structure of Initiatives

### Sustainability Initiatives


The Group believes that it is the social responsibility of the Group to contribute to all of our stakeholders, such as shareholders, investors, customers, suppliers, local communities, and employees. To achieve this, we formulated the "Basic Sustainability Policy" and internal regulations and carry out sustainability activities. In order to develop sustainability initiatives effectively and properly at a company-wide level in all aspects of corporate activities, we have set up the Sustainability Committee, which is chaired by the President and comprises approximately 60 members, including Directors, Corporate Officers and department heads of Shin-Etsu Chemical and sustainability officers from group companies.

### Sustainability Organizational Chart



## Issues and Progress of Sustainability

The issues and achievements of sustainability in FY2022 and the activities scheduled for FY2023 are as follows.

Issues	Progress in FY2022	Schedule for FY2023
Human rights due diligence <sup>1</sup>	<ul style="list-style-type: none"> <li>Conduct supply chain human rights risk surveys (domestic and overseas group companies)</li> <li>Implementation of human rights education</li> </ul>	<ul style="list-style-type: none"> <li>Conduct supply chain human rights risk surveys (ongoing)</li> <li>Develop human rights awareness and educational programs(ongoing)</li> </ul>
Response to TCFD <sup>2</sup>	<ul style="list-style-type: none"> <li>Discussed specific measures aimed at achieving carbon neutrality</li> </ul>	<ul style="list-style-type: none"> <li>Promotion of carbon neutrality</li> </ul>
Integration of SDGs and management	<ul style="list-style-type: none"> <li>Publish a series of articles related to the SDGs in the company newsletter to deepen the Group's understanding of the topic</li> </ul> 	<ul style="list-style-type: none"> <li>Develop and supply products that contribute to SDGs.(ongoing)</li> </ul>

<sup>1</sup> Human rights due diligence

An activity whereby a company recognizes, prevents, and addresses adverse effects related to human rights both within and outside the company by repeating the PDCA cycle of (1) formulating and disclosing human rights policies, (2) assessing the impact of our business activities on human rights, (3) preventing and correcting negative impacts, and (4) tracking and disclosing performance data.

<sup>2</sup> Task Force on Climate-related Financial Disclosures (TCFD)

A special team focusing on disclosure of financial information concerning climate change, which was requested by G20 and established by the Financial Stability Board (FSB) in December 2015. In July 2017, the TCFD published a set of recommendations calling for corporations to analyze their risks and opportunities based on future scenarios and various mid to long-term predictions of climate change, and to disclose the impact on their finances to investors, etc.

## Exchange of opinions with Outside Director

We invited Mr. McGarry from PPG, who was newly appointed as a Director of our company on June 29, 2022, as a lecturer and held an opinion exchange meeting on "sustainability." Mr.Saitoh, Chairman of the Sustainability Committee, and members of the committee participated in the meeting to exchange opinions, and discussions were held on PPG Industries' sustainability initiatives and how to disseminate them within PPG.



Outside Director Mr. McGarry  
introducing a case study at PPG  
(June 2022, Shin-Etsu Chemical Head Office)



Lecture by Outside Director Mr.McGarry  
(June 2022, Shin-Etsu Chemical Head Office)

## — List of Executives in Charge of Sustainability Initiatives

Position	Name	Current Positions (related to Sustainability)	Key Sustainability Issues
Representative Director, Chairman of the Board Meeting	Fumio Akiya	In charge of Technologies	Key Issue : Product quality improvements and product safety control
Representative Director, President	Yasuhiko Saitoh	Chairman of Sustainability Committee	
Managing Corporate Officer	Toshiya Akimoto	Vice Chairman of Sustainability Committee In charge of Public Relations, Legal Affairs General Manager of Office for Digitization and Digitalization Chairman of Risk Management Committee	The foundation of all activities: legal compliance, fair corporate activities Key Issue : Respect for and protection of intellectual property Key Issue : Accurate and timely information disclosure and communication with stakeholders Risk Management
Managing Corporate Officer	Fumio Arai	In charge of Purchasing	Key Issue : Promoting CSR procurement and the diversification of supply sources
Managing Corporate Officer	Yukihiro Matsui	In charge of Patents	Key Issue : Respect for and protection of intellectual property
Managing Corporate Officer	Masaki Miyajima	In charge of Business Auditing	Corporate Governance
Corporate Officer	Toshiyuki Kasahara	General Manager of Finance & Accounting Dept. In charge of Office of the President	Corporate Governance (Fair tax payment, Operation of Group Companies)
Corporate Officer	Yoshimitsu Takahashi	In charge of General Affairs, Environmental Control & Safety Relations	Corporate Governance Key Issue : Health and safety of employees and contractors Key Issue : Energy-Saving, Resource-Saving, and Reduction of the Environmental Impact
Corporate Officer	Kai Yasuoka	Personnel & Labor Relations	Key Issue : Respect for human rights, the development of human resources, and the promotion of diversity

As of June 29, 2023

## — Participating in the UN Global Compact

In November 2010, the Group joined the UN Global Compact. Life in society has become more complex and diverse in recent years, and the social responsibilities of enterprises have grown. The Group remains firmly committed to its business principle of complying with all laws and regulations, conducting fair business practices and creates unrivaled value for society and industry through the provision of key materials and technologies. At the same time we respond flexibly to changes in the social and economic environment. The Group has also been participating in the Global Compact Network Japan (GCNJ) since November 2010. The Group joins subcommittees, such as the Environmental Management Subcommittee and ESG Subcommittee, to use the information gained on the latest development of sustainability to promote the Group's Sustainability. The Group, as the first in Japan, signed a document to support GCNJ's Tokyo Principles for Strengthening Anti-Corruption Practices in February 2018.

### > Key Sustainability Issues - The Foundation of All Activities: Legal Compliance, Fair Corporate Activities

## Global Compact Ten Principles

### Human Rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle 2: make sure that they are not complicit in human rights abuses.

### Labour

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4: the elimination of all forms of forced and compulsory labour;

Principle 5: the effective abolition of child labour; and

Principle 6: the elimination of discrimination in respect of employment and occupation.

### Environment

Principle 7: Businesses should support a precautionary approach to environmental challenges;

Principle 8: undertake initiatives to promote greater environmental responsibility; and

Principle 9: encourage the development and diffusion of environmentally friendly technologies.

### Anti-Corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.



## — Evaluation from Outside the Company

The Company is incorporated in the following Sustainability index. (foot note of FTSE Russell\*)



2023 CONSTITUENT MSCI JAPAN  
EMPOWERING WOMEN INDEX (WIN)

\*FTSE Russell: FTSE Russell hereby certifies that Shin-Etsu Chemical Co., Ltd. has met the requirements for inclusion in the FTSE Blossom Japan Sector Relative Index as a result of a third-party survey and has become a constituent of this index. The FTSE Blossom Japan Sector Relative Index is widely used to create and evaluate sustainable investment funds and other financial products.  
<https://www.ftserussell.com/products/indices/blossom-japan>

\*MSCI: The inclusion of Shin-Etsu Chemical Co., Ltd. in any MSCI index, and the use of MSCI logos, trademarks, service marks or index names herein, do not constitute a sponsorship, endorsement or promotion of Shin-Etsu Chemical Co., Ltd. by MSCI or any of its affiliates. The MSCI indexes are the exclusive property of MSCI. MSCI and the MSCI index names and logos are trademarks or service marks of MSCI or its affiliates.

As of June 30, 2023

## — Utilization of Supply Chain CSR Management Systems

The Group utilizes supply chain CSR management systems, such as RBA Online<sup>1</sup>, Sedex<sup>2</sup>, EcoVadis<sup>3</sup>, and CDP<sup>4</sup> to disclose CSR information. In FY2022, the CDP evaluation was A-, and the EcoVadis evaluation was silver.

---

### <sup>1</sup> RBA Online

An online database organized by NPO Responsible Business Alliance (former: Electronic Industry Citizenship Coalition) to manage labor, health and safety, environment, and ethics in the supply chain. Enterprises in the global electronic industry and others join the Responsible Business Alliance.

### <sup>2</sup> Sedex

An online database organized by and named after NPO Sedex for storing and accessing data on ethical and responsible business practices. Enterprises from 150 countries in 28 industries, including food, automobile, cosmetics, and amenity, have joined Sedex.

### <sup>3</sup> EcoVadis

The supply chain management system operated by the French CSR rating agency, EcoVadis, is used by multinational corporations in 150 countries in North America, Asia, and Europe.

### <sup>4</sup> CDP

An international environmental non-profit organization established in the UK in 2000 that operates a global environmental information disclosure system for companies and local governments. The annual environmental information disclosure and evaluation process is widely recognized as an international standard for corporate environmental information disclosure.

## — Management

Structure of Sustainability Initiatives



Corporate Governance



Risk Management





# Management Corporate Governance

Structure of Sustainability Initiatives

Corporate Governance

Risk Management

Corporate Governance System ▾	Outside Directors ▾	Outside Audit & Supervisory Board Members ▾	Officers' Remuneration Committee ▾
Internal Control System and Operational Audit ▾	Tax Policy ▾	Operation of Group Companies ▾	Employee Initiatives ▾

The company considers corporate governance to be an important management task, and focuses on the following points:

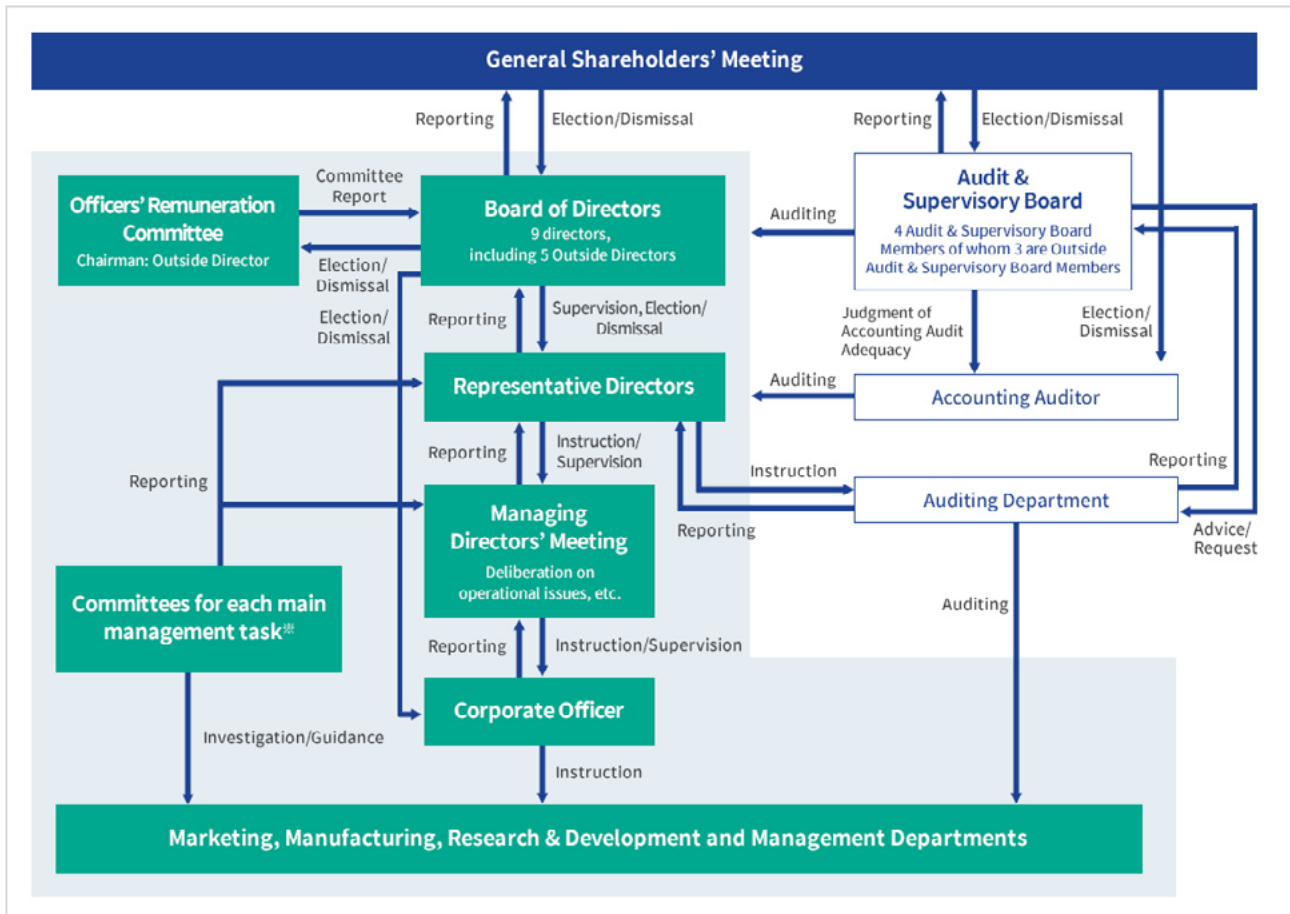
- Developing an efficient organization and internal rules
- Ensuring management transparency
- Strengthening internal controls
- Disclosing information timely and accurately

## — Corporate Governance System

The Board of Directors consists of 9 members, of whom 5 are Outside Directors with a wealth of corporate management experience and exceptional insight. The company discusses and decides the execution of operations at the Board of Directors' Meeting and the Managing Directors' Meeting, which are each held at least once a month. The Board of Directors deliberates and makes resolutions on important management matters, including decisions on basic principles of the company and matters requiring resolution by law and the Articles of Incorporation. The Managing Directors' Meeting deliberates and makes decisions on general business matters (excluding matters to be discussed at Board of Directors meetings) in order to ensure prompt and efficient execution of business operations. In addition, we listen to individual opinions from Outside Directors on the overall effectiveness of the Board of Directors on an annual basis, and the Outside Directors evaluate whether our Board of Directors has maintained its effectiveness. This also allows us to obtain valuable opinions on such issues as "board meetings agenda and further enhancement of discussions" and "responsibilities and roles of outside officers" etc. As stated above, the Board of Directors is functioning properly. In addition, the results of the self-evaluation and analysis of the Board of Directors show that the effectiveness of the Board has been maintained as a whole, and that it is fulfilling its functions sufficiently.

The company has adopted an Audit & Supervisory Board system. The Audit & Supervisory Board is composed of 4 members, including 3 Outside Audit & Supervisory Board Members. The Audit & Supervisory Board shall make decisions on matters such as audit policies and plans, the status of establishment and operation of internal control systems (including confirmation of the status of internal control of the corporate group), the selection, dismissal, or non-reappointment of the accounting auditors, consent regarding their compensation, etc., and the content of the audit report. The Audit & Supervisory Board Members attend the Board of Directors' Meetings, Managing Directors' Meetings, and other important internal meetings. In addition, they audit the business execution of the directors and corporate officers through web conferencing audits and other investigations of business sites and subsidiaries, and reviewing the reports submitted by the directors and employees on the status of the execution of their duties. The Audit & Supervisory Board Members also receive reports and explanations on financial audits from the accounting auditors and exchange opinions with them on a quarterly basis. Furthermore, they regularly receive reports and explanations regarding the status of internal audits from the Auditing Department and exchange opinions. In addition, Shin-Etsu Chemical has an executive officer.

## Corporate Governance System at Shin-Etsu Chemical



As of June 29, 2023

※Sustainability Committee, Risk Management Committee, G Committee, etc.

### > Board of Directors

#### Directors' specialties and areas of involvement

Board of Directors	Growth strategy	Production technology/productivity	Product development	Risk management	Capital policy	Human capital	ESG
Fumio Akiya	○	○	○	○		○	
Yasuhiko Saitoh	○		○	○	○	○	○
Susumu Ueno	○	○	○	○			○
Masahiko Todoroki	○		○	○			○
Toshihiko Fukui				○	○	○	○
Hiroshi Komiyama				○	○	○	○
Kuniharu Nakamura				○	○	○	○
Michael H. McGarry				○	○	○	○
Mariko Hasegawa				○	○	○	○

As of June 29, 2023

## — Outside Directors

The company welcomes 5 Outside Directors for the purpose of boosting the advisory and supervisory functions of management from an independent perspective. We have received advice on growth strategies and the enhancement of governance from Outside Directors. We believe these points are important for our continued sustainable growth. In June 2023, we invited Mariko Hasegawa as an Outside Director which aims to contribute to the sustainable development of human society and its quality improvement. By further promoting diversity in the Board of Directors, we aim to further enhance the diversity of perspectives and link this to the evolution of management and business.

### Outside Director List

As of June 29, 2023



Toshihiko Fukui  
Former Governor, the  
Bank of Japan;  
President, The Canon  
Institute for Global  
Studies;  
Outside Director,  
Kikkoman Corporation

[> Outside Director Message](#)



Hiroshi Komiyama  
Former President, The  
University of Tokyo;  
Chairman, Mitsubishi  
Research Institute, Inc.

[> Outside Director Message](#)



Kuniharu Nakamura  
Chairman, Sumitomo  
Corporation;  
Outside Director, NEC  
Corporation



Michael H. McGarry  
Chairman, PPG Industries,  
Inc.  
Outside Director, United  
States Steel Corporation



Mariko Hasegawa  
President of Independent  
Administrative Agency,  
the Japan Arts Council

## — Outside Audit & Supervisory Board Members

The company appoints 3 Outside Audit & Supervisory Board Members for the purpose of boosting advisory and supervisory functions on management from an independent perspective. They audit the company's management as experts in their respective fields from a broad point of view. Audits by the Outside Audit & Supervisory Board Members contribute to the company's compliance system.

### Outside Audit & Supervisory Board Member List

As of June 29, 2023



**Yoshihito Kosaka**  
Certified Public Accountant;  
Representative partner,  
HIYU Certified TAX  
Accountant's Corporation;  
Outside Audit &  
Supervisory Board  
Member, ASTMAX Co., Ltd.;  
Outside Audit &  
Supervisory Board Member,  
OXIDE Corporation



**Mitsuko Kagami**  
Lawyer, Kagami Law  
Offices;  
Outside Director, Medipal  
Holdings Corporation;  
Outside Director, Sotetsu  
Holdings, Inc.



**Hiroko Kaneko**  
Outside Director/Audit &  
Supervisory Committee  
Member, Mitsubishi HC  
Capital Inc.  
Outside Director, The  
Yokohama Rubber Co., Ltd.  
Outside Director/Audit &  
Supervisory Committee  
Member, Kanagawa Chuo  
Kotsu Co., Ltd.  
Outside Audit &  
Supervisory Board  
Member, Development  
Bank of Japan Inc.

## — Officers' Remuneration Committee

The company established the Officers' Remuneration Committee to review and evaluate the transparency and validity in the process of determining Directors' remuneration, nominating candidates for Executives, Directors, and Audit & Supervisory Board Members, and others. The committee is chaired by Outside Director Toshihiko Fukui and consists of 4 Directors, including 3 Outside Directors.

The committee is convened by regular meetings biannually and conference calls as required. The committee reviews and evaluates the remuneration of Directors, and deliberates on the nomination of candidates for Directors and Audit & Supervisory Board Members, and advises the Board of Directors.

Officers' Remuneration Committee Members

Chairman: Toshihiko Fukui

Member: Hiroshi Komiyama, Outside Director

Member: Michael H. McGarry, Outside Director

Member: Yasuhiko Saitoh, Representative Director-President

## — Internal Control System and Operational Audit

The company has formulated a "Basic Policy on Internal Controls" to help put in place "structures to ensure that the execution of duties by Directors is fully compliant with relevant legislations and the articles of incorporation, and structures to ensure the appropriateness of business operations within the corporate group, which consists of its subsidiaries, this corporation, and other corporate business," as stipulated by the Companies Act and an Ordinance of the Ministry of Justice. Our internal control system is structured and implemented in accordance with the above policy. We review it constantly and endeavor to make it more appropriate and efficient.

The Auditing Department, which is a dedicated department, conducts operational audits of each department from the perspective of legality and rationality of business activities, and evaluates the status of development and operation of internal controls related to financial reporting from an independent standpoint. The results are reported directly to Directors, including the Representative Director, and Outside Audit & Supervisory Board Members.

## — Policy on tax payments and tax-related initiatives

In its business principle, the Group states that it strictly complies with all laws and regulations and conducts fair business practices. Each and every Group employee performs their daily work duties sincerely based on this.

We believe that it is our social responsibility and one of our contributions as a company to properly pay taxes for the profits in accordance with the laws and regulations of the countries and regions in which we operate. As part of our efforts to this end, we strive to instill and raise awareness of tax compliance and provide education, especially for employees involved in tax affairs, to improve their tax knowledge and practical skills. For important tax issues, we consider the appropriateness of tax treatment while receiving appropriate advice from experts, and strive to file appropriate tax returns based on the laws and regulations of each country. We also place importance on maintaining good relationships with the tax authorities in each country by dealing with them in good manner.

We do not engage in any business activities for the purpose of tax avoidance.

The total corporate income tax paid in FY2022 was 266.8 billion yen for consolidated companies. The breakdown by region is as follows: Japan 128.6 billion yen, the U.S. 126.1 billion yen, Europe 5.0 billion yen, and Asia-Oceania 7.1 billion yen.

## — Operation of Group Companies

The company aims to develop the whole Group by supporting and respecting the autonomy of the Group companies. Group companies are managed based on the "Shin-Etsu Chemical Group Company Operational Regulations." The 99 consolidated subsidiaries conduct prior consultation and report on the following projects.

### **(1) Prior consultation example**

- Capital increase or decrease, mergers, dissolutions, and amendments to the articles of incorporation
- New business and capital investment plan
- Transfer or acquisition of business
- Appointment, dismissal, or transfer of officers and seconded executives

### **(2) Reporting example**

- Operations review
- Financial results
- Risk information identified by Group companies

Important information such as deficiencies in internal control Furthermore, by holding meetings that are attended by the presidents of our main Group companies at least once a year, we actively promote the sharing and exchange of information among Group companies.

## Employee Initiatives



Ms. EH,  
Corporate Governance  
department,  
S.E.H Europe (UK)

### **1. Please tell us about your current responsibilities.**

I work in the corporate governance department of SEH Europe. After joining, the company provided me the opportunity to study at the UK Corporate Governance Institute (UKICGI) for 4 years to become a Chartered Company Secretary and Governance Professional. As a Senior Advisor, my primary responsibility is co-ordinating and reporting on the audits for the internal financial fraud control system (JSOX) under the Japanese Financial Instruments and Exchange Act. I am also responsible for ensuring the company is operating in a way that is legally and ethically compliant and in accordance with corporate regulations and Environmental, Social & Governance (ESG) initiatives. This involves monitoring and reporting on various areas such as modern slavery, anti-bribery and corruption, gender pay gap, data protection, and stakeholder relations. I have also been provided the opportunity to train as an auditor in other functions of the business such as quality and safety, which has allowed me to gain experience and better understanding of the company as a whole.

### **2. Please tell us about S.E.H Europe's corporate governance and overall ESG initiatives.**

The Shin-Etsu Group is a member of the United Nations Global Compact and is committed to contributing to the United Nations Sustainable Development Goals (SDGs). We work with various stakeholders to promote our Basic Sustainability Policy. One area we are particularly committed to encouraging, supporting and promoting is activity that benefits the local community. Through our Healthy Working Lives Committee, we support career days at local schools and colleges to get students interested in our industry. We also donate to local food banks, help Ukrainian refugees, and assist with conservation of the land and wildlife on our site. By regularly reviewing our sustainability framework, including our Corporate Code, Code of Conduct, Ethics and Compliance Statement, Modern Slavery Statement, Gender Pay Gap Analysis, and Promoting Diversity, we ensure that decisions are made in a manner that promotes high standards of business conduct and good governance.

### **3. Are there any issues in promotion of diversity?**

Women in male dominated industries face a set of challenges that our male counterparts do not. Other minority groups can experience further challenges such as discrimination, stereotyping and micro-aggressive behaviors within the workplace. Awareness of these challenges has been increasing in recent years as we see a progressive shift in companies to adopt diversity initiatives and introduce inclusive policies and practices that support a diverse workforce to excel in their roles. However, the burden of implementing these new measures is disproportionately assigned to the minority groups rather than the entire workforce. We all have a responsibility to educate ourselves and others, to listen to diverse voices, recognise our own internal biases, and take action where improvements towards gender equality need to be made. I am confident that by maintaining pressure as a society, equality and inclusivity can be achieved.

### **4. What do you plan to focus on in corporate governance and sustainability initiatives in the future?**

At a regulatory level, we have been noticing stricter auditing standards from our external auditors in the past couple of years. As the demand for enhanced auditing transparency is increased, this will involve more from us to meet the requirements. As the demand for change from stakeholders increases, ESG will continue to be an important part of corporate governance strategies. While much of previous ESG attention has been concentrated on climate change mitigation and social initiatives, I think we will see a broadening of focus into governance plans. The corporate governance landscape in the UK is constantly evolving so it is important to remain aware of key governance issues being discussed at the government level and prepare for upcoming changes before they occur.



Related Information

---

- > [Corporate Governance Report](#) 
- > [Sustainability Data](#)

— Management

<a href="#">Structure of Sustainability Initiatives</a>	<a href="#">➤</a>
<a href="#">Corporate Governance</a>	<a href="#">➤</a>
<a href="#">Risk Management</a>	<a href="#">➤</a>

# Management Risk Management

Structure of Sustainability Initiatives

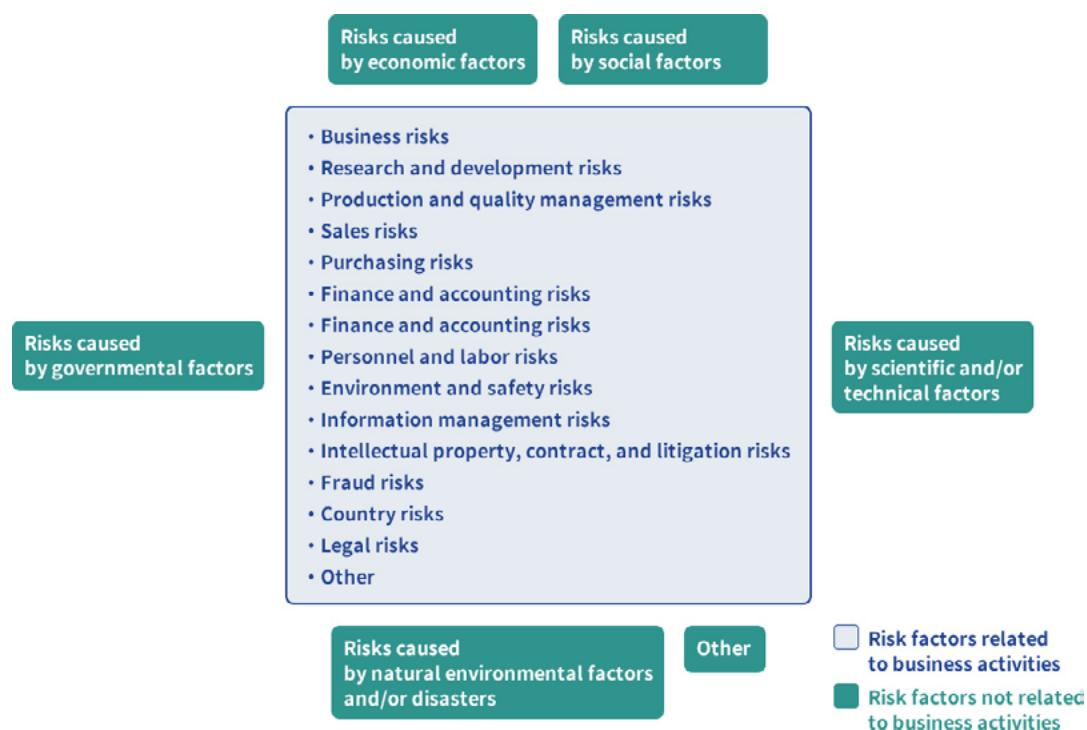
Corporate Governance

Risk Management

## — Risk Management Regulations

The Company has established the Risk Management Regulations. Comprehensive risk considered in carrying out business activities in the Company and the Group are specifically defined in a long-term perspective in the regulations. In addition, risk handling methods and a risk management system has been established.

### Risks Defined in Risk Management Regulations



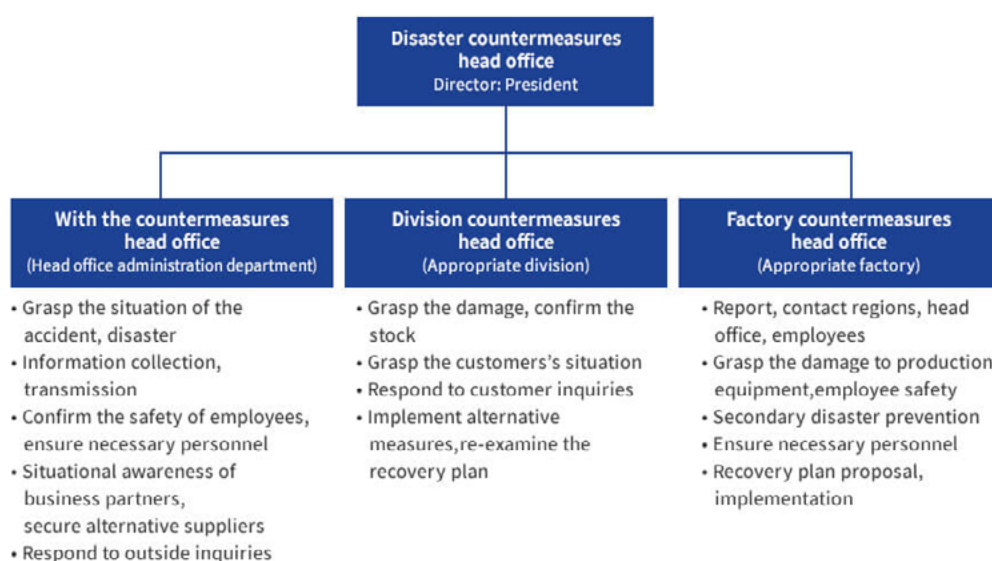
## — Risk Management Committee

The Company has a Risk Management Committee consisting of approximately 20 members, including our directors, corporate officers, and department managers. The Committee maintains risk management structures, establishes internal regulations, and works to identify the risks arising from the operations of the Company as well as preventing them from occurring. The Committee also promotes group-wide activities such as the development of business continuity planning, providing education and sharing information. The Committee reports directly to the Board of Directors, the Audit & Supervisory Board, and the Managing Directors' Meeting on major issues in risk management. In FY 2022, in addition to the 3 meetings held by the Committee, secretariat held the meetings every month. At the secretariat meeting, the members discussed risks about production, quality control, information leakage and strengthening measures against cyber attacks, and the discussions are shared with all Committee members to enhance risk response. In addition, the Committee members are formulating risk management issues that should be focused on in FY2023 and beyond.

## — Business Continuity Plan and handling in Emergencies

The Group offers a number of products with high market share not only in Japan but around the world or which used in special applications in state-of-the-art industries. For that reason, if these products cannot be supplied due to an accident or serious disaster such as a massive earthquake or fire, it will have an effect on society. In the Company, each division and each plant is preparing for a disaster and accident and formulates a business continuity plan on the basis of the Companywide Business Continuity Management Regulations. In addition, if a disaster or accident occurs, we will work using the structure shown below. Each of the countermeasures head office and organizations carry out emergency response and recovery support on the basis of pre-defined business standards.

## — System and major response operation in the occurrence of a disaster or accident



Conduct comprehensive disaster prevention drills  
( October 2022 , Shin- Etsu Chemical Takefu plant)



Conduct blind disaster prevention drills  
( June 2022 , Shin- Etsu Chemical Naoetsu plant)

## — Management

Structure of Sustainability Initiatives



Corporate Governance



Risk Management



### — Shin-Etsu Group Key Sustainability Issues

The foundation of all activities: legal compliance, fair corporate activities	Health and safety of employees and contractors	Energy-saving, resource-saving, and reduction of environmental impacts
Product quality improvements and product safety control	Promoting CSR procurement and the diversification of supply sources	Respect for human rights, the development of human resources, and the promotion of diversity
Respect for and protection of intellectual property	Contribution to industry and social initiatives	Accurate and timely information disclosure and communication with stakeholders

### — Specifying Shin-Etsu Group Key Sustainability Issues

We have been working on a wide variety of activities in order to practice our business principle, which states that "the Group strictly complies with all laws and regulations, conducts fair business practices and creates unrivaled value for society and industry through the provision of key materials and technologies."

The Sustainability Committee (former: ESG Promotion Committee) defined the matters as key sustainability issues (former: key ESG issues) through the following procedure in FY2015.

### — Process of Specifying Key Sustainability Issues

#### 1. Clarifying key sustainability issues

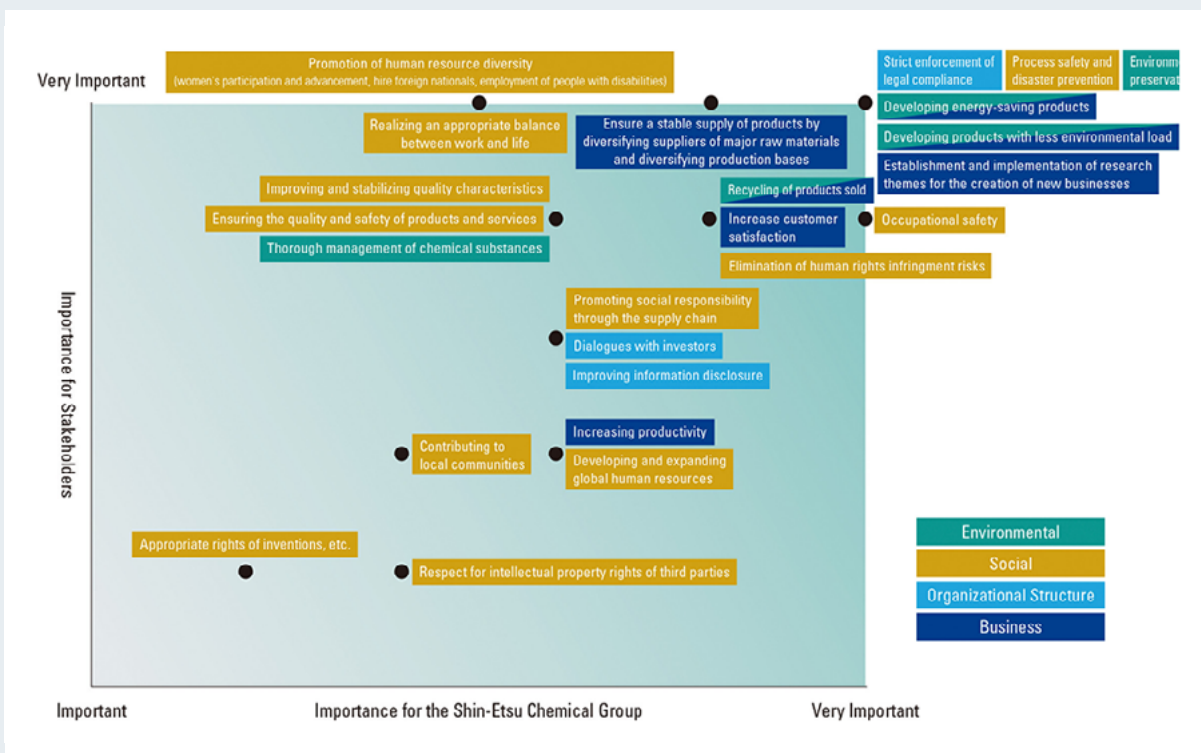
In December 2015, the committee conducted the following investigations for all of the company's departments and major domestic Group companies.

1. The stakeholders for each department and each company are reconfirmed.
2. In reference to ISO 26000 core topics, key sustainability issues are listed for each department and each company.
3. The level of importance of each key issue for the Group as well as for stakeholders is scored.

## 2. Creating a scatter plot of key sustainability issues and organizing them

In January 2016, the committee created a scatter plot based on the key issues and the scores submitted by each department and each company. The result showed that the majority of key issues were very important.

The committee organized the listed key issues and created a draft of key sustainability issues that reflects the scatter plot.



## 3. Interviews with Outside Directors

In January 2016, individual interviews were conducted with all Outside Directors based on the prepared proposal. The followings are the suggestions and opinions from the interviews:

1. Compliance with laws and regulations is related to all issues.
2. All listed key sustainability issues are equally important to the Group, and it is difficult to prioritize them.
3. The Group should clarify its goals while specifying key sustainability issues.

## 4. Re-examination in the committee and approved by the management

In February 2016, the committee has re-examined the key issues based on the suggestions and opinions of the Outside Directors. The Managing Directors' Meeting, in which all Directors and Audit & Supervisory Board Members are involved in making decisions, also examined the key issues and has declared the items in the figure above to be key sustainability issues of the Group in 2015.

In December 2018, the Sustainability Committee discussed the key issues and their importance, which had been reviewed by all departments of the company and major Group companies in Japan, and decided to continue addressing the key issues identified in 2015.

The Group will work equally on all of these key sustainability issues in no particular order.



# Shin-Etsu Group Key Sustainability Issues

Specifying Key Sustainability Issues

Risks and Opportunities

The Shin-Etsu Group recognizes the challenges, risks, and opportunities of all key Sustainability issues and addresses them accordingly.

Key Sustainability Issues	Major Risks and Opportunities		Initiatives
The foundation of all activities: legal compliance, fair corporate activities	Risks	<ul style="list-style-type: none"> <li>Impact of legal violations and improprieties on corporate management.</li> <li>Damage to corporate value due to loss of trust from society.</li> </ul>	<ul style="list-style-type: none"> <li>Demand thorough compliance awareness among officers and employees through training, etc.</li> <li>No provision of unfair benefits or demands thoroughly with the aim of preventing corruption</li> <li>Regarding the prevention of bribery, ensure No provision of unfair benefits or demands thoroughly, and establish internal rules at each overseas group company</li> <li>Cutting ties with anti-social forces</li> <li>Compliance with sound business practices with suppliers and service providers</li> <li>Support for the "Declaration of Partnership Building"</li> </ul> <p><b>KPI</b></p> <ul style="list-style-type: none"> <li>Number of serious violations of laws and regulations: 0</li> </ul>
	Opportunities	<ul style="list-style-type: none"> <li>Ensuring full compliance awareness and fair corporate activities leads to:               <ol style="list-style-type: none"> <li>(1) Formation of the foundation of corporate value</li> <li>(2) Elimination of risks</li> <li>(3) Building of customer trust and expansion of business opportunities</li> <li>(4) Hiring and retaining of excellent human resources</li> </ol> </li> </ul>	
Health and safety of employees and contractors	Risks	<ul style="list-style-type: none"> <li>Impact of accidents and environmental problems on local communities and employees.</li> <li>Damage to equipment caused by typhoons, earthquakes, or other natural disasters.</li> <li>Impact of an infectious disease outbreak on operations.</li> </ul>	<ul style="list-style-type: none"> <li>Safety education for employees through disaster prevention drills and workshops</li> <li>Environmental control and safety audits</li> <li>Improvement of the workplace environment and promotion of employees' health</li> </ul> <p><b>KPI</b></p> <ul style="list-style-type: none"> <li>Number participants in safety training (Total number of persons): 75,406</li> <li>Number of work-related employee fatalities: 0</li> <li>Number of serious accidents: 0</li> <li>Lost-time accidents rate: 0.00 (Japan), 1.15 (overseas)</li> <li>Lost-time accidents severity rate: 0.00 (Japan), 0.03 (overseas)</li> </ul>
	Opportunities	<ul style="list-style-type: none"> <li>Implementing measures to prevent accidents and developing new production processes enable the creation of a safe working environment and the improvement of stable production and higher productivity</li> <li>Hiring and retaining excellent human resources</li> <li>Continuing operations, shutting down operations, and resuming operations safely by designing the plant in anticipation of a natural disaster and taking measures against risks</li> <li>Promoting employee health, achieving a work-life balance, and cultivating a sense of motivation and fulfillment in work</li> </ul>	

Energy-saving, resource-saving, and reduction of environmental impacts	Risks	<ul style="list-style-type: none"> <li>•Additional costs of stricter regulations related to greenhouse gas emissions</li> <li>•Price increases and difficulty in procuring raw materials for the quantity needed</li> <li>•Increased water risks, such as water depletion and flooding</li> </ul>	<ul style="list-style-type: none"> <li>•Promoting the reduction of environmental impact</li> <li>•Waste reduction</li> <li>•Pollutant countermeasures</li> <li>•Response to climate change</li> <li>•Resource recycling</li> <li>•Water resource conservation and water pollutant elimination</li> <li>•Conservation of biodiversity initiatives</li> </ul>
	Opportunities	<ul style="list-style-type: none"> <li>•The constant challenge of technological innovation leads to the enhancement of "manufacturing ability".</li> <li>•Increasing competitiveness by conserving energy and resources, reducing environmental loads, and improving productivity</li> <li>•Increasing the demand for products that contribute to the environment</li> <li>•Developing technologies that recycle water, thus contributing to business continuity</li> </ul>	<b>KPI</b> <ul style="list-style-type: none"> <li>•GHG Emissions (Scope1+Scope2): 6,613 thousand tons of CO<sub>2</sub>e</li> <li>•Emissions intensity index of production volume relative to 1990: 54.2%(Shin-Etsu Group), 46.8%(Shin-Etsu Chemical)</li> <li>•Sales ratio of our group's products that contribute to CN:approx. 70%</li> <li>•Water recycle ratio: 92.6%</li> <li>•Waste recycling ratio: 71%(Japan), 75%(overseas)</li> </ul>
Product quality improvements and product safety control	Risks	<ul style="list-style-type: none"> <li>•Loss of trust due to product quality issues</li> <li>•Direct or indirect impacts on product safety</li> </ul>	<ul style="list-style-type: none"> <li>•Quality control</li> <li>•Quality audits and support</li> <li>•Product safety control</li> <li>•Promote automation of quality inspections and assurance (reduce personnel involvement)</li> <li>•Verification of the statistical validity of inspection variations and standard ranges</li> </ul> <b>KPI</b> <ul style="list-style-type: none"> <li>•Number of participants in product safety training: 71,142</li> </ul>
	Opportunities	<ul style="list-style-type: none"> <li>•The track record of continuing to deliver products of the promised quality on time will lead to increased customer trust.</li> <li>•Sincere efforts to ensure product safety and accumulation of achievements will lead to the trust of customers and society.</li> </ul>	
Promoting CSR procurement and the diversification of supply sources	Risks	<ul style="list-style-type: none"> <li>•Impact from not being able to procure raw materials, such as discontinuation of manufacture and shipment delay to customers</li> <li>•Problems arising in the supply chain</li> </ul>	<ul style="list-style-type: none"> <li>•Create "Shin-Etsu Group CSR Procurement Guidelines" and revise them as appropriate</li> <li>•Ensuring compliance with subcontracting laws by attending seminars and conducting internal audits</li> <li>•Implementing initiatives to eliminate the use of conflict minerals</li> <li>•Implementing the supplier CSR procurement survey</li> <li>•Participation in RSPO "Roundtable on Sustainable Palm Oil"</li> </ul> <b>KPI</b> <p>Ratio of sustainability surveys conducted at suppliers: approx. 70%</p>
	Opportunities	<ul style="list-style-type: none"> <li>•Diversifying suppliers enable stable procurement, purchasing at optimal prices, and procurement of raw materials through fair transactions</li> <li>•Thorough CSR procurement will lead to the trust of customers and society</li> </ul>	

Respect for human rights, the development of human resources, and the promotion of diversity	Risks	<ul style="list-style-type: none"> <li>• Occurrence of human rights infringements in the Group's business activities and supply chain</li> <li>• Occurrence of differences and biases in the effectiveness of on-the-job training</li> <li>• Negative impact of performance-based evaluation (Putting emphasis on short-term results, bias in evaluation depending on department, performance decline due to external factors, etc.)</li> <li>• Increase in turnover rate and decrease in job seekers due to inability to meet needs for diversification of work styles</li> </ul>	<ul style="list-style-type: none"> <li>• Promotion of respect for human rights based on the Universal Declaration of Human Rights</li> <li>• Implementing human rights due diligence</li> <li>• Supporting employee growth through a training system</li> <li>• Promote communication between superiors and subordinates</li> <li>• Promoting penetration of an evaluation compensation system focused on skill development</li> <li>• Creating an environment where people can play an active role regardless of gender or age</li> <li>• Enhancement of work-life balance system</li> </ul>
	Opportunities	<ul style="list-style-type: none"> <li>• Improving the market evaluation of companies that promote respect for human rights</li> <li>• Active participation of excellent human resources who have cultivated practical skills through on-the-job training</li> <li>• Accumulation of knowledge, skills and experience</li> <li>• Maintaining and improving organizational vitality brought about by a strong desire to take on challenges to achieve goals</li> <li>• Business growth and new business development by hiring, developing, and selecting talented human resources</li> </ul>	<b>KPI</b> <ul style="list-style-type: none"> <li>• Ratio of awareness of Human Rights Policy within the Group: approx. 90%</li> <li>• Number of child labour: 0</li> <li>• Number of forced labour: 0</li> <li>• Ratio of women in managerial positions at manager level and above: 12.6%</li> </ul>
Respect for and protection of intellectual property	Risks	<ul style="list-style-type: none"> <li>• The adverse effect on product sales due to infringement of our intellectual property</li> <li>• Restrictions on our product sales and business due to the patents of other entities</li> <li>• Impact of cyber-attacks on production, sales, and R&amp;D activities</li> <li>• Loss of trust in the company due to information leakage</li> </ul>	<ul style="list-style-type: none"> <li>• Intellectual property management</li> <li>• Initiatives for information asset management</li> <li>• Protection of personal information</li> <li>• Initiatives for cyber security</li> </ul>
	Opportunities	<ul style="list-style-type: none"> <li>• Promoting product development and unique manufacturing methods by protecting and utilizing our intellectual property</li> <li>• Contributing to the development of industry and the society by publishing inventions</li> <li>• Implementing technology innovation and operational reforms by utilizing digital technologies while thoroughly protecting and managing information assets and taking measures against cyber attacks</li> </ul>	<b>KPI*</b> <ul style="list-style-type: none"> <li>• Patents acquired: 1,714</li> <li>• Patents held: 22,310</li> </ul> <p>*Scope: Main consolidated manufacturing companies</p>
Contribution to industry and social initiatives	Risks	<ul style="list-style-type: none"> <li>• Loss of trust from local communities due to social contribution activities not meeting local needs</li> <li>• Impact on the world development due to the delay in achieving a sustainable world that the SDGs aim to achieve</li> </ul>	<ul style="list-style-type: none"> <li>• Contribution to SDGs goals and targets</li> <li>• Fundraising for the U.N. World Refugee Day</li> <li>• Traffic Safety Activities</li> <li>• Career development for local elementary school students</li> <li>• Supporting the Science and Technology in Society forum</li> <li>• Supporting the Children of the Next Generation</li> <li>• Support for Eradicating Poverty in Africa</li> <li>• Contribution to Society Activities at Overseas Group Company</li> </ul>
	Opportunities	<ul style="list-style-type: none"> <li>• Creation of employment opportunities, stable employment and tax payment due to business stability</li> <li>• Building relationships of trust with the local community through dialogue and continuous activities</li> <li>• Contributing to a better world by addressing SDG issues through business operations</li> </ul>	

Accurate and timely information disclosure and communication with stakeholders	Risks	<ul style="list-style-type: none"> <li>• Impairment of corporate value through the non-disclosure and inadequate disclosure of information</li> <li>• Loss of trust from stakeholders and the society due to failure to fulfill accountability</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate and timely disclosure of company information</li> <li>• Communication with stakeholders</li> <li>• Dialogue with mass media including conference calls with analysts and investors after the announcement of financial results</li> <li>• Holding an exhibition</li> </ul>
	Opportunities	<ul style="list-style-type: none"> <li>• Creating a fair market evaluation and improving corporate value</li> <li>• Earning the trust of stakeholders and the society</li> </ul>	<b>KPI</b> <ul style="list-style-type: none"> <li>• Presentations of earnings and conference calls for analysts and institutional investors: 4 times</li> <li>• Plant tours for analysts and institutional investors / Business briefing session: 1 time</li> <li>• One-on-one meetings with analysts: 312 times</li> <li>• Small meetings for investors hosted by securities companies: 5 times</li> </ul>

## — Specifying Key Sustainability Issues

Specifying Key Sustainability Issues >

Risks and Opportunities >

## — Performance and Outcome

<p><b><u>The foundation of all activities: legal compliance, fair corporate activities</u></b></p> <ul style="list-style-type: none"> <li>• Ensuring Full Compliance Awareness</li> <li>• Initiatives Aimed at Preventing Corruption</li> <li>• Export Control</li> <li>• Cutting Ties with Anti-social Forces</li> </ul>	<p><b><u>Health and safety of employees and contractors</u></b></p> <ul style="list-style-type: none"> <li>• Occupational Safety</li> <li>• Process Safety and Disaster Prevention Plan</li> <li>• Safety Education</li> <li>• Emergency Drill</li> <li>• Environmental Control and Safety Audits</li> <li>• Health Considerations</li> <li>• Reporting of Accidents and Lost-Time Accidents</li> </ul>	<p><b><u>Energy-saving, resource-saving, and reduction of environmental impacts</u></b></p> <ul style="list-style-type: none"> <li>• Environment Management</li> <li>• Response to Climate Change</li> <li>• Water resource conservation, water pollutant elimination</li> <li>• Waste reduction</li> <li>• Resource recycling</li> <li>• Conservation of biodiversity</li> <li>• Reduction of chemical emissions</li> <li>• Prevention of air pollution</li> <li>• Prevention of soil pollution</li> </ul>
<p><b><u>Product quality improvements and product safety control</u></b></p> <ul style="list-style-type: none"> <li>• Quality Control</li> <li>• Quality Audits and Support</li> <li>• Product Safety Control</li> </ul>	<p><b><u>Promoting CSR procurement and the diversification of supply sources</u></b></p> <ul style="list-style-type: none"> <li>• Basic Procurement Policy</li> <li>• Compliance with the Act against Delay in Payment of Subcontract Proceeds, Etc. to Subcontractors</li> <li>• Sustainable Procurement</li> <li>• Announcing the "Declaration of Partnership Building"</li> <li>• Procurement Audit</li> <li>• Procurement Conferences</li> <li>• Control of Chemical Substances Used as Raw Materials</li> </ul>	<p><b><u>Respect for human rights, the development of human resources, and the promotion of diversity</u></b></p> <ul style="list-style-type: none"> <li>• Respect for human rights</li> <li>• Human rights due diligence</li> <li>• Human rights awareness education</li> <li>• Education/ training and personal development</li> <li>• Performance-based Personnel</li> <li>• Evaluation Systems</li> <li>• Promotion of diversity</li> <li>• System for work-life balance</li> <li>• Nursing care support system</li> <li>• Welfare and benefits</li> <li>• Labor-management relations</li> <li>• Conduct employee awareness survey</li> </ul>
<p><b><u>Respect for and protection of intellectual property</u></b></p> <ul style="list-style-type: none"> <li>• Intellectual Property Management</li> <li>• Initiatives for Information Asset Management</li> <li>• Protection of Personal Information</li> <li>• Cyber Security</li> </ul>	<p><b><u>Contribution to industry and social initiatives</u></b></p> <ul style="list-style-type: none"> <li>• Fundraising for the U.N. World Refugee Day</li> <li>• Traffic Safety Activities</li> <li>• Career development for local elementary school students</li> <li>• Supporting the Science and Technology in Society forum</li> <li>• Supporting the Children of the Next Generation</li> <li>• Support for Eradicating Poverty in Africa</li> <li>• Contribution to Society Activities at Overseas Group Company</li> </ul>	<p><b><u>Accurate and timely information disclosure and communication with stakeholders</u></b></p> <ul style="list-style-type: none"> <li>• Information Disclosure</li> <li>• Communication with Stakeholders</li> </ul>



## The foundation of all activities : legal compliance, fair corporate activities

### Policy

The Group will fully comply with all laws and regulations and conduct business fairly.

### Awareness of Issues

The Group's business principle states that "the Group strictly complies with all laws and regulations, conducts fair business practices and creates unrivaled value for society and industry through the provision of key materials and technologies." Compliance with laws and regulations and fair corporate activities are the foundation of all of our activities.

We are working on the long-term development of the Group by not only legal compliance, but also the efforts of each employee to engage in their daily work with a strong sense of ethics as a code of conduct.

Ensuring Full  
Compliance  
Awareness



Employee Initiatives



Initiatives Aimed at  
Preventing Corruption



Export Control



Cutting Ties with  
Anti-social Forces



### — Ensuring Full Compliance Awareness

The Group emphasizes the importance of compliance with laws and regulations in the business principle and annual management objectives, and carries out corporate activities in full compliance with laws and regulations. In the event of promulgation of or amendments to legislation pertaining to corporate activities, the Legal Department takes the central role of issuing internal bulletins and sharing their knowledge of these changes. In addition, in order to promote understanding of important laws and regulations, we posted explanatory articles in our company newsletter, and invited outside lecturers to give lectures to our employee. In November 2022, 515 employees from the Shin-Etsu Chemical headquarters, plants and Group companies in Japan attended the Japan Fair Trade Commission/Small and Medium Enterprise Agency seminar (web seminar) to promote proper subcontracting transactions. In addition, the Company's Legal Dept. staff attended seminars of the Fair Trade Institute, of which the corporate officer of the Company serves as a director, in an effort to further ensure fair trade.

All of the officers and employees have submitted a written oath of compliance to the company. We have also established disciplinary measures to deal with any inappropriate action that may occur. Officers and employees are stipulated to report to the "Compliance Consultation Office" if they discover a violation of laws and/or regulations. The Compliance Consultation Office is a point of contact for consultation and reporting in the event of identifying suspected violations of laws, ethics, or company regulations in the course of business, or in the event of assuming any suspected violations to happen. Any Shin-Etsu Group officer, employee, adviser, staff member, contractor, or other employee and retiree can use this. We post the "Regulations of Compliance Consulting/Reporting System" on its intranet to inform employees. In addition, in June 2022, in response to revisions to the Whistleblower Protection Act, we revised the "Compliance Consultation and Whistleblowing Regulations" and translate them into 14 languages along with the "Information on the Compliance Consultation Office," disseminating them throughout the Group. If a report is made to the Compliance Consultation Office, the department in charge of investigation will investigate the content of the report, and the company will take corrective measures as necessary after accurately grasping the facts. The confidentiality of consulters and whistleblowers will be protected, and they will not be treated unfavorably for consulting or reporting.

## Employee Initiatives



Mr. MM,  
Auditing Department,  
Shin-Etsu Chemical  
Head office

### 1. Please tell us about your job.

I am involved in compliance with the internal control reporting system for financial reporting (J-SOX), as well as antitrust audits, export control audits, and audits of the status of subsidiary operations.

### 2. Please tell us about legal compliance and fair corporate activities -related initiatives done by the Auditing Department.

The Auditing Department is engaged in various initiatives related to legal compliance and fair corporate activities.

With regard to the internal control reporting system for financial reporting under the Financial Instruments and Exchange Act, the Auditing Department, as the department responsible for evaluating the Group, conducts an evaluation of the effectiveness of the Group's internal control over financial reporting in accordance with relevant laws and internal regulations. The results were audited by our accounting auditors and it was judged to be "appropriate."

Business audits are also focused on auditing the status of compliance with antitrust laws. We pay particular attention to antitrust laws and have established our own Antimonopoly Law Compliance Guidelines. This audit confirms that the Group companies are taking actions that violate antitrust laws.

In addition, in the area of legal compliance, we conduct security export control audits for Group companies to ensure that each company's export control system is properly developed and operated. The Auditing Department attends the Company's the Security Export Control Committee to conduct internal audits.

From the viewpoint of preventing fraud, we check whether the seals used to indicate the intention of the organization, such as company's and department's seal impression, are properly managed and used in the audit of the status of fraud management. At the same time, we confirm the management status of department managers' individual seals for those who have the authority to permit payment.

In addition, we conduct auditing of the status of operations at Group companies that are not subject to J-SOX. We confirm that each of the subject companies' operations, such as cash and deposit control, purchasing, fixed assets and inventory management, and receivables preservation, are conducted under appropriate internal controls.

### 3. Please tell us about the details of the system and how to disseminate it within the Company about the Compliance Consultation Office.

The Compliance Consultation Office is the point of contact for consultation and reporting when a problem that is suspected of violating laws, ethics, and company regulations arises or is likely to arise in the course of business.

Employees of the Group, including corporate, employees, advisors, part-time staff, and temporary staff, as well as retirees, can use this system. We posted guidance about the Compliance Consultation Office on the intranet. In August 2019, "Compliance Consultation and Reporting Rules" and "Guideline for Compliance Consultation Office" were translated into 14 languages and informed throughout the Group. In addition, in order to respond to the revision of the Whistleblower Protection Act, the Compliance Consultation and Reporting Rules were revised on June 1, 2022. We will re-disseminate the rules to the company.

### 4. What do you intend to focus on in the future with respect to legal compliance and fair corporate activities?

I feel that each company in the Group has a high level of awareness of compliance. By continuing to conduct steady auditing operations in the future, we hope to support each company in the Group in its commitment to legal compliance. For departments undergoing audits, periodic auditing provides an opportunity to consider compliance with laws and regulations, and we will work to make it a habit to check basic operations in business.

## — Initiatives Aimed at Preventing Corruption



The group declare that we will conduct fair corporate activities in the Shin-Etsu Group Business Principle and Basic Sustainability Policy. In 2015, we established the Anti-Bribery Regulations to clearly indicate that we will not be involved in any form of bribery. The scope of application of the Anti-Bribery Regulations is our officers, employees, and contract employees, and stipulates prohibition of bribery of public officials, non-public officials, etc., and disciplinary action. In addition, by submitting a "Compliance Pledge", we thoroughly prevent the provision of unfair benefits and requests to public officials, customers, and business partners in Japan and overseas.

Furthermore, by making the status of compliance with ethics in general one of the items in personnel evaluations, we are working to raise employees' awareness of legal compliance. We also conduct regular internal audits for corruption, embezzlement and bribery. For overseas group companies, we used the country-by-country corruption perception index published by Transparency International (an international non-governmental organization that tackles corruption issues) to determine the country, company size, business details, etc. Then, we conduct risk assessments related to anti-bribery and anti-corruption. In FY2022, we conducted a questionnaire survey of 36 group companies.

## — Supporting GCNJ's "Tokyo Principles for Strengthening Anti-Corruption Practices"

The Group's business principle includes "observing all laws and regulations as well as conducting fair corporate activities," and we are working to prevent corruption, including bribery. The Global Compact Network Japan's Tokyo Principles for Strengthening Anti-Corruption Practices correspond with the Group's current policy and initiatives for preventing corruption, so we immediately decided to support them and became a signatory in February 2018.

We will continue to make it our principle to comply with laws and regulations and carry out business activities fairly, and work to conduct business in accordance with the Tokyo Principles and our internal anti-corruption regulations.

> GCNJ's "Tokyo Principles for Strengthening Anti-Corruption Practices"(only available in Japanese) 



## — Export Control

In order to comply with export-related laws and regulations such as the Foreign Exchange and Foreign Trade Law, we have established the Security Export Control Regulations. In accordance with this regulation, we are working on the following:

- Classification, customer review, and transaction review when exporting products
- Internal audit
- Training officers and employees and providing instructions to Group companies

## — Cutting Ties with Anti-social Forces

The Group declares in its "Basic Policy on Internal Controls" that the Group shall adopt a firm attitude towards anti-social forces and shall take the measures necessary to cut itself off from any and all associations with them. In accordance with this policy, we developed internal systems under the leadership of the department in charge of managing these issues, and signed memorandums and letters of confirmation regarding the exclusion of anti-social forces with customers and suppliers. In addition, we are working closely with external specialized agencies.

### Related Information

---

[> Sustainability Data](#)

### Policy

The Group will work to create a comfortable and safe workplace with the goals of achieving "zero accidents" and "zero lost-time accidents."

### Awareness of Issues

The Group places top priority on safety. For that, we have created a work environment in which employees can work safely and comfortably. The operations without accidents and disasters protect employees, fulfill our responsibilities as a supplier to customers, and lead to the sustainable development of the company. In recent years, many natural disasters have occurred, and we are addressing them as an important issue.

Occupational Safety	Process Safety and Disaster Prevention Plan	Reporting of Accidents and Lost-Time Accidents	Safety Education
Emergency Drill	Environmental Control and Safety Audits	Health Considerations	Targets and Results
Employee Initiatives			

## — Occupational Safety

Shin-Etsu Group is committed to three safety-related code of conduct: (1) strictly complying with "rules and procedures," (2) identifying and promptly eliminating "risks latent in the workplace," and (3) enhancing "sensitivity to danger." We carry out occupational safety activities in accordance with our code of conduct. We create the "Shin-Etsu Group Environmental Safety Management Plan" every year in accordance with the Responsible Care Codes<sup>1</sup> and set numerical goals.

Each of the Group's plant in and outside Japan clarifies every single risk that can cause any kind of injury or illness and works hard on risk assessment activities intended to mitigate risks.

In the event of identifying any risks, we take various safety measures such as providing workers with individual protective tools, measures to prevent entry into dangerous areas and posting of off-limits signs in dangerous areas, and locking out<sup>2</sup> and tagging out<sup>3</sup> machines and equipment. We also take measures including attaching safety devices to machines and equipment, and installing fail-safes,<sup>4</sup> foolproof mechanisms,<sup>5</sup> interlocks,<sup>6</sup> and protective walls. In addition, we practice KY<sup>7</sup> hazard prediction activities and make sure to indicate and name all relevant equipment prior to working in order to reconfirm safety.

The workers take measures against unsafe areas by regularly gathering information on close-call incidents from workers who experienced them. At the same time, we share our risk information and prevent similar accidents by disclosing this risk information internally and externally. Furthermore, during National Safety Week<sup>8</sup>, which is held every July, the president delivers a message to all employees working in the Group and thoroughly familiarizes them with the company's three code of conduct related to safety.





Plant Safety Convention (July 2022 , Shin- Etsu Chemical Naoetsu plant )

#### 1 Responsible Care Codes

Six principle areas are addressed when implementing Responsible Care: Responsible Care Codes consist of seven codes, composed of six codes for different activity areas, namely, environmental preservation, disaster prevention, occupational health and safety, distribution safety, chemical and product safety, and dialogue with the public, and the Management System Code, designed to operate all the above commonly as a system.

#### 2 Lock out

Blocking the power source by locking the switches of machines and equipment so that they cannot be operated.

#### 3 Tag out

Attaching tags to areas where machines and equipment have been locked out, which signifies that operating the machines and equipment is prohibited until the tags are removed.

#### 4 Fail-safe

Controlling equipment and systems so that they always operate safely if a problem occurs due to an error or malfunction.

#### 5 Foolproof

Taking measures in advance so that safety is ensured even if workers operate machines and equipment incorrectly.

#### 6 Interlock

A concept for safety devices and mechanisms in which machines and equipment do not work unless certain conditions are met.

#### 7 KY

Hazard prediction activities in which workers check about safe working methods in order to prevent the occurrence of a disease or injury that could potentially occur during the task, and securely apply the methods.

#### 8 National Safety Week

A week to promote activities to prevent occupational accidents and work to further improve awareness of safety and safety activities in the workplace. Advocated by the Ministry of Health, Labor and Welfare and the Central Industrial Accident Prevention Association.

### Close-calls Incidents Topics

2023.01.31 [Updated of Close-Call \(Hiyari-Hatto\) Incidents](#)  
 2022.07.29 [Updated of Close-Call \(Hiyari-Hatto\) Incidents](#)  
 2022.01.31 [Updated of Close-Call \(Hiyari-Hatto\) Incidents](#)  
 2021.07.30 [Updated of Close-Call \(Hiyari-Hatto\) Incidents](#)  
 2021.01.29 [Updated of Close-Call \(Hiyari-Hatto\) Incidents](#)  
 2020.07.31 [Updated of Close-Call \(Hiyari-Hatto\) Incidents](#)  
 2020.01.31 [Updated of Close-Call \(Hiyari-Hatto\) Incidents](#)

## — Process Safety and Disaster Prevention Plan

The prevention of serious accidents is a top priority in the Group, and we continue to work on a variety of safety and disaster prevention activities. Countermeasures are taken for dangerous areas identified through process risk assessments, and pipes and equipment are maintained and managed, mainly through scheduled maintenance.

Since FY2014, we have been working to strengthen safety management by implementing measures and studies to localize and minimize damage, assuming serious disasters such as major earthquakes and worst-case plant accidents.

The company has joined the Japan Industrial Safety Competency Center since its inauguration in FY2012. Each plant uses the Safety Evaluation System of the center to further improve the situation and works even harder on the Process Safety and Disaster Prevention Plan.

### Results of safety management activities(Shin-Etsu Chemical)

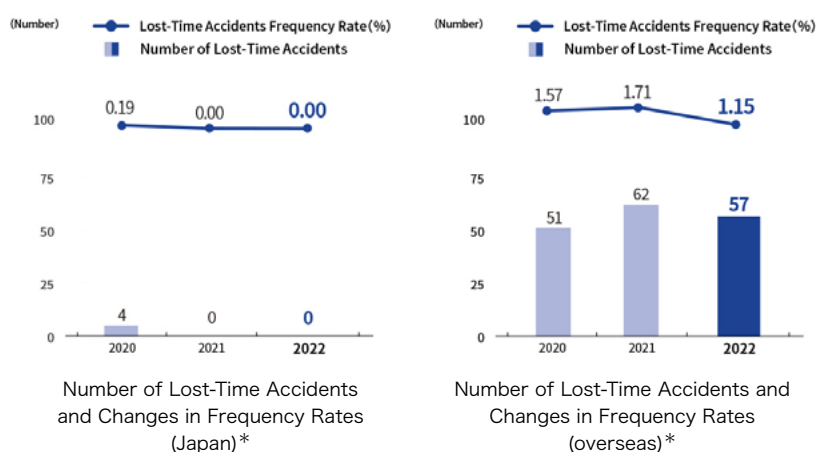
	FY2020	FY2021	FY2022
Number of improvements	7,807	5,062	5,050

## — Reporting of Accidents and Lost-Time Accidentsa

In FY2022, there were no serious accidents, and no lost-time injuries in the Group companies in Japan, but there were 57 lost-time injuries in the Group overseas.

We have analyzed the causes for each accident, eliminated hazardous operations, ensured equipment safety, and promptly implemented appropriate safety measures. We prevent work-related accidents by revising the operation manuals and working to prevent re-occurrence of accidents.

The occurrence of work-related accidents is reported to the directors and department heads at monthly business report meetings.



\* The definition of occupational accidents differs between Japan and overseas, so the graphs are shown separately.

### Related Information

> Sustainability Data

## — Safety Education

To keep plant operations constantly safe, it is important for each employee working at our Group's operation sites to improve their skills and knowledge and be aware of danger.

For that purpose, we provide safety education to our employees and subcontractors, such as understanding the dangers of the substances and processes we handle, simulated danger experiences, and the correct use of machine and safety equipment. In April 2022, the Kashima Plant held a two-day course on full-harness fall arrest equipment, with more than 50 participants. In the training, in addition to explaining basic knowledge such as how to wear the equipment and its durability, all participants actually put on the full-harness type fall prevention equipment while receiving instruction. We also work on passing down the skills to operate manufacturing equipment to the next generation of employees. We work to give each employee thorough safety awareness by creating a workplace culture in which operation processes and rules are observed.



Education on full harness type fall arrest equipment  
(April 2022, Shin-Etsu Chemical Kashima plant)

In addition to factory employees, we also provide safety education to people working in the plant premises involved in construction, delivery, and people outside the company who participate in business negotiations. In September 2022, the Naoetsu Plant conducted a total of five safety training sessions, attended by 253 people. During the training, we explained the dangerous areas in the plant and the substances handled, and made them understand the importance of strictly observing the safety rules stipulated in the plant. And also, in the event of an emergency at the plant, we ask everyone to prioritize actions to ensure their own safety. We will continue to provide regular training and continue to put human life first.



Entrants safety education  
(September 2022, Shin-Etsu Chemical Naoetsu plant)

## — Emergency Drill

Every year, we conduct scheduled disaster prevention drills that assume abnormal situations such as large earthquakes and fires, as well as "blind drills" based on basic actions without creating scenarios. The drills include firefighting activities, rescue activities for the injured, transmission of information to the disaster response headquarters, public relations activities in the community, and correspondence with the media. In addition, we conduct disaster prevention drills in dormitories and company housing, confirming evacuation routes, training in reporting to the fire department, and training in how to use a fire extinguisher. We will continue to raise awareness of disaster prevention and strive to respond quickly to emergencies so that the plant can be a safe place for the local community.



Fire extinguishing training for new employees  
(May 2022, Shin-Etsu Chemical Gunma Complex)



Disaster drills at dormitories and company housing  
(October 2022, Shin-Etsu Handotail Shirakawa plant)

## — Environmental Control and Safety Audits

In order to confirm that activities such as environmental conservation, occupational safety and health, and process safety and disaster prevention plan are carried out as planned, the Group conducts an internal audit at domestic and overseas operation sites. In FY2022, online audits were conducted at a total of 38 offices, including 29 domestic offices and 9 overseas offices. The results of audits are reported to the top management.

In FY2022, in addition to the results of the year's activities for management items related to overall environmental safety at plants, we set the prevention of behavioral accidents, safe handling when opening flammable liquids tanks, and prevention of process accidents as the focus points, and the implementation status was audited along with initiatives.



Comprehensive environmental and safety audit  
(November 2022, Shin-Etsu Gunma Complex)

## — Health Considerations

We are conducting any measures to prevent the development of possible diseases such as encouraging employees to take health checks, offering health counseling on lifestyle diseases, and promoting measures on mental health and activities for health promotion and fitness. In addition, we are implementing measures for infectious diseases, including COVID-19.

Our head office and branch offices have a Health Committee, and each plant has a Safety and Health Committee. The committees work to improve the workplace environment and promote the workers' health with advice and information from industrial physicians. We also have special programs such as physical fitness checks and seminars to help workers maintain and improve their physical conditions.

Furthermore, we offer an outside Family Health Consultation Service, which can be used by our workers and their family, with our health insurance union and an insurance company. It is available 24 hours a day.



Health lecture training for women  
(September 2022, Naoetsu Electronics)



Overseas Group Company Medical Check  
(April 2022, Shin-Etsu Magnetics Philippines)

## — Measures for COVID-19

We implement a variety of measures to protect employees and their families from COVID-19. In February 2020, a COVID-19 countermeasures group headed by the president was established at the Shin-Etsu Chemical Head Office, and a series of measures to prevent the infectious disease from spreading in response to the ever-changing situation was sent throughout the company.

In each region, we established a local group to take measures against COVID-19 and implement measures to prevent infection and to maintain operations in accordance with each region, based on the notification from the Shin-Etsu Chemical Head Office. In March 2023, Japanese government changed its approach to measures against this infectious disease. In addition, although the number of new infections in Japan is on the decline, our task force continues to call on employees to always be mindful of not bringing the virus into the workplace.

## — Targets and Results

Every fiscal year, the Group creates an environmental and safety management plan based on the Responsible Care Codes. The entire Group works on key issues such as the prevention of major disasters, including explosions and fires, and industrial accidents according to the prepared management plan.

[> Implementation Status, Evaluation, and Planned Implementation Items](#) 

## Employee Initiatives



Ms. SS  
PVC Plant Manager  
SE-PVC (Netherlands)

### **1. Please tell us about your current responsibilities.**

I have worked for the Shin-Etsu Group since September 1st 2021 as the plant manager for the PVC plant in Pernis in the Netherlands. As a plant manager I am responsible for the operation of the plant. This also includes the health and safety of the people working on site.

### **2. Please tell us about occupational safety management at the plant. What are you doing to protect the health and safety of your employees?**

In the Pernis plant the safety of all employees is our top priority. Plant safety is addressed at all levels in the organization by using well defined procedures and working processes. Employees and contractors working in our plant first receive safety training to increase their safety awareness when they start working in the plant. Operators receive an education program during a period of 7-8 years. We have a plant instructor to help the new employees with their training. The permit-to-work procedure ensures that all maintenance activities are executed safely. Furthermore, the safety of the plant is ensured by executing HAZOP studies, applying state-of-the-art design standards and by always executing modifications to the plant according to our Management of Change (MOC) procedure. Everything we do is focused on guaranteeing a safe working environment for the people working on site.

### **3. Please tell us about your plant's Occupational Health Management. What does the plant do to maintain the comfortable and safe working environments for its employees?**

Some specific measures are taken to ensure a safe working environment for our employees. The plant is equipped with a significant number of analyzers that continuously monitor vinylchloride (VC) concentration in the working environment. In this way the health and safety of the people working in the plant is guaranteed. In addition, monitoring is done yearly by a specialist consultant to confirm that employees are not exposed to unsafe concentrations of VC. PVC powder emissions in buildings are cleaned up constantly by exhaust system. A new program has been started to reduce powder emissions in the plant to improve the working environment of employees and contractors.

### **4. How do the plant strive to manage employee's health?**

HR department reports monthly on the trends of our employee's health to the plant management team. When required additional follow up is done through an experienced physician. This physician is also available for questions from employees and health advice. Additionally, specific trainings (using breathing air protection for operations staff, workplace ergonomics awareness for office staff etc.) are provided and periodical health checks are done for all employees, which includes mental health and social safety aspects.

### **5. What do you intend to focus on in the future with regard to ensure the safety of workers and promoting health?**

First of all we will continue with the all the measures and procedures that are already in place today. The chemical industry believes that we should never lose our attention to continuously improve our safety performance. To further enhance our focus on working safely in the plant a new safety program was started in January 2023. Working together with an experienced safety consultant the whole organization is involved in this program. The objective is to identify potential improvement opportunities in our organization and our working processes. The program is open to all levels of employees within the company, because we need everyone's cooperation to achieve our safety goals. Collaboration between own employees and subcontractors is included in this program.



The safety targets and results for FY2022 and safety targets for FY2023 are as listed below.

Item	Priority Issues (Target)	Implementation Status for FY2022	Evaluation	Planned Implementation Items for FY2023
Management System	1. Legal compliance	<ul style="list-style-type: none"> <li>Strengthening the Legal Checking System</li> <li>Proper operation management based on relevant laws and regulations</li> </ul>	◎	<ul style="list-style-type: none"> <li>Strengthening the Legal Checking (ongoing)</li> <li>Proper operation management based on relevant laws and regulations (ongoing)</li> </ul>
	2. Development and revision of Plant Environment Control and Safety Regulations and Standards	<ul style="list-style-type: none"> <li>Development and revision of Plant Environment Control and Safety Regulations and Standards</li> </ul>	○	<ul style="list-style-type: none"> <li>Development and revision of Plant Environment Control and Safety Regulations and Standards (ongoing)</li> </ul>
	3. Continuous improvement of the safety and health management system and improvement of the effectiveness of activities	<ul style="list-style-type: none"> <li>Communication by the president, the plant manager and division heads of their commitment and active involvement</li> <li>Development of good PDCA<sup>1</sup> cycles for the health and safety management system and promotion of effective activities</li> </ul>	◎	
	4. Qualitative improvement of environmental safety audits	<ul style="list-style-type: none"> <li>Implementation of appropriate follow-up to the findings of the head office's environmental safety audits</li> <li>Effective and proper implementation of environmental safety audits at affiliated companies in the plant area</li> </ul>	○	<ul style="list-style-type: none"> <li>Implementation of appropriate follow-up to the findings of the head office's environmental safety audits (ongoing)</li> <li>Effective and proper implementation of environmental safety audits at affiliated companies in the plant area (ongoing)</li> </ul>
	5. Thorough change management	<ul style="list-style-type: none"> <li>Establishment of regulations and standards for MOC<sup>2</sup> rules.</li> <li>Strict application of MOC<sup>2</sup> rules at the plants and thorough compliance with them</li> </ul>	○	<ul style="list-style-type: none"> <li>Establishment of regulations and standards for MOC<sup>2</sup> rules. (ongoing)</li> <li>Strict application of MOC<sup>2</sup> rules at the plants and thorough compliance with them (ongoing)</li> </ul>
	6. Establishment of management infrastructure and fostering of a culture of safety	<ul style="list-style-type: none"> <li>Understanding of the Safety Competency Evaluation System (evaluation table and explanatory notes)</li> <li>Formulate and implement a plant utilization plan based on the Safety Competency Evaluation System</li> </ul>	○	<ul style="list-style-type: none"> <li>Understanding of the Safety Competency Evaluation System (evaluation table and explanatory notes) (ongoing)</li> <li>Formulate and implement a plant utilization plan based on the Safety Competency Evaluation System (ongoing)</li> </ul>
Process Safety and Prevention Plan	1. Zero serious accident	<ul style="list-style-type: none"> <li>Achieved target of zero serious accident</li> </ul>	◎	<ul style="list-style-type: none"> <li>Zero serious accident</li> </ul>
	2. Facility and process safety improvement	<ul style="list-style-type: none"> <li>Continue the process risk assessment (Targeting to operations, facilities and chemical plants where accidents due to explosion fires, or chemical reactions are anticipated)</li> <li>Review of safety measures for non-routine work and unsafe operations</li> <li>Safety general inspections of open-system operations that may lead to serious accidents such as fires in operations that handle flammable liquids and flammable powder</li> <li>Reviewing and utilization of safety basic information</li> </ul>	○	<ul style="list-style-type: none"> <li>Continue the process risk assessment (ongoing) (Targeting to operations, facilities and chemical plants where accidents due to explosion fires, or chemical reactions are anticipated)</li> <li>Review of safety measures for non-routine work and unsafe operations (ongoing)</li> <li>Safety general inspections of open-system operations that may lead to serious accidents such as fires in operations that handle flammable liquids and flammable powder (ongoing)</li> <li>Reviewing and utilization of safety basic information(ongoing)</li> </ul>
	3. Improvement of facilities and maintenance management	<ul style="list-style-type: none"> <li>Thorough investigation of equipment trouble causes, recurrence prevention and design technology improvement</li> <li>Improvement of equipment maintenance</li> </ul>	○	<ul style="list-style-type: none"> <li>Thorough investigation of equipment trouble causes, recurrence prevention and design technology improvement (ongoing)</li> <li>Improvement of equipment maintenance (ongoing)</li> </ul>
	4. Predictions and reliable responses to emergencies	<ul style="list-style-type: none"> <li>Consider estimating and minimizing damage if the worst situations such as serious accidents and massive earthquakes occur</li> <li>Preparation of plant emergency-response standards and on-site manuals for major accidents and disasters, and implementation of anticipated drills</li> </ul>	○	<ul style="list-style-type: none"> <li>Consider estimating and minimizing damage if the worst situations such as serious accidents, flood, and massive earthquakes occur(ongoing)</li> <li>Preparation of plant emergency-response standards and on-site manuals for major accidents and disasters, and implementation of anticipated drills (ongoing)</li> </ul>
	5. Safe and stable operation management	<ul style="list-style-type: none"> <li>Appropriate daily, monthly, and annual inspections, implementation of operation management, and effective use of data</li> <li>Reviewing and strengthen of response to process abnormal conditions</li> <li>Make sure safety assurance and implementation of reviews during startups (SU) and shutdowns (SD)</li> </ul>	○	<ul style="list-style-type: none"> <li>Appropriate daily, monthly, and annual inspections, implementation of operation management, and effective use of data (ongoing)</li> <li>Reviewing and strengthen of response to process abnormal conditions (ongoing)</li> <li>Make sure safety assurance and implementation of reviews during startups (SU) and shutdowns (SD) (ongoing)</li> </ul>
Occupational Safety	1. Achieve zero labor accidents requiring an absence of a day or more	<ul style="list-style-type: none"> <li>Consolidated in Japan: 0 people</li> <li>Shin-Etsu Chemical: 0 people</li> </ul>	◎	<ul style="list-style-type: none"> <li>Achieve zero labor accidents requiring an absence of a day or more</li> </ul>
	2. Rate of labor accidents not accompanied by an absence of a day or more: 0.5 or less	<ul style="list-style-type: none"> <li>Consolidated in Japan: 0.37</li> <li>Shin-Etsu Chemical: 0.16</li> </ul>	○	<ul style="list-style-type: none"> <li>Rate of labor accidents not accompanied by an absence of a day or more: 0.5 or less</li> </ul>
	3. Human error reduction	<ul style="list-style-type: none"> <li>Prevention of accidents and disasters due to human errors</li> </ul>	○	<ul style="list-style-type: none"> <li>Prevention of accidents and disasters due to human errors (ongoing)</li> </ul>
	4. Improve work safety	<ul style="list-style-type: none"> <li>Promoting of safety activities (practiced Hazard prediction activities, pointing and calling, and 5S<sup>3</sup> activities)</li> <li>Active improvement of work methods and work environment</li> <li>Implement application of similar process and examination of accident in the Group and other companies</li> <li>Preventing Accidents and Disasters among Middle-Aged and Elderly People</li> <li>Measures to prevent accidents by contacting dangerous areas, equipment etc.</li> <li>Review of factory standards for protective equipment and protective clothing for dangerous or harmful work</li> </ul>	○	<ul style="list-style-type: none"> <li>Promoting of safety activities (practiced Hazard prediction activities, pointing and calling, and 5S<sup>3</sup> activities) (ongoing)</li> <li>Active improvement of work methods and work environment (ongoing)</li> <li>Implement application of similar process and examination of accident in the Group and other companies (ongoing)</li> <li>Preventing Accidents and Disasters among Middle-Aged and Elderly People (ongoing)</li> <li>Promote measures to prevent dangerous area of equipment, contacting dangerous areas and equipment, exposure, falling, etc.</li> <li>Review of factory standards for protective equipment and protective clothing for dangerous or harmful work (ongoing)</li> <li>Improvement of risk sensitivity of managers in the workplace and their active involvement and awareness in "work safety improvement" activities.</li> </ul>
	5. Review and reorganize work manuals and ensure strict compliance	<ul style="list-style-type: none"> <li>Implement of planned review and content enhancement of work manual maintenance</li> <li>Confirm the compliance of work manuals</li> <li>Creation of a safe culture that complies with rules and manuals</li> </ul>	○	<ul style="list-style-type: none"> <li>Implement of planned review and content enhancement of work manual maintenance (ongoing)</li> <li>Confirm the compliance of work manuals (ongoing)</li> <li>Creation of a safe culture that complies with rules and manuals (ongoing)</li> </ul>
	6. Work risk assessment	<ul style="list-style-type: none"> <li>Implement work risk assessment based on plans / Review of past risk assessments (Central Labor Accident Prevention Association<sup>4</sup> method or procedure HAZOP<sup>5</sup>)</li> <li>Risk assessment as stipulated in the Industrial Safety and Health Act</li> <li>Risk assessment for dangerous and non-routine work at one's workplace</li> </ul>	○	<ul style="list-style-type: none"> <li>Implement work risk assessment based on plans / Review of past risk assessments (ongoing) (Central Labor Accident Prevention Association<sup>4</sup> method or procedure HAZOP<sup>5</sup>) (ongoing)</li> <li>Risk assessment as stipulated in the Industrial Safety and Health Act (ongoing)</li> <li>Risk assessment for dangerous and non-routine work at one's workplace (ongoing)</li> </ul>
	7. Safety measures of construction and non-routine work	<ul style="list-style-type: none"> <li>Clarification and solid performance of implementation matters such as construction start permission, safety management during construction, delivery, completion confirmation, etc.</li> <li>Providing hazard information of chemical substances in writing to construction contractors, thorough education of plant rules, etc.</li> <li>Establish factory rules and regulations for directly ordered construction work, and ensure that the ordering party fulfills its responsibility for construction management</li> <li>Clarify work instructions and procedures and implement hazard prediction activities for non-routine work</li> </ul>	○	<ul style="list-style-type: none"> <li>Clarification of implementation matters such as construction start permission, safety management during construction, delivery, completion confirmation, etc., and reliable fulfillment of roles and responsibilities of construction orderers and construction contractors</li> <li>Thorough compliance with laws and regulations by the construction orderer and the construction contractor, and ensuring construction safety</li> <li>Clarify work instructions and procedures and implement hazard prediction activities for non-routine work (ongoing)</li> </ul>
	8. Training and drill promotion	<ul style="list-style-type: none"> <li>Plan promotion of education and training</li> <li>Active participation in various safety seminars</li> <li>Promote acquisition of qualifications</li> <li>Promotion of specific activities to build mental and physical health</li> <li>Implementation of planned training to acquire and improve important safety skills</li> </ul>	○	<ul style="list-style-type: none"> <li>Plan promotion of education and training (ongoing)</li> <li>Active participation in various safety seminars (ongoing)</li> <li>Promote acquisition of qualifications (ongoing)</li> <li>Active introduction of awards and prize systems for voluntary safety activities (ongoing)</li> <li>Implementation of planned training to acquire and improve important safety skills(ongoing)</li> </ul>
	9. Ensuring subcontracting safety	<ul style="list-style-type: none"> <li>Active involvement in safety management at companies to which, as a manufacturer, the Company outsources its operations</li> <li>Implementation of sufficient safety education</li> </ul>	○	<ul style="list-style-type: none"> <li>Active involvement in safety management at companies to which, as a manufacturer, the Company outsources its operations (ongoing)</li> <li>Implementation of sufficient safety education for temporary and contract employees (ongoing)</li> </ul>
Occupational health	1. Create and maintain a comfortable workplace environment	<ul style="list-style-type: none"> <li>Realization of comfortable working environment</li> <li>Ensuring an appropriate and safe working environment</li> <li>Implementation of appropriate health management</li> <li>Appropriate reporting, communication, and consultation, as well as promotion of good communication</li> </ul>	○	<ul style="list-style-type: none"> <li>Realization of comfortable working environment (ongoing)</li> <li>Ensuring an appropriate and safe working environment (ongoing)</li> <li>Implementation of appropriate health management (ongoing)</li> <li>Appropriate reporting, communication, and consultation, as well as promotion of good communication(ongoing)</li> </ul>
	2. Promote physical and mental health wellbeing	<ul style="list-style-type: none"> <li>Implement concrete guidance, etc. and effective utilization of health check results</li> <li>Appropriate compliance with additional inspection criteria due to regulatory amendments</li> <li>Aggressive promotion and thorough implementation of preventive measures for COVID-19, etc.</li> </ul>	○	<ul style="list-style-type: none"> <li>Implement concrete guidance, etc. and effective utilization of health check results (ongoing)</li> <li>Appropriate compliance with additional inspection criteria due to regulatory amendments of Industrial Safety and Health Law, etc. (ongoing)</li> <li>Promotion of specific activities to build mental and physical health (ongoing)</li> <li>Aggressive promotion and thorough implementation of preventive measures for COVID-19, etc.(ongoing)</li> </ul>

1 PDCA cycle

One of the method to smoothly carry out management tasks such as production control and quality control in business activities. To improve business operating continually by repeating the four steps such as Plan (P) → Do (D) → Check (C) → Act (A).

2 MOC

Management of change

3 5S activities

It is the first letter "S" of five Japanese words for seiri seiton (organize and order things), seiso (cleaning), seiketsu (cleanliness), and shitsuke (bringing-up).

4 Central Labor Accident Prevention Association

A corporation for the purpose of public interest established in 1979 with the approval of the Minister of Labor (currently: Minister of Health, Labor and Welfare) under the Labor Accident Prevention Group Act. It aims to improve safety and health and to eliminate occupational accidents through promotion of voluntary occupational accident prevention activities by business owners.

5 HAZOP

Hazard and Operability Study. Standard process hazard analysis methods in the chemical process industry.

\* Evaluation standards

◎: Goal achieved ○: Goal basically achieved △: 50% achieved ×: Far from achieved

## Energy-saving, resource-saving, and reduction of environmental impacts

### Policy

The Group will further promote energy conservation and the effective use of resources, and work to resolve a variety of environmental issues for the future of the Earth.

### Awareness of Issues

We recognize that specific measures to combat climate change, the efficient use of limited resources, and a circular economy<sup>1</sup> are key issues that companies face. The Group is committed not only to contributing to the global environment, but also to enhancing our competitiveness and achieving sustainable development through efforts to conserve energy, effectively use resources, and reduce the environmental impact of our manufacturing processes.

<sup>1</sup>Circular economy

Economic activities to recycle and circulate existing resources, such as converting waste after use into resources for another business

Environment Management

Response to Climate  
Change

Resource Saving

Biodiversity and Pollutant  
Countermeasures

Environment  
Management



Environmental  
Accounting



Employee Initiatives



## — Environment Management

### Environment Management

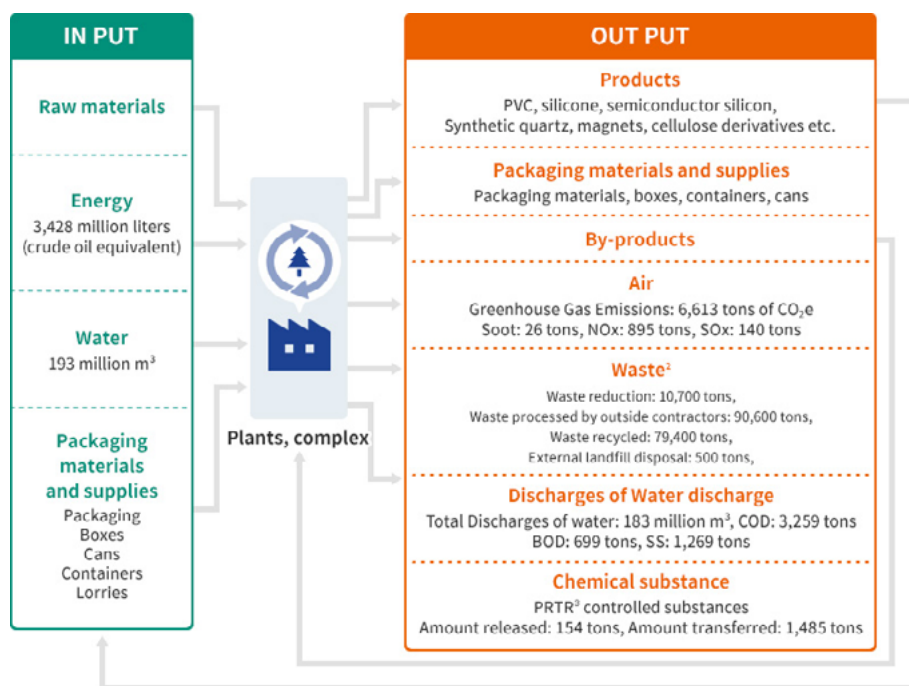
The Group works on energy savings, waste reduction, and chemical substance management as important issues. We create the "Shin-Etsu Group Environmental Safety Management Plan" every year in accordance with the Responsible Care Codes<sup>1</sup> and set numerical goals. The company and all of the plants of our Group companies set goals annually according to this plan and work to achieve them. Annual activity results are reported to the corporate officer in charge of the environment control at the Group Environmental Protection Conference.

In order to increase the quality of activities, each plant and the Group companies perform several internal audits a year to check if they have set appropriate goals and the progress that they have achieved. In addition, we also check their activities and achievements through periodical environmental control and safety audits. The audit results are reported to the top management.

### Promoting the Reduction of Environmental Impact

The Group constantly works to promote the reduction of environmental impact in the manufacturing stage. Furthermore, we are considering ways to reduce the environmental impact at the product usage stage and to contribute to energy and resource conservation. The Research, Manufacturing, and Sales Departments work together to develop products that are used in various fields, including the manufacturing industry, our daily lives, and the renewable energy industry.

## Environmental Impact of Business Activities



<sup>1</sup> Responsible Care Codes Six principle areas are addressed when implementing Responsible Care: Responsible Care Codes consist of seven codes, composed of six codes for different activity areas, namely, environmental preservation, disaster prevention, occupational health and safety, distribution safety, chemical and product safety, and dialogue with the public, and the Management System Code, designed to operate all the above commonly as a system.

<sup>2</sup> Waste

Since the standards of waste differs between Japan and other countries, the range of entities for the waste is Shin-Etsu Chemical Co., Ltd. and the consolidated in Japan.

<sup>3</sup> PRTR controlled substances

· 462 substances have been identified as Class I designated chemical substances from the Pollutant Release and Transfer Register (PRTR) system in the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management. Since the standards of PRTR differs between Japan and other countries, the range of entities for the PRTR is Shin-Etsu Chemical Co., Ltd. and the consolidated in Japan.

※ The waste recycling ratio indicates the ratio of the amount recycled to the total waste generated.

※ The final disposal ratio indicates the ratio of the amount of landfill waste to the total waste generated.

## Targets and Results

The following shows our targets and results for environmental protection and chemical substance management for FY2022 and our targets for FY2023.

### > Target, Implementation Status, Evaluation, and Planned Implementation Items

## Environmental Certification

In 1996, Shin-Etsu Chemical Gunma Complex obtained the ISO 14001 certification, becoming the first facility of a major chemical company in Japan to achieve such a certification. The Group has continued to obtain the ISO 14001 certification, the international standard for environmental management systems.

### > ISO 14001 Certification of the Shin-Etsu Group

### > Sustainability Data

## — Environmental Accounting

In FY2022, the company referred to the "Environmental Accounting Guidelines 2005" prepared by the Ministry of the Environment in Japan to calculate the investments and expenditures necessary to reduce the environmental impacts of air pollution, water pollution, environmental release of chemical substances, etc.; energy-saving measures to conserve the global environment; and reducing waste and recycling to reuse resources. Since we have deployed an additional cogeneration system that has a significant effect on reducing GHG emissions, the amount of investment in Global Environmental Conservation Costs has increased significantly.

### Environmental Conservation Costs in FY2022

million yen

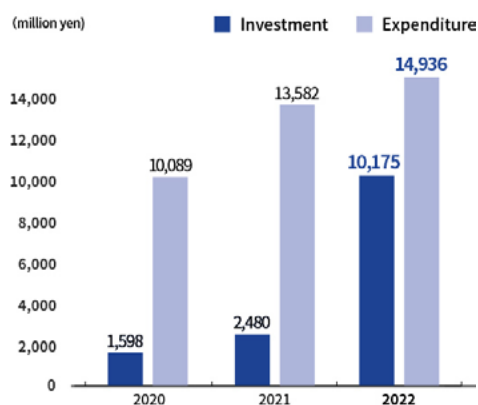
Category	Details	Investment	Expenditure
Plant area costs		9,629	11,172
(1)Pollution prevention costs	Prevention measures for air, water, noise and other type of pollution	840	4,487
(2)Global environmental conservation costs	Energy saving and global warming mitigation measures	8,336	3,607
(3)Resource recycling costs	Waste reduction, recycling and other measures	453	3,078
Upstream and downstream costs	Green purchasing and container and packaging measures	91	83
Administration costs	Environmental management, environmental impact monitoring and environmental education measures	406	484
Research and development costs	Research and development of environmentally conscious products and processes	50	3,036
Social engagement costs	Donations and contributions to environmental saving	0	98
Environmental remediation costs	Assessment, handling and other costs related to environmental pollution	0	63
<b>Total</b>		<b>10,175</b>	<b>14,936</b>

### Economic Benefits of Environmental Accounting in FY2022

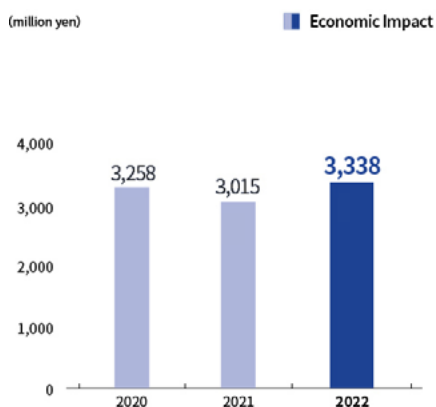
million yen

Details of benefits	Economic benefit
Energy saving	265
Improved production efficiency	2,986
(1)Production process	2,848
(2)Secondary materials costs	138
Reduction in waste treatment costs	-121
Profit from sale of valuable resources	208
<b>Total</b>	<b>3,338</b>

### Cost of Environmental Conservation: Investment and Expenditure



### Economic Impact



\*The range of entities for the Environmental Accounting is Shin-Etsu Chemical Co., Ltd.

## Employee Initiatives



Ms. NTL,  
Environment Health &  
Safety,  
Shin-Etsu Magnetic  
Materials Vietnam  
(Vietnam)

### 1. Please tell us about your current responsibilities.

I am the manager of two departments: the Analysis Department, which analyzes the chemical components of rare earth magnet raw materials, intermediate products, and final products, and the Environment, Safety and Health Department, which handles environmental management. As our business scale expands, the number of employees continues to increase. In January 2023, the Environment, Health and Safety Department was newly established to strengthen employee safety maintenance and further promote environmental conservation.

In addition, I am in charge of our company's RECP<sup>1</sup> activities of "Eco-industrial Park Intervention in Viet Nam", a project by the United Nations Industrial Development Organization and the Ministry of Planning and Investment of Vietnam. This project aims to create a model eco-industrial park that contributes to sustainable industry and to develop it in Vietnam.

### 2. Please tell us about your company's environmental goals for FY2023?

In FY2023, we will focus on the following four items. We will set specific goals and measures for each item, and check the progress every month.

1. Compliance with laws and requirements from stakeholders
2. Waste management
3. Energy and resource saving
4. Put safety as the first priority

### 3. How does your plant manage its environmental impact?

We currently manage our environmental impact in the following ways:

#### 1) Manage air environment impact:

We have installed exhaust gas treatment equipment to treat the gases emitted from the production process. It also has a dust filter that removes dust from the exhaust gas before it is released into the environment. The released gas quality meets Vietnam's national technical standards. The output gas emission quality is met Vietnamese national technical standard. Those scrubbers are operated and checked conditions everyday by EHS team.

#### 2) Manage water source environment impact:

① Install wastewater treatment plant to treat all industrial wastewaters generated from productions meeting Vietnam National technical standard before discharging it to river. This system is operated and checked condition everyday by our EHS team. Industrial wastewater sample is monitored everyday by Laboratory.

② Install sewage wastewater treatment plant to treat wastewater come from canteen, hand sink, etc to meet internal regulation of Industrial zone before transferring to Industrial zone to get final treatment.

③ Monitoring industrial wastewater, sewage wastewater, emission gas every 3 months/time by 3rd party.

#### 3) Waste management:

① Our employees sort waste every day. Solid waste storage areas are separated and identified by waste type. Recyclable waste is separated from solid waste and sold to external parties to be used as materials for other companies, thereby contributing to reducing environmental impact.

② We provide training on waste identification and classification for newly hired employees.

4) We got ISO14001 certification in 2018.

5) We keep up to date with and comply with applicable Vietnamese laws and regulations.

6) We hold technical meetings to encourage employees to submit their ideas for improving environmental protection, such as saving water and electricity.

7.) Planting trees at the factory to ensure that the green area is at least 20% of land.

#### **4. What are you doing to comply with environmental laws and regulations?**

We have established management processes to keep up to date with and ensure our compliance with laws, regulations and customer requirements. We strive to improve our compliance by regularly checking.

#### **5. What do you want to focus on in the future from the perspective of saving energy, saving resources, and reducing environmental impact?**

We will continue to thoroughly comply with applicable environmental regulations. In addition, we will strengthen our efforts to reduce water consumption, save energy, and reduce waste. Furthermore, by actively soliciting ideas from employees, we would like to promote initiatives to reduce the environmental impact of the company as a whole.

---

<sup>1</sup>RECP (Resource Efficiency and Cleaner Production)

The continuous application of preventive environmental strategies to processes, products and services in order to increase efficiency and reduce risks to humans and the environment.



Item	Priority Issues (Target)	Implementation Status for FY2022	Evaluation	Planned Implementation Items for FY2023
Management System	1. Continuous improvement and implementation of the environmental management system	<ul style="list-style-type: none"> <li>Implement plans and achieve goals without fail through activities leveled throughout the year</li> <li>Conduct substantial internal audits</li> <li>Appropriate responses to the findings of head office audits and plant internal audits, and reliable follow-up</li> </ul>	◎	<ul style="list-style-type: none"> <li>Formulation and steady implementation of an action plan throughout the year (ongoing)</li> <li>Conduct substantial internal audits (ongoing)</li> <li>Appropriate responses to the findings of head office audits and plant internal audits, and reliable follow-up (ongoing)</li> </ul>
	2. Qualitative improvement of environmental safety audits	<ul style="list-style-type: none"> <li>Implementation of appropriate follow-up to the findings of the head office's environmental safety audits</li> <li>Effective and proper implementation of environmental safety audits at affiliated companies in the plant area</li> </ul>	○	<ul style="list-style-type: none"> <li>Implementation of appropriate follow-up to the findings of the head office's environmental safety audits (ongoing)</li> <li>Effective and proper implementation of environmental safety audits at affiliated companies in the plant area (ongoing)</li> </ul>
Environmental conservation	1. Zero environmental accidents	<ul style="list-style-type: none"> <li>Achieved target of zero environmental accidents</li> </ul>	◎	<ul style="list-style-type: none"> <li>Zero environmental accidents</li> </ul>
	2. Thorough environmental management	<ul style="list-style-type: none"> <li>Continued appropriate compliance with environmental laws and regulations</li> </ul>	◎	<ul style="list-style-type: none"> <li>Appropriate compliance with environmental laws and regulations (ongoing)</li> </ul>
	3. Promotion of energy savings (Reduce energy consumption by an average annual rate of 1% per unit production)	<ul style="list-style-type: none"> <li>The Shin-Etsu Group: Reduced at an annualized rate of 0.7%</li> <li>Shin-Etsu Chemical: Reduced at an annualized rate of 1.2%</li> </ul>	△	<ul style="list-style-type: none"> <li>Reduce energy consumption at an annualized rate of 1% in production intensity and formulation and promotion of an activity plan for achievement</li> </ul>
	4. Reducing greenhouse gas emissions (Intensity reduction to 54% of 1990 level by fiscal 2025)	<ul style="list-style-type: none"> <li>The Group reduced to 54.2% and the Company 46.8% compared to fiscal 1990</li> <li>Periodic inspection based on the Act on Rational Use and Proper Management of Fluorocarbons and reporting to the national government on the amount of leakage calculated</li> </ul>	○	<ul style="list-style-type: none"> <li>Reduction to 45% of 1990 level in production intensity by fiscal 2025 and formulation and promotion of an activity plan for achievement</li> <li>Periodic inspection based on the Act on Rational Use and Proper Management of Fluorocarbons and reporting to the national government on the amount of leakage calculated (ongoing)</li> </ul>
	5. Reduce waste (Achieve zero waste emissions (waste to landfill ratio to 1% or less))	<ul style="list-style-type: none"> <li>Consolidated in Japan: Landfill waste to total waste ratio of 1.05%</li> <li>Shin-Etsu Chemical: Landfill waste to total waste ratio of 1.40%</li> </ul>	○	<ul style="list-style-type: none"> <li>Promote achievement of zero emissions (waste generation to landfill ratio to 1% or less), and formulation and promotion of an activity plan for achievement</li> <li>Promotion of waste generation in production intensity, and formulation and promotion of an activity plan for achievement</li> </ul>
	6. Reduced emissions of substances causing water pollution or air pollution (Reduction in intensity at annualized rate of 1%)	<ul style="list-style-type: none"> <li>Reduced at an annualized rate of 4.9% for BOD<sup>1</sup></li> <li>Reduced at an annualized rate of 30.0% for soot</li> <li>Reduced at an annualized rate of 5.6% for SOx</li> <li>Regular review and strict compliance with specific facility using hazardous substances pertaining to the Water Quality Pollution Control Act and installation standards for designated storage facilities</li> <li>Promotion of separation of process wastewater and rainwater discharged (including cooling water) and the laying of pipes installed in the rainwater drainage way on the ground</li> </ul>	◎	<ul style="list-style-type: none"> <li>Regular review and strict compliance with specific facility using hazardous substances pertaining to the Water Quality Pollution Control Act and installation standards for designated storage facilities (ongoing)</li> <li>Promotion of separation of process wastewater and rainwater discharged (including cooling water) and the laying of pipes installed in the rainwater drainage way on the ground (ongoing)</li> </ul>
	7. Reduction in water withdrawals (Reduction in intensity at an annualized rate of 1%)	<ul style="list-style-type: none"> <li>Consolidated: reduced at an annualized rate of 16.7%</li> <li>Shin-Etsu Chemical: reduced at an annualized rate of 9.8%</li> </ul>	◎	<ul style="list-style-type: none"> <li>Reduction in production intensity at an annualized rate of 1% and formulation and promotion of an activity plan for achievement</li> <li>Plan and implement measures for improving recycling water ratio</li> </ul>
Chemical substance management	1. Thorough new chemical substance management	<ul style="list-style-type: none"> <li>Thorough management of permitted production volumes (confirmed) and production results</li> <li>Communicated reporting of harmful substance information, etc., at the time of acquisition</li> </ul>	◎	<ul style="list-style-type: none"> <li>Thorough management of permitted production volumes (confirmed) and production results (ongoing)</li> <li>Communicated reporting of harmful substance information, etc., at the time of acquisition (ongoing)</li> </ul>
	2. Compliance with legal and other requirements for chemical substance control	<ul style="list-style-type: none"> <li>Responded to revisions and strict compliance with the Chemical Substances Control Law<sup>2</sup>, Industrial Safety and Health Act, PRTR Law<sup>3</sup>, and Poisonous and Deleterious Substances Control Act</li> <li>Strict compliance with overseas laws and regulations</li> <li>Implement control of PCB waste and dispose required by the deadline (Deadline: 2022)</li> </ul>	◎	<ul style="list-style-type: none"> <li>Respond to revisions and strict compliance with Chemical Substances Control Law, Industrial Safety and Health Act, PRTR Law, and Poisonous and Deleterious Substances Control Act (ongoing)</li> <li>Compliance with overseas laws and regulations (ongoing)</li> <li>Appropriate treatment of PCB waste (High-concentration JESCO treatment, Deadline: 2022)</li> </ul>
	3. Information disclosure on the harmfulness of chemical substances	<ul style="list-style-type: none"> <li>Information disclosure and awareness raising of substances handled by contractors and subcontractors</li> </ul>	○	<ul style="list-style-type: none"> <li>Making sure of well-known situations and information provision related to substances handled by contractors and subcontractors (ongoing)</li> </ul>

1 BOD (Biochemical Oxygen Demand)

Biochemical oxygen consumption. The amount of oxygen required when decomposing contaminants in the water by microorganisms. This indicates the degree of water pollution.

2 Chemical Substances Control Law

Short for the "Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc." A law intended to prevent environmental pollution by chemical substances that can be harmful to human health or to ecosystems.

3 PRTR Law

Short for the "Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof." A law intended to promote improved self-directed control of chemical substances by business operators, in order to prevent the risk of damage to the environment.

\* Intensity unit

A measure calculated from the production volume of a reference product.

\* Average annual rate for implementation

Average annual reduction rate from FY 2019 to FY 2022

\* Evaluation standards

○: Goal achieved ○: Goal basically achieved △: 50% achieved ×: Far from achieved

## Energy-saving, resource-saving, and reduction of environmental impacts

### Policy

The Group will further promote energy conservation and the effective use of resources, and work to resolve a variety of environmental issues for the future of the Earth.

### Awareness of Issues

We recognize that specific measures to combat climate change, the efficient use of limited resources, and a circular economy<sup>1</sup> are key issues that companies face. The Group is committed not only to contributing to the global environment, but also to enhancing our competitiveness and achieving sustainable development through efforts to conserve energy, effectively use resources, and reduce the environmental impact of our manufacturing processes.

<sup>1</sup>Circular economy

Economic activities to recycle and circulate existing resources, such as converting waste after use into resources for another business

Environment Management

Response to Climate Change

Resource Saving

Biodiversity and Pollutant Countermeasures

Results



Scope 3 GHG Emission



Support for TCFD recommendations



Employee Initiatives



### Mid-term target

Reduce greenhouse gas emissions in terms of production intensity to 45% of the FY1990 level by FY2025.<sup>1</sup>

### Results and evaluation in FY2022

Achieves reduction to 54.2% for the Shin-Etsu Group<sup>2</sup> and 46.8% for Shin-Etsu Chemical.

### FY2022

#### Target:

Reduce energy consumption in terms of production intensity at an average annual rate of 1%.

#### Results:

The average annual reduction rate from FY2019 to FY2022 was 0.7% increased for the Shin-Etsu Group.

#### Evaluation:

The target was not achieved.

### FY2023

#### Target:

Reduce energy consumption in terms of production intensity at an average annual rate of 1%.

1: For the calculation of emissions, CO<sub>2</sub> emission factors for electricity are averaged from 2000 to 2009 so that efforts to reduce electricity can be clarified.

2: Includes non-consolidated group companies.

## — Results

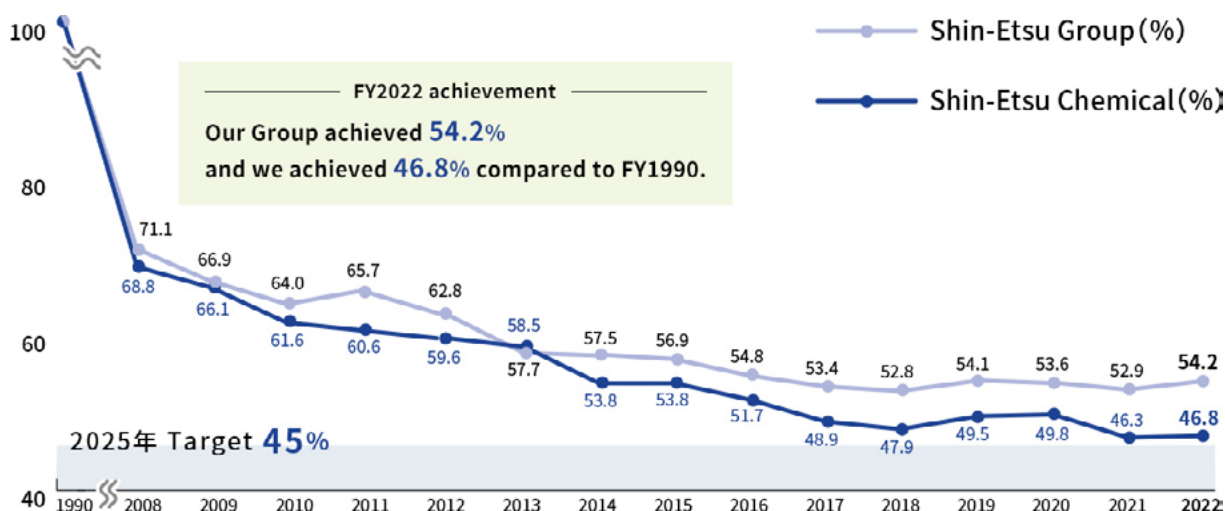
In order to take concrete measures against climate change, the Sustainability Committee, chaired by the President, works with each department to tackle these important issues.

Starting from FY2010, the Group has implemented energy-saving strategies and installed a cogeneration system as well as innovative technologies, in order to achieve the mid-term goal of reducing greenhouse gas emissions in terms of production intensity to 50% of the FY1990 level by FY2015. Furthermore, in FY2016, we set a new mid-term target of reducing greenhouse gas emissions in terms of production intensity to 45% of the FY1990 level by FY2025, and we have been working towards that goal. In FY2020, we started reducing purchased electricity consumption through cogeneration system by deploying gas turbines at our overseas plant, and in FY2022, we deployed them at our domestic plant.

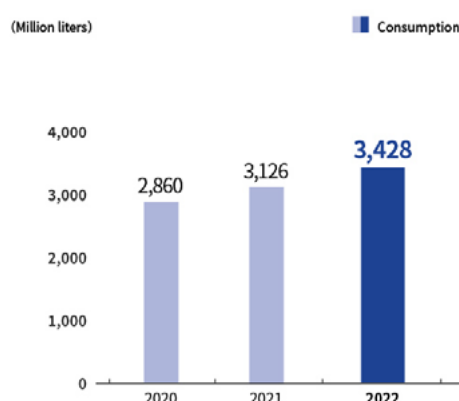
### Related Information

#### > Shin-Etsu Group and Climate Change

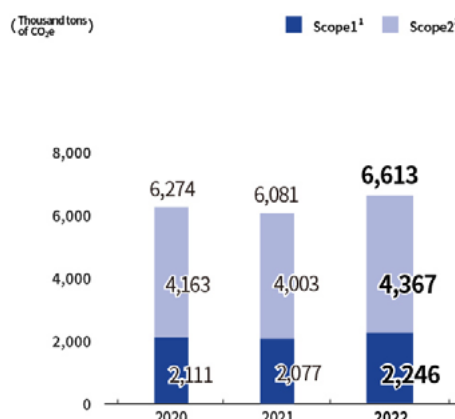
#### Changes in Greenhouse Gas Emissions in Terms of Production Intensity Relative to the FY1990 Level



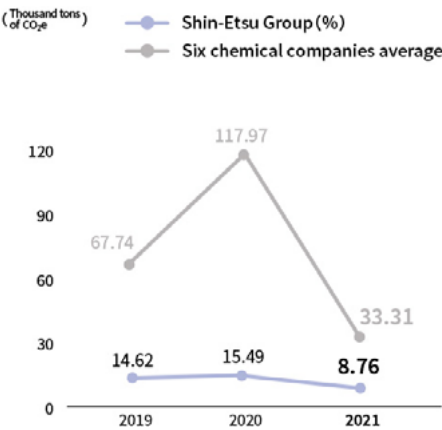
#### Energy Consumption (crude oil equivalent)



#### Greenhouse Gas Emission Volume Trends



**Greenhouse Gas Emission Volume Trends**  
**(Ordinary income intensity)<sup>3</sup>**



<sup>1</sup> Scope 1  
Direct emissions from facilities you own or control (e.g., fuel oil, natural gas)

<sup>2</sup> Scope 2  
Emissions from the production of energy purchased by the company (e.g., purchased electricity, steam)

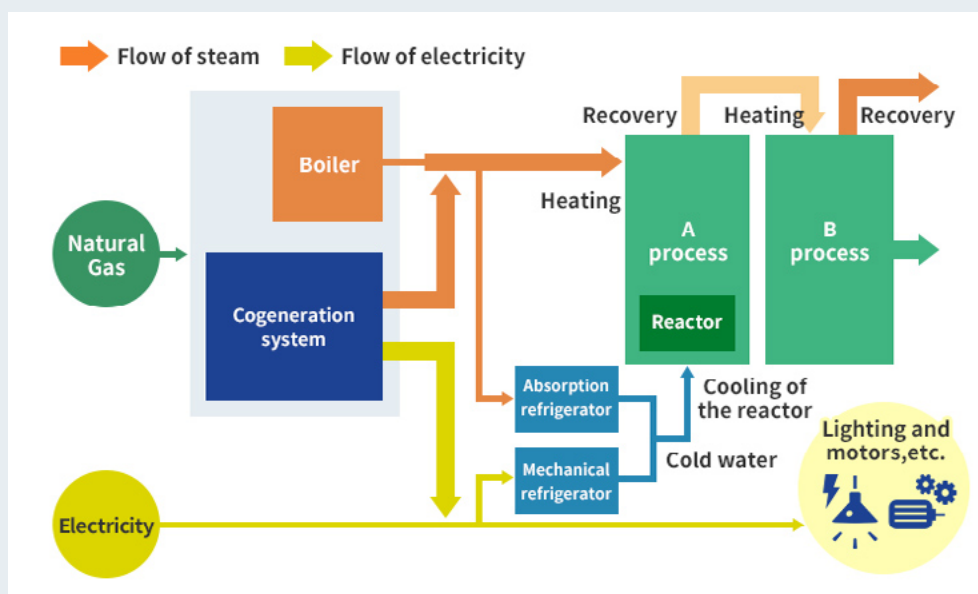
<sup>3</sup> Greenhouse Gas Emission Volume Trends (Ordinary income intensity)

- Ordinary income intensity = emissions (CO<sub>2</sub>-ton) / consolidated or non-consolidated ordinary income (million yen)
- Scope of calculation for 5 chemical companies other than Shin-Etsu: 4 consolidated companies and 1 major group company

\*In cases where emissions were reported to national governments, the reported values were retroactively used for Scope 1 and Scope 2 calculations.

## Thermal Energy Recycling Initiatives

Each plant in Shin-Etsu Chemical is working on recycling thermal energy.



Flow of steam and electricity at the plant

### ■ Installation of a Cogeneration System

Steam and electricity are produced in a plant by using a cogeneration system.<sup>1</sup> Electricity produced by the cogeneration system supports manufacturing operations. In addition, steam is used for heating and the thermal insulation of manufacturing equipment. The steam used for heating will not be emitted but reused for manufacturing equipment that can handle low-temperature steam. Eventually, the steam is converted into water to be collected and recycled.

### ■ Waste Heat Recovery

Heat is recovered from the production process and is used as thermal energy in another process. Furthermore, the remaining waste heat is collected mainly as steam to make cold water in the absorption refrigerator. This chilled water is used to cool the manufacturing equipment, etc.

<sup>1</sup> Cogeneration system (heat and power combined)

This system generates power with engines, turbines, and fuel cells using natural gas, petroleum, liquefied petroleum gas, etc., and simultaneously collects the generated heat as steam. Effective use of both electricity and waste heat can reduce CO<sub>2</sub> emissions and improve economic efficiency through energy conservation.

## — Scope 3 Greenhouse Gas Emissions

The Group's scope 3<sup>1</sup> greenhouse gas emissions for FY2022 were 11,139 thousand tons of CO<sub>2</sub>, amounting to 63% of the supply chain.<sup>2</sup>

<sup>1</sup> Scope 3

Emissions from your own supply chain

<sup>2</sup> Supply chain

All stages of a product from raw material production until it reaches the final customer

### Scope 3 Emissions Calculation Methods

Category	Category definition	Emissions (Unit: thousand CO <sub>2</sub> tons)	Amount of activity	Source of emission intensity used
1.Purchased goods and services	Emissions from activities leading up to the production of raw materials and parts, purchased products, and sales materials	5,588	Volume of raw materials purchased	Ministry of the Environment Emissions Source Database (Ver. 3.3) IDEA v2 Emissions per unit of production obtained from suppliers
2.Capital goods	Emissions from the construction and manufacture of the company's capital goods	868	Increase in property, plant and equipment and intangible assets	Ministry of the Environment Emissions Source Database (Ver. 3.3)
3.Fuel-and energy-related activities not included in Scope 1 and 2	Emissions associated with mining and refining of procured fuel Emissions associated with mining and refining of fuel used to generate electricity procured	954	Total amount of energy purchased	Ministry of the Environment Emissions Source Database (Ver. 3.3)
4.Transportation and delivery(upstream)	①Emissions associated with logistics from suppliers of products and services purchased in the fiscal year covered by the report to the company.	716	Weight of purchased raw materials and the transportation distance of raw materials	Energy Conservation Law (ton-kilometers method) IDEA v2
	②Emissions associated with logistics services other than ①purchased in the fiscal year covered by the report (emissions associated with logistics incurred by the company)		Product transport volume and distance (at the company's expense)	Energy Conservation Law (ton-kilometers method)
5.Waste generated in operations	Emissions from the transport and treatment of waste generated in-house	47	Amount of Waste by Type	Ministry of the Environment Emissions Source Database (Ver. 3.3)
6.Business Trip	Emissions from employee business trips	2	Total number of days traveled by type	Ministry of the Environment Emissions Source Database (Ver. 3.3)
7.Employer's commutation	Emissions due to transfer when employees commute to the office	24	Commuting expenses such as commuter pass expenses	Ministry of the Environment Emissions Source Database (Ver. 3.3)
8.Leased assets(upstream)	Emissions from the operation of leased assets leased by the company	-	Exclusion from calculation (The Group covers leasing of non-production bases overseas, but does not cover it due to the small amount)	
9.Transportation and delivery (downstream)	Emissions associated with the distribution of products sold by the company to final consumers (not borne by the company)	244	Volume and Distance of ProductTransportation (at the customer's expense)	Energy Conservation Law (ton-kilometers method) IDEA v2
10.Processing of sold products	Emissions from the processing of intermediate products by businesses	-	Non-applicable (Application of WBCSD's Chemical Sector Guidelines: "Chemical companies are not required to report Category 10emissions due to the difficulty of obtaining reliable figures due to the diverse use and client mix.")	



11. Use of sold products	Emissions from the use of products by users (consumers and businesses)	-	Non-applicable (Application of WBCSD Guidelines for the Chemicals Division: "If an end-user of a chemical is unknown, a chemical company should not include indirect use phase emissions in its inventory.")	
12. End of life treatment of sold products	Emissions from the disposal of products by users (consumers and businesses)	2,696	Volume of products	Ministry of the Environment Emissions Source Database (Ver. 3.3) IDEA v2
13. Leased assets (downstream)	Emissions from the operation of leased assets	-	Non-applicable (We do not have any assets leased to other companies.)	
14. Franchise	Emissions by franchisees	-	Non-applicable (We are not a franchised entity.)	
15. Investment	Emissions associated with the operation of investments	-	Non-applicable (There is no investment for profit.)	
Scope 3 total emissions		11,139		

\*From FY2022, we changed the emission factors related to Category 1 raw material procurement, Category 4-①, and Category 9 delivery by ship.

## — Support for TCFD recommendations

Support TCFD's recommendations In May 2019, the Shin-Etsu Group announced its support of the recommendations from the TCFD.<sup>1</sup> We also participated in the TCFD Consortium of Japan.<sup>2</sup> We will continue to share information regarding climate change in line with the TCFD recommendations.



### <sup>1</sup> TCFD

The Task Force on Climate-related Financial Disclosures (TCFD) is a special team focusing on climate change disclosure, and was established by the Financial Stability Board (FSB) in September 2015. In July 2017, the TCFD published a set of recommendations calling for corporations to analyze their risks and opportunities based on future scenarios and various mid to long-term predictions of climate change, and to disclose the impact on their finances.

### <sup>2</sup> TCFD Consortium of Japan

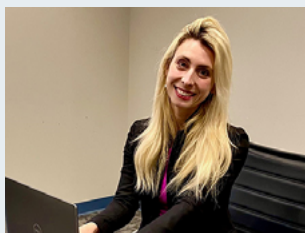
It is a group established by the Ministry of Economy, Trade and Industry, the Financial Services Agency, and the Ministry of the Environment in May 2019. Companies and financial institutions that agree with the recommendations from TCFD aim to promote the effective disclosure of information by companies and the efforts to link the disclosed information to appropriate investment decisions by financial institutions and other investors.

## Related Information

[> Sustainability Data](#)

[> Shin-Etsu Group and Climate Change](#)

## Employee Initiatives



Ms. AR,  
Environmental and Regulatory  
Department,  
Shin-Etsu Silicones of America  
(USA)

### **1. Please tell us about your current responsibilities.**

After joining the company, I was assigned to the Environmental Health and Safety Department and received training on health and safety, as well as state and global regulations.

I am now in charge of the Environmental and Regulatory Department at Shin-Etsu Silicones of America, Inc. and facilitate all local, state, national, and global regulatory and environmental concerns for our company.

I am also a member of the Global Silicones Council<sup>1</sup> on behalf of Shin-Etsu Silicones of America and Shin-Etsu Chemical, as well as chairing Silicones Environmental, Health, and Safety Center (SEHSC)'s Regulatory and Public Affairs Committee of the Center for the Environment, Health and Safety of Silicones.

### **2. How is the plant working to reduce its environmental impact?**

We are currently focusing on energy conservation and waste reduction by reducing power consumption.

In the last several years, we have upgraded our facility to help reduce electrical usage, changing several manufacturing processes to reduce waste generation. Additionally, we are committed to promoting environmental excellence and have been awarded the Ohio EPA Environmental Excellence E3 Award in 2021.

### **3. What kind of initiatives are you taking at your plants to achieve the Shin-Etsu Group's medium-term goal of reducing greenhouse gas emissions?**

In order to achieve the reduction target by 2025, we are working on temperature control of the entire manufacturing site, upgrading our lighting through LED swap and timers/dimmers. Going forward, we intend to reduce our CO<sub>2</sub> emissions by correcting process and building insulation, purchasing 100% of green credits for electricity, and replacing inefficient boilers/ additional equipment throughout our facility.

### **4. Are you educating your employees on climate change measures such as reducing greenhouse gas emissions?**

We provide training on waste measures, environmental reduction plans through EPA exemptions, and recycling. We mainly use ISO 14001 for climate change related education. ISO 14001 is an international standard for environmental excellence, driving environmental performance which focus on waste reduction and efficiency of resources. And also, we hold annual online training dedicated to understanding the scope of SESA's manufacturing environmental goals and ways in which our employees can help contribute to a more sustainable, environmental-friendly campus.

### **5. What do you intend to focus on in the future with regard to responding to climate change?**

Climate change is an ever-present concern for the future of our world. We are proud that silicones manufactured at our facility help contribute to green-house gas reduction, as they promote energy efficiency and transition, product longevity, and waste reduction. We intend to focus our scope of future in-plant work to transitioning to a more efficient facility in order to reduce our CO<sub>2</sub> emissions. Lastly, we want to be proactive to new technology and review the ability for those technologies to help us grow an environmentally-driven culture that allows us to not just meet, but also exceed our environmental goals- becoming the best environmental stewards we can to support our community.

---

<sup>1</sup>Global Silicone Council(GSC)

Not-for-profit, international organization representing companies that produce and sell silicone products around the world. Among the GSC's objectives are to promote the safe use and stewardship of silicones globally.

## Energy-saving, resource-saving, and reduction of environmental impacts

### Policy

The Group will further promote energy conservation and the effective use of resources, and work to resolve a variety of environmental issues for the future of the Earth.

### Awareness of Issues

We recognize that specific measures to combat climate change, the efficient use of limited resources, and a circular economy<sup>1</sup> are key issues that companies face. The Group is committed not only to contributing to the global environment, but also to enhancing our competitiveness and achieving sustainable development through efforts to conserve energy, effectively use resources, and reduce the environmental impact of our manufacturing processes.

<sup>1</sup>Circular economy

Economic activities to recycle and circulate existing resources, such as converting waste after use into resources for another business

Environment Management

Response to Climate Change

Resource Saving

Biodiversity and Pollutant Countermeasures

Water Resource Conservation, Water Pollutant Elimination

Waste reduction

Resource recycling

Employee Initiatives

## — Water Resource Conservation and Water Pollutant Elimination



### FY2022

#### Target:

Reduce water withdrawal in terms of production intensity at an average annual rate of 1%.

Reduce water pollutant discharge in terms of production intensity at an average annual rate of 1%.

#### Results:

The average annual rate from FY2019 to FY2022 was decreased by 16.8% in terms of water withdrawal and 4.9% in terms of BOD emission.

#### Evaluation:

Achieved the targets

### FY2023

#### Target:

Reduce water withdrawal in terms of production intensity at an average annual rate of 1%.

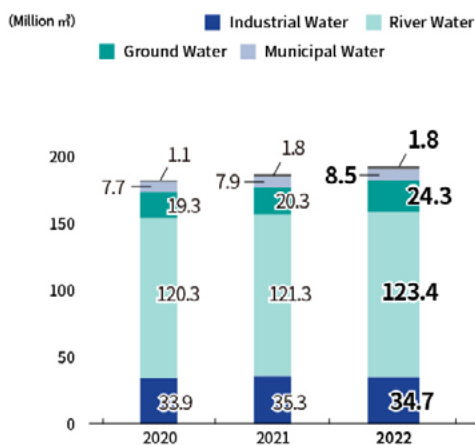
Reduce water pollutant discharge in terms of production intensity at an average annual rate of 1%.

## — Results

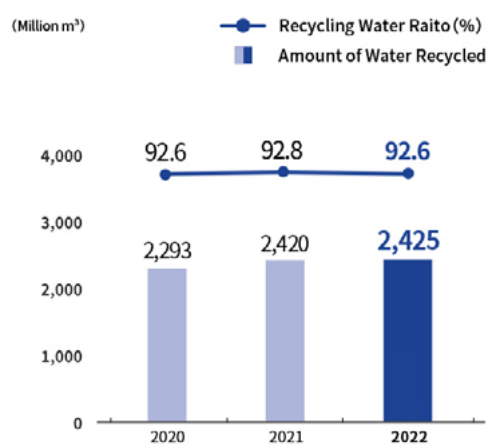
There are water scarcity areas in the world, and the United Nations Environment Program (UNEP) has predicted that the issue of water scarcity in some regions will become serious by the year 2025. The Shin-Etsu Group's major manufacturing plants are located where clean water is abundant. However, we recognize that tackling water shortages around the world is an important issue for us to work on. The Group carries out water risk assessments and works proactively study for the technology for the conservation of water resources by reducing water withdrawal, ensuring that water is recycled, and implementing thorough wastewater purification and water quality management. In FY2022, the amount of COD emissions was significantly reduced as a result of conducting secondary treatment of wastewater from overseas plants that emit a large amount of COD at our group companies.

In addition, we are working to recycle water to the utmost limit, and we also properly treat the water that is finally discharged, comply with regulations concerning water contaminants when discarding water, and check the water quality ourselves for verification.

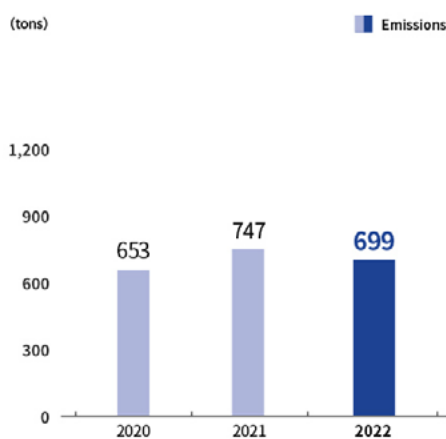
Trend of Amount of Water Withdrawn



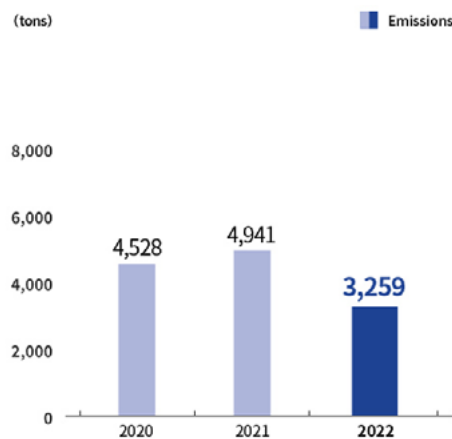
Trend of Amount of Recycled Water



Trend of BOD Emission Volume



Trend of COD Emission Volume



### Related Information

[> Sustainability Data](#)

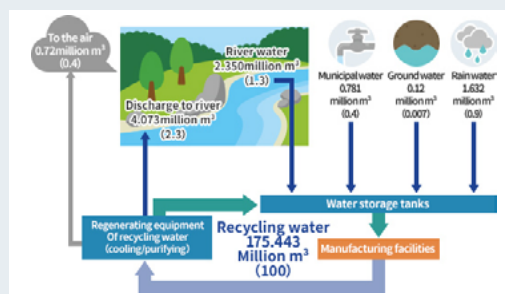
## Working with suppliers to create a sustainable society

The Shin-Etsu Chemical Gunma Complex manufactures highly functional materials such as silicones. Located inland in the southwest region of Gunma Prefecture, the complex draws almost all of the water required for manufacturing from nearby rivers and purifies the wastewater from the complex before discharging it.

The Gunma complex is situated in a rich natural environment. The Tokyo metropolitan area is downstream from the nearby rivers, which sustain the daily lives of Tokyo residents as well as its industry and agriculture. Although the manufacturing of chemical products requires large quantities of water, the complex strives to conserve valuable water resources by keeping its water intake from these rivers to a minimum. For this reason, the complex **reuses as much water as possible** in its manufacturing and water cooling processes by **recycling and circulating** inside the Complex.

Besides **purifying the water** before returning it to the rivers, **rigorous water quality management** is also applied. The Complex strives to maintain optimum conditions by continually monitoring the operating status of water treatment facilities and conducts regular water quality analysis of discharged water to verify that it is in strict compliance with high water standards. Furthermore, it separates rainwater to prevent the inflow of rainwater during heavy downpours as a measure to protect their treatment facilities from being damaged by natural disasters. In addition, it has been carrying out seismic strengthening works since 2014 in preparation of large-scale earthquakes.

By effectively utilizing limited water resources, the Gunma complex will continue to fulfill its responsibility as a production base that is located upstream.



Water Flow at the Shin-Etsu Chemical Gunma Complex (FY2022)

## Rainwater Utilization at Overseas Group Company

Calls are increasing for the protection of the world's water resources, and since its foundation, Asia Silicones Monomer Limited has been making effective use of the abundant rainfall it enjoys in its location in Thailand.

It stores rainwater in storage tanks on-site, using it for industrial water and as coolant for waste gas incinerator. It always maintains a reserve of rainwater for use in firefighting in the event of an emergency. It also supplies Group company Shin-Etsu Silicones (Thailand) and its nearby partners with industrial water using rainwater.



## — Waste Reduction



### FY2022

**Target:**

Achieve zero waste emissions (landfill waste of 1% or less of the final amount of all waste generated)  
Promote the reduction of waste generation in terms of production intensity

**Results:**

The final waste landfill disposal rate was 1.05% in Japan

**Evaluation:**

The target was achieved in Japan

### FY2023

**Target:**

Achieve zero waste emissions.  
Promote the reduction of waste generation in terms of production intensity.

---

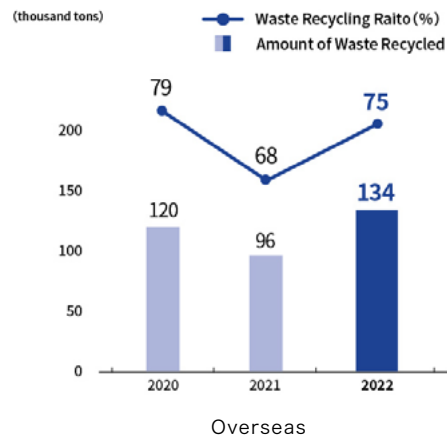
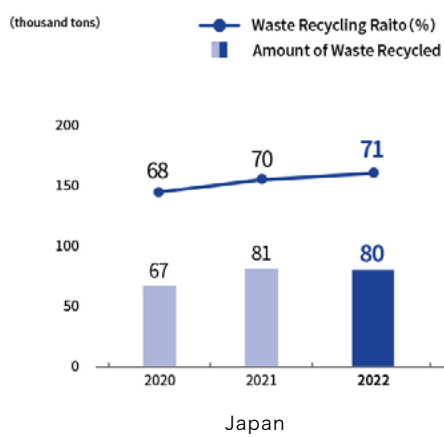
\*The scope of target for the waste reduction is Shin-Etsu Chemical Co., Ltd. and consolidated in Japan.

## — Result

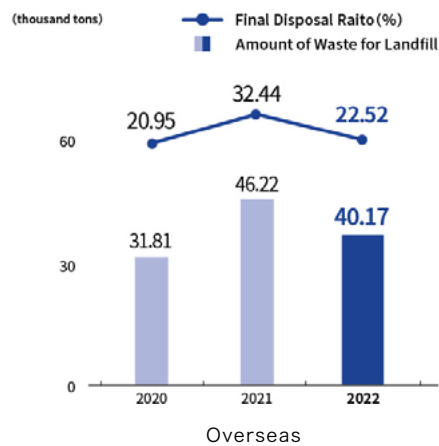
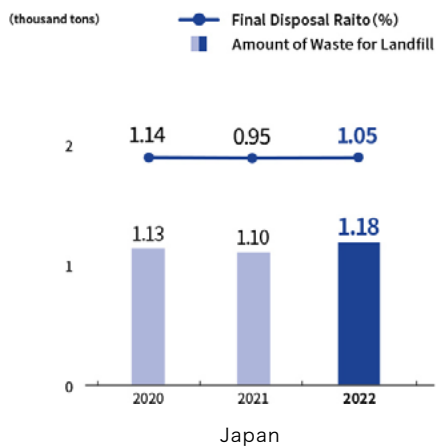
In FY2022, compared to FY2021, the amount of domestic waste generated decreased slightly, while the amount of waste recycling ratio increased. In FY2022, we worked to reduce the amount of waste generated by improving the manufacturing process and material recycling.  
We hire external contractors to handle our disposals. We check to confirm that they handle disposals properly by regularly inspecting their operations.



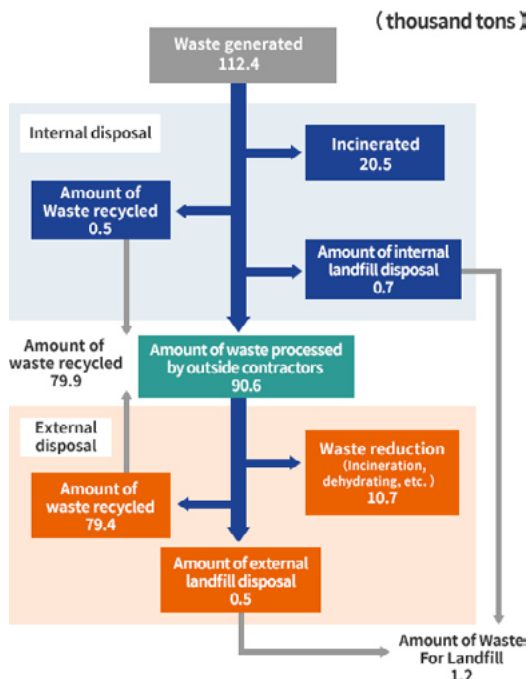
## Trend of Amount of Waste Recycled



## Trend of Amount of Waste Sent to Landfills



## Flow of Waste Disposal(Japan)



\* Since the standards of waste differs between Japan and other countries, the graphs are shown separately.

\* The figures of "Flow of waste disposal" is total of Shin-Etsu Chemical and domestic consolidated companies.

## Related Information

[> Sustainability data](#)

## — Resource Recycling



The Group collaborates with customers and related industry groups, using cutting-edge technologies to recover used products, extract resources, and reuse them in the Group's products. Through these initiatives, it is possible to reduce the waste output of our customers and the Group itself. We are also contributing to environmental conservation by reusing resources.

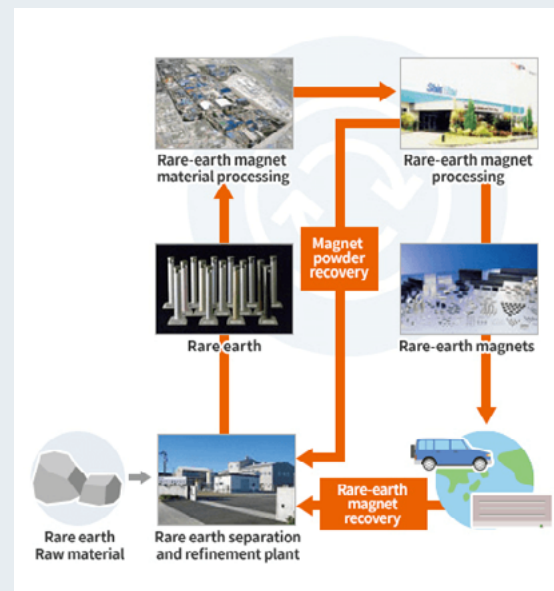
### Rare Earth Magnet Resource Recycling

The Group manufactures rare earth magnets with our integrated production process using separation and refinement techniques to extract rare earth magnets from rare earth raw materials.

Since 2007, the Group has been recycling the magnet powder generated by our manufacturing processes for rare earth magnets as one of our measures for the stable procurement of raw materials. Furthermore, since March 2013, we have also been developing techniques to recycle the rare earth magnets used in recovered power-saving air conditioners and hybrid cars in order to reuse resources.

These initiatives have made it possible to reduce the environmental impact that comes along with resource development and to safely and securely protect the valuable resource of rare earth. The Group's rare earth magnets create significant economic and social value as recycled products and also contribute significantly to energy conservation.

### Rare Earth Magnet Resource Recycling Process

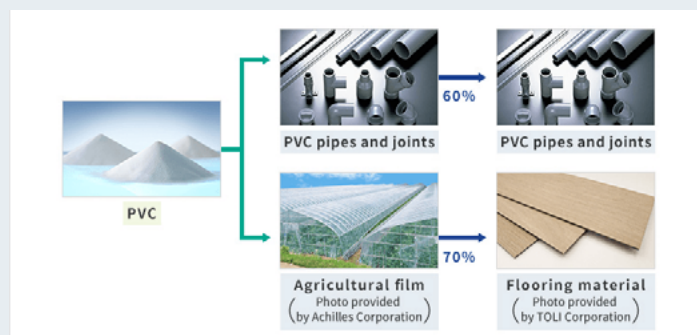


### Recycling of PVC Products

Initiatives to recycle products containing PVC are making progress. There are various methods for recycling PVC, the most common of which is material recycling.

Material recycling uses used PVC products as raw materials to create new PVC products. PVC pipes, flooring materials, and other PVC products are not greatly influenced by foreign substance contamination, so various kinds of recycling are conducted for those products. In particular, 60% of used PVC pipes and joints are recycled for reuse in new PVC pipes and joints, and 70% of agricultural film is recycled for use in flooring material.

### Examples of Recycling PVC Products



## Related Information

---

### > [Vinyl Environmental Council](#)

#### **Shintech, Inc. achieved the Vantage Vinyl certification of the Vinyl Sustainability Council (VSC)**



The Vinyl Sustainability Council (VSC) was formed in 2016 to further advance the efforts of the vinyl industry as it addresses sustainability and related issues in North America. Shintech, Inc. joined VSC in 2016 and working together to develop and implement advanced practices and innovation leading to a path of continuous improvement throughout the industry. To these efforts, the group also achieved the Vantage Vinyl certification the first year the certification program was begun in 2019 and every year since. In VSC, there are many committees, and many people are participating in the programs to further advance the Vinyl Sustainability Programs. There are three main categories that each member company must participate in, Recycling, HSE (Health, Safety, Environment) and Emissions related to land, air and water. There can be sub committees under each category. PVC is one of the sustainable polymers and is easily recycled. We will keep working together with VSC to make the world understand about sustainability of PVC and what we are trying to do.

## Related Information

---

### > [Vinyl Sustainability Council](#)

#### **Recycling the Use of Product Shipping Cartons**

Shin-Etsu Chemical started recycling product shipping cartons for heat-dissipating silicone grease from FY2018. Heat-dissipating silicone grease must be transported while frozen to stabilize its product quality. Therefore, we used dry ice to cool products in disposable boxes in transit in the past. As a result of extensive research conducted collaboratively with customers, the company has successfully developed the new packaging that can be recycled multiple times while maintaining optimal temperatures. In addition, this new packaging eliminates the need for dry ice, resulting in a reduction of 28.2 tons of carbon dioxide per year.

## Employee Initiatives



Ms. LF,  
Environmental department,  
Shintech Louisiana plant  
(USA)

### 1. Please tell us about your current responsibilities.

I joined the company as an environmental consulting engineer, and currently serve as the Environmental Superintendent of our plant. Specifically, management of our growing team of environmental professionals, coordination and review of all environmental reporting, supporting the facility units with any environmental concerns and conducts environmental education. I also support comply with regulations related to air, water, or waste permitting requirements.

### 2. How does the plant manage its environmental impact?

At Shintech, we believe that environmental protection is everyone's responsibility and that efforts to reduce environmental impact are an important measure of employee performance. At our manufacturing unit, we conduct weekly environmental inspections at each unit to confirm compliance with internal and external environmental requirements. The environmental department confirms the inspection results of each unit every month and holds quarterly meetings with each unit to discuss future initiatives. Shintech Louisiana also has internal auditors who focus on various aspects of the company's environmental response and report directly to environmental department and management on proposed changes and best practices. We also support inspections by local regulatory agencies to comply with air, water and waste requirements. Potential environmental risks discovered through these inspections are communicated to manufacturing sites. Additionally, during construction, the company took steps to minimize impacts on surrounding wetlands and woodlands, minimizing impact on Louisiana's rich natural resources.

### 3. Please tell us about Shintech's resource-saving initiatives.

Reducing or eliminating the generation of waste has been and continues to be a prime consideration in research, process design, and operations. It is viewed by management with equal importance as safety, yield, and loss prevention. And also, Shintech as a PVC manufacturer is sensitive to the usage of plastics. We are currently working on the recycling of plastics used in our facility and recently approved a project that will result in the recycling of plastic totes and catalyst jugs that contained chemicals used in our process. In addition, in order to reduce water usage, we have installed a closed-cycle recirculating system for their cooling towers to reuse water. Some of our plants recycle some of the treated wastewater back into the manufacturing process, as well as make effective use of rainwater. We also use waste heat boilers and exploring other heat capture avenues to reduce chemical emissions into the atmosphere and use of fossil fuels. Further more, we have begun on retrofitting the facility to use hydrogen instead of natural gas. Hydrogen is produced in the process of electrolyzing salt water to obtain chlorine. Until now, we have used natural gas in our factory boilers or released it into the atmosphere. We are working to expand the use of natural gas as a substitute or complement for combustion in other processes, and at the same time we are considering partnerships with other companies regarding usage methods.

### 4. Does Shintech educate employees about measures for reduction of environment impacts?

Shintech conducts annual training for all employees. And also, we meet with the units on resource conservation efforts in which we share our best practices and ideas for reducing environmental impacts and improving how our facility operates. We are all responsible for being good environmental stewards both for the people who work at the facility but also for the surrounding communities.

### 5. What do you intend to focus on in the future with regard to resource saving?

My current focus at Shintech are three points, reduction of greenhouse gas emissions and air pollutant emissions by utilizing hydrogen, improve facility operations to minimize the use of fossil fuels, and improve waste disposal by improving the efficiency of raw material use.

And also, I would like to engage in activities to raise awareness of environmental issues and improve our facility and the community in which we work. I will continue to improve our training programs to educate our employees and stakeholders.

## Energy-saving, resource-saving, and reduction of environmental impacts

### Policy

The Group will further promote energy conservation and the effective use of resources, and work to resolve a variety of environmental issues for the future of the Earth.

### Awareness of Issues

We recognize that specific measures to combat climate change, the efficient use of limited resources, and a circular economy<sup>1</sup> are key issues that companies face. The Group is committed not only to contributing to the global environment, but also to enhancing our competitiveness and achieving sustainable development through efforts to conserve energy, effectively use resources, and reduce the environmental impact of our manufacturing processes.

<sup>1</sup>Circular economy

Economic activities to recycle and circulate existing resources, such as converting waste after use into resources for another business

Environment Management

Response to Climate Change

Resource Saving

Biodiversity and Pollutant Countermeasures

Conservation of Biodiversity

Reduction of chemical emissions

Prevention of Air Pollution

Prevention of Soil Pollution

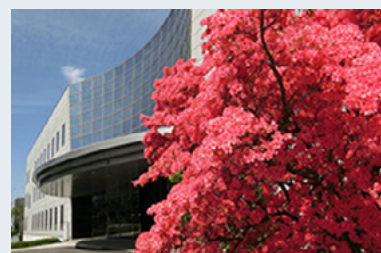
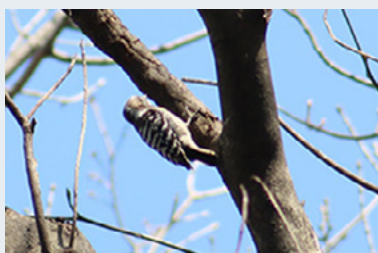
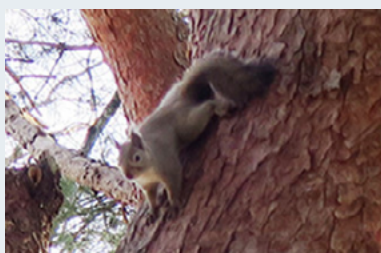
## — Conservation of Biodiversity



The Shin-Etsu Group aims to design environmentally considerate product starting from the product development stage. At the same time, we are also meeting our responsibilities as a chemical company by working actively to ensure the strict control of chemical substances, mitigate global warming, reduce energy consumption, reduce the amount of waste generated, prevent air and water pollution, and make other environmental contributions. We are also engaged in activities such as tree planting at our plant sites in compliance with the Factory Location Act and voluntary river cleaning in areas around our plants. Furthermore, we request our suppliers to implement environmental conservation initiatives in accordance with our CSR procurement guidelines. The Group preserves the earth's ecosystem through these efforts.



Nearby river cleanup effort  
(June 2021, Shin-Etsu Chemical Takefu Plant)



Animals and plants that live and grow in the premises of our factories (From the left: squirrels, Japanese pigmy woodpeckers, and Kirishima azaleas at the Shin-Etsu Handotai Shirakawa Plant)

### **Biodiversity Conservation Efforts of Our Pulp Suppliers**

We have purchased pulp derived from wood as the main raw material of cellulose derivatives. When purchasing pulp, we ask all our pulp suppliers to consider the conservation of biodiversity, and we have confirmed that they have all obtained national and/or international forest certifications. In addition, we work hard to learn about our pulp suppliers' biodiversity activities.

### **Participated in a meeting of the Roundtable on Sustainable Palm Oil (RSPO)**

In February 2021, the Company participated in a meeting of the Roundtable on Sustainable Palm Oil (RSPO) as an associate member. The RSPO is a non-profit organization that promotes sustainable growth and use of palm oil by way of cooperation within the supply chain and open dialogue with interested parties. The Company agreed with the purpose and participated in the RSPO, and obtained mass balance certification in March 2023.

## **— Reduction of chemical emissions**



The Group strictly manages the discharge of necessary chemical substances. The Group works to reduce chemical release with proper manufacturing processes and the proper operation conditions of pollutant treatment facilities. In addition, the Group reports the amount of chemical substances released and transferred in the environment according to the PRTR system<sup>1</sup> under the PRTR Law.<sup>2</sup>

In FY2021, we invested in the recovery of chloromethane by increasing the separation capacity of the silane synthesis rectification column, thereby lowering the emissions intensity and decreased emission in FY2022. Additionally, improved cleaning processes have further reduced ammonia and hydrogen fluoride emissions.

The Group does not use or produce substances that fall under the Stockholm Convention on Persistent Organic Pollutants.<sup>3</sup>

---

<sup>1</sup> PRTR system

Chemical substance release and transfer notification based on the "Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof"

<sup>2</sup> PRTR Law

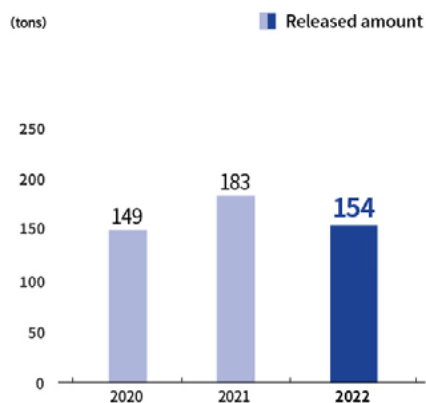
Short for "Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof," it is intended to promote the voluntary control of chemical substances by business operators in order to prevent the risk of damaging the environment.

<sup>3</sup> Stockholm Convention on Persistent Organic Pollutants

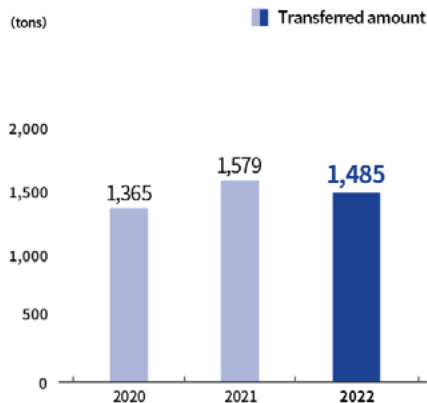
It is a convention that prohibits or restricts the production, use, export, or import of designated substances for the purpose of reducing persistent organic pollutants that would require immediate attention. It is also known as the Stockholm Convention or POPs Convention.



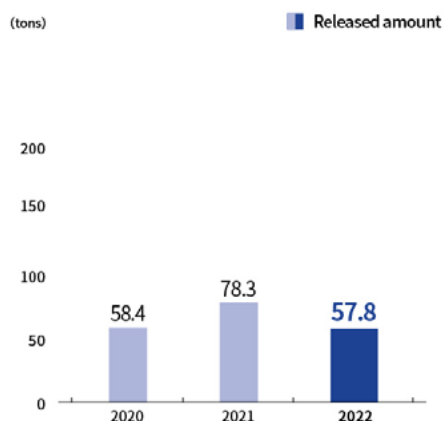
**PRTR Controlled Substance:  
Trend of Total Amount Released**



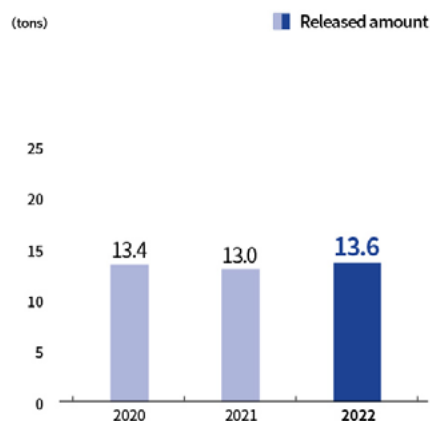
**PRTR Controlled Substance:  
Trend of Total Amount Transferred**



**PRTR Controlled Substance:  
Chloromethane Release Trend**



**PRTR Controlled Substance:  
Chloroethylene Release Trend**



\* The figures are aggregated only for Shin-Etsu Chemical and consolidated companies in Japan.

\* The amount of emissions of substances designated by the PRTR system changes depending on the production volume.

**Related Information**

[> Sustainability Data](#)

**— Prevention of Air Pollution**



The Group is working to reduce emissions of air pollutants by setting emission reduction targets at each of our Group companies and by converting to the use of fuel components with less sulfur. Each group company carried out regular investigations on their emitted gas to confirm that they comply with laws and regulations.

**FY2022**

**Target:**

Reduce emissions of air pollutants in terms of production intensity at an average annual rate of 1%.

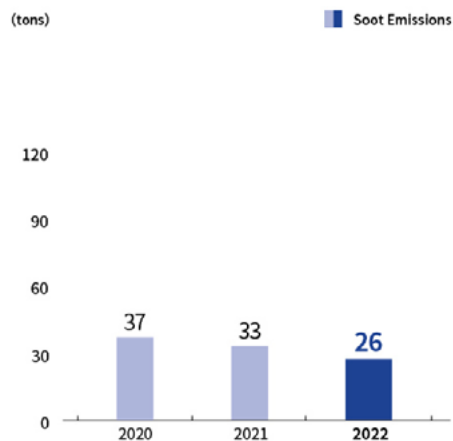
**Results:**

Soot was decreased 30.0%, and Sox was decreased 5.6%.

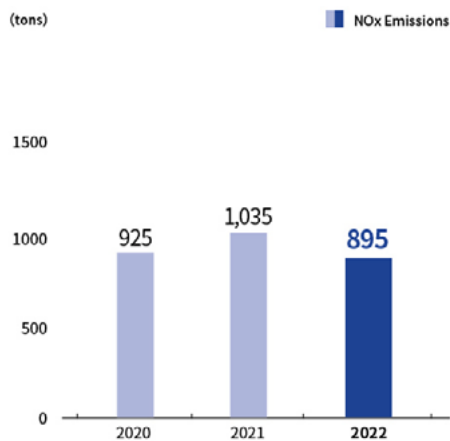
**Evaluation:**

The target was achieved.

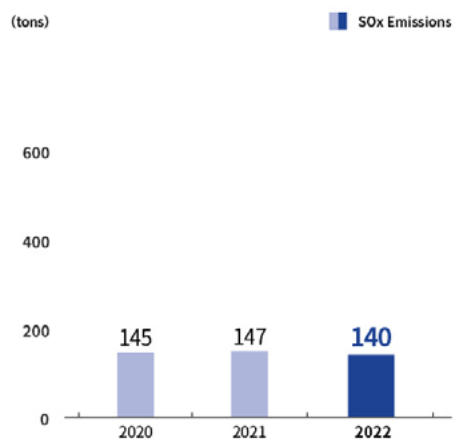
### Soot Emissions Trends



### NOx Emissions Trend



### SOx Emissions Trend



### Related Information

[> Sustainability Data](#)

## — Prevention of Soil Pollution



Groundwater and soil monitoring is carried out at each plant in accordance with the Soil Contamination Countermeasures Act, and we make sure that we are in compliance with laws and regulations. In FY2022, the company performed groundwater and soil monitoring 239 times at its plant sites.

# Product Quality Improvements and Product Safety Control

## Policy

The Group will stably supply high-quality products to customers.<sup>a</sup>

## Awareness of Issues

The Group is working to achieve "Claim Zero." The superior quality of general-purpose products as well as high-value-added products will lead to non-price competitiveness. In order to ensure a stable supply of products, it is essential for the sales, R&D, production, quality assurance, and shipment departments to fulfill their respective roles. In addition to product characteristics, environmental and health safety are also important factors for product quality.

Quality Control



Employee Initiatives



Quality Audits and Support



Product Safety Control



## — Quality Control

The Group focuses on stably supplying the high-quality products that customers demand. In quality control, we are committed to "defensive quality control" that does not produce or ship irregular products, and "aggressive quality control" that minimizes variations in quality and creates quality that cannot be followed by other companies. We have established a robust internal quality management system and are continuously working to improve quality and reduce deviations and waste.

In each of our business divisions and group companies, Sales Department, R&D Department, Production Department, and Quality Assurance Department cooperate in the following roles to respond customer requests.

### Sales Department

Understands the customer's requests, and promptly and accurately share the information with our R&D Department and Production Departments.

### Research and Development Department and Production Department

Research and develop new products and improve existing products based on the customer's requests. Also promote the automation of the manufacturing process to achieve consistent quality.

### Quality Assurance Department

Makes the final quality confirmation on the product while taking into account product characteristics and customer usage.

Enhances the accuracy of quality measurement by pursuing the automation of measurement processes to eliminate variations due to quality measurement personnel, sample preparation, and measurement procedures. In addition, converts measurement results into data and used to prevent typing errors when creating inspection tables and labels.

Almost all of the Group's manufacturing bases, both domestic and overseas, have obtained certifications for their quality control systems, such as ISO 9001. Furthermore, some Shin-Etsu Chemical plants and group companies have acquired quality management system certifications such as IATF16949.<sup>1</sup> We have also established a strict rule to respond to all inquiries of product quality from customers within two business days.

<sup>1</sup> IATF16949

A quality management system for the automotive industry

## Related Information

> [ISO 9001 Certification of the Shin-Etsu Group](#) 

## Employee Initiatives



Ms. ZP,  
Quality Assurance  
Department,  
Shin-Etsu Silicones  
Taiwan (Taiwan)

### 1. Please tell us about your current responsibilities.

Currently, as the manager of the Quality Assurance Department, I am in charge of ensuring product quality, inspecting manufacturing processes, responding to complaints, calibrating and managing measuring equipment, and certifying and educating inspectors.

### 2. Please tell us about the product safety management efforts of the Quality Assurance Department.

Our plant manages product safety in accordance with the ISO9001 quality management system. Specifically, we conduct acceptance inspections of raw materials, make acceptance judgments and put a note of chemical substances information on it. We also provide regular maintenance of inspection and measurement equipment and help implement changes in product design. In addition, we conduct quarterly internal quality audits to supervise corrective and preventive measures and confirm the effectiveness of corrective actions.

### 3. How does the Quality Assurance Department work with the sales, R&D, and production departments?

We work together in the following roles to meet the needs of our customers.

#### · Sales Department

Preparation of product specifications, preparation of COA<sup>1</sup>, QC<sup>2</sup> process chart and complaint report, explanation of product shelf life and storage conditions, preparation of complaint report, provision of process change notice to customer, answering to customer audit questionnaire and inspection questions.

#### · R&D Department

Execution of product design changes, pre- and post-trial discussions, development of new product specifications, chemical analysis of customer complaints.

#### · Production Department

Inspection and judgment of intermediates and products, support for quality education and training of employees and managers, conducting quarterly internal quality audits, investigating the causes of customer complaints, tracking corrective and preventive actions, organizing quality improvement meetings, correction of process abnormalities and preventive measures and confirmation of effects after correction.

### 4. How do your company control and ensure product safety?

The person in charge at the Director's Office of the Technology Center prepares and issues SDSs to ensure the safety of our products. In addition, as a safety measure for product transportation, we ensure that products are filled and packaged according to packaging specifications, and that accidents during transportation from manufacturing to shipping do not affect the quality or environmental safety of the product containers and appearance. Dangerous goods are marked with UN number, dangerous goods classification, pictogram classification, etc. according to UN standards. Furthermore, we provide our customers with product specifications, COA, and QC process charts, and explain the shelf life and storage conditions.

### 5. What do you want to focus on in terms of product quality and safety management in the future?

(1) In order to deliver accurate data to our customers, automatically import inspection data for each item from the quality assurance department into the shipping report system.

(2) Implementation of training according to standard procedures for inspectors in the quality assurance department.

(3) Confirmation and follow-up of improvements to issues pointed out in internal quality audits of each department.

(4) Prevention of contamination of products with foreign substances and management of products that do not contain harmful substances.

Focusing on the four items above, we will continue to focus on stably supplying the high-quality products that our customers demand.

<sup>1</sup>COA(Certificate of Analysis): A legal document created to ensure that a product meets the specifications printed on its label. Assurance to the customer that the manufacturer has duly considered its product and completed the necessary quality control processes.

<sup>2</sup>QC (Quality Control Chart) : Management characteristics and methods are described for each process from the arrival of raw materials to product shipment.

## — Quality Audits and Support

Since 2000, we have conducted quality audits annually to improve quality and customer service. Quality audit evaluates quality from two different viewpoints: customer and quality cost. Through this, we work to identify the root cause of quality issues to prevent re-occurrence. In the quality audit in FY2022, the following items were audited as priority items:

(1) "Efforts to reduce variations in manufacturing processes":

In addition to improving the conventional manufacturing variations, we confirmed the improvement status of quality through the introduction of DX and AI.

(2) "Automation of inspection process":

We are promoting automation of measurement to prevent human errors caused by a person's misunderstandings and to eliminate measurement variations which are dependent on persons. In this audit, we confirmed the status of improvement in accuracy of quality measurement.

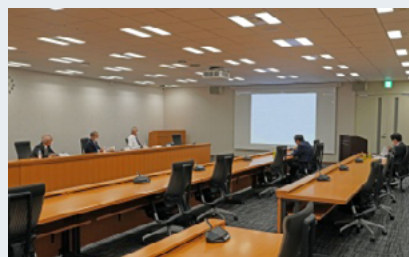
(3) "Promotion of quality improvement activities":

We confirmed the status of quality improvement activities such as "yield improvement" and "careless mistakes," which have been continuously implemented.

Six Sigma programs<sup>1</sup> were also deployed throughout the company to improve the quality level.



Quality audit  
(September 2022 ,  
Shin- Etsu Chemical Kashima Plant)



The 22 nd debrief session of the  
results of Shin- Etsu Six Sigma  
(February 2023, Shin-Etsu Chemical  
Head Office)

---

<sup>1</sup> Six Sigma programs

Quality improvement method developed by Motorola in the 1980s. Focusing on processes with quality variation, it is designed to minimize variations within the processes, thereby reducing the incidence of quality defects. This approach has been adopted across the Group.

## — Product Safety Control

We manage product safety, from product development to transportation, based on internal regulations. We have established regulations for each stage of chemical substance procurement, development, manufacturing, and sales, and strictly manage them. We are actively involved in conducting field surveys related to the manufacture, use, and disposal of chemical substances, and in obtaining data for research, in cooperation with the government and organizations to which we belong. For example, in response to the POPs Convention, PFOS, which is designated as a type of specified chemical substance (prohibited to manufacture and use) under the Chemical Substances Control Law<sup>1</sup>, is used as a foam fire extinguisher. PFOA was used as a product raw material. Although, both are in the process of being changed to alternative chemistries or have completed the change. In addition, we are investigating the use of substances that are scheduled to be regulated in Japan and overseas, and are taking steps to change them. Furthermore, we are taking measures to comply with the regulations stipulated in the revised Industrial Safety and Health Act to minimize the impact on workers when manufacturing and handling chemical substances. To ensure the safety of new chemical substances, we assess and confirm environmental and health risks at the development stage. When developing new chemical substances, we focus on products and manufacturing technologies that do not use hazardous substances that have been designated by the Industrial Health and Safety Act and Chemical Substances Control Law, as well as the EU RoHS Directive.<sup>2</sup> Furthermore, we make sure that the necessary notifications and reports are submitted according to laws and regulations.

We offer customers information such as on product hazards and harms in the form of SDS<sup>3</sup> in order to ensure the proper transmission of information to customers and transportation firms. In addition, we request customers to handle products safely by complying with laws and regulations, installing abatement equipment, wearing protective equipment and so on through SDS.

As a product transportation safety measure, we issue yellow cards<sup>4</sup> and container yellow cards<sup>5</sup> that are affixed to containers. In accordance with the Industrial Safety and Health Act, we also attached symbols to indicate hazardous and harmful substances in accordance with GHS<sup>6</sup> on product containers and packaging.

---

<sup>1</sup> Chemical Substances Control Law

Short for "Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.," it is intended to prevent environmental pollution by chemical substances that can be harmful to human health or to ecosystems.

<sup>2</sup> Restriction of Hazardous Substances (RoHS)

An EU directive that restricts the use of certain hazardous substances in electrical and electronic equipment.

<sup>3</sup> Safety Data Sheet (SDS)

SDS lists the physical and chemical properties of chemical substances, together with their harmfulness and emergency response procedures. Designed to promote safer use of chemical substances and prevent accidents and incidents, SDS are supplied by manufacturers, importers, and distributors to customers during sales or shipment.

<sup>4</sup> Yellow cards

Yellow cards are cards that describe all relevant information on the treatment required in case of an accident during the transportation of chemical substances. The cards are handed to the transport contractor, who carries them when transporting the chemical substances in tanker lorries, etc.

<sup>5</sup> Container yellow cards

The standard yellow card system is not suitable for use with mixed cargoes and small-lot deliveries; instead, each container carries a label displaying the safety information such as the UN number of a chemical name and the ERG guide number.

<sup>6</sup> Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

An internationally standardized system of classification and labeling of chemicals.

### Related Information

#### > Sustainability Data



## Promoting CSR Procurement and the Diversification of Supply Sources

### Policy

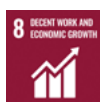
The Group will build a supply chain to conduct fair procurement and to consider the environment.

### Awareness of Issues

Environment issues and human rights infringement by raw material suppliers are important management risks. We have been working on CSR procurement more than ever before, and we check the fairness of our suppliers' activities based on our CSR Procurement Guidelines. We also recognize that the stable procurement of high-quality raw materials at reasonable prices leads to stable production and high-quality products.

Basic Procurement Policy	Compliance with the Act against Subcontractor	Sustainable Procurement	Announcing the "Declaration of Partnership Building"
Procurement Audit	Procurement Conferences	Control of Chemical Substances Used as Raw Materials	Employee Initiatives

### — Promoting CSR Procurement



The Shin-Etsu Group is working on CSR procurement, and we have created the Basic Procurement Policy, which serves as the basis for the CSR procurement, and have made it known throughout the Group and posted on our website. We ask suppliers to understand the "Basic Procurement Policy" and to incorporate the content of the policy into their supply contracts. To let suppliers better understand the policy, we created the CSR Procurement Guidelines, which is posted on the website. We held meetings to explain the guidelines to suppliers in July 2017 and January 2018, asking suppliers for their understanding and cooperation in promoting CSR. In FY 2022, we also sent the "Basic Procurement Policy" and "CSR Procurement Guidelines" to business partners of our group companies to familiarize them with our group's approach to CSR procurement.

In January 2018, we established the Supplier Hotline to ensure the transparency and fairness of transactions between the Group and suppliers. Business partners of the Group can report by e-mail.

# Shin-Etsu Group's Basic Procurement Policy

## 1. Legal compliance

As the most important of its management objectives, the Company conducts all of its business activities in a law-abiding spirit. Each and every staff member is made fully aware of corporate social responsibilities and they carry out their business activities in strict conformity with the law, business ethics and the various rules and regulations of the Company.

In its purchase and procurement activities, the Company acts in good faith and in a fair manner, and does not practice favoritism, nor make improper demands. In addition, based on mutual trust, not only between the Company and the suppliers that the Company directly procures from, but also with vendors in the linked supply chain, all those companies involved carry out their business activities in strict accordance with the principal labor standards of International Labor Organization (ILO), any laws and regulations related to protection of the environment and business transactions including those of small- and medium-size enterprises.

## 2. Promotion of corporate social responsibility

The Company places primary importance on corporate social responsibility (CSR) activities.. For the promotion of CSR, the cooperation of all the Company's suppliers is essential, and we ask you to comply with the Company's policies in the areas listed below. At the same time, we will strive to maintain mutual trust and close, friendly relationships.

- (1) Strive to strengthen and promote conformance with social norms, business ethics and laws.
- (2) Place first priority on assuring safety, protection against disasters and effective environmental preservation (Cooperate in "Green" environmentally friendly purchasing and procurement activities, and at the same time, each person should have a consciousness of the importance of these issues.
- (3) Conduct risk management activities such as paying attention for accurate and fair disclosure of information on assuring the delivery of safe and reliable products and taking speedy measures to deal with various contingencies
- (4) Respect for human rights and promote anti-discriminatory practice. Comply with the labor standards of the International Labor Organization (ILO) and prohibit unfair labor practices.
- (5) Protect against the disclosure of classified information, personal confidentiality and respect the rights of the third party's intellectual property.
- (6) Pay attention to biodiversity preservation.
- (7) Avoid the purchase of Minerals that are clearly involved in conflicts and human rights infringement in conflict-affected and high-risk areas (CHAHRA).

## 3. Supplier selection

The Company follows an open-door policy regarding its purchasing activities and globally seeks suppliers based on open, fair, impartial and equal-opportunity principles. The company selects suppliers in a rational and comprehensive manner, taking into consideration the following core considerations: 1. Globally competitive in product quality, price, delivery time and supply stability 2. Objective standards such as suppliers' management stability, reliability and technological superiority. 3. Matters as mentioned in "2. Promotion of corporate social responsibility" above

## 4. Development and review of the suppliers

The Company provides suppliers with the essential information necessary for transactions and also cooperates with suppliers' VA and VE improvement activities as well as in activities related to the maintenance and improvement of product and service quality. The Company also routinely or as necessary promotes evaluation and review of suppliers' performance.

\* VA: Value Analysis, VE: Value Engineering Method for developing high value new products satisfying customers and improving existing products

## Related Information

> [Shin-Etsu Group CSR Procurement Guidelines](#) 

> [Supplier Hotline](#)

## — Compliance with the Act against Delay in Payment of Subcontract Proceeds, Etc. to Subcontractors

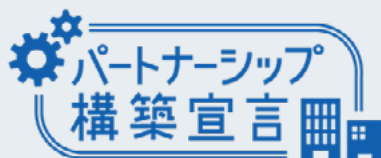
Staff members in charge of purchasing and procurement attend seminars on the Subcontract Act to gain an understanding of it. We also conduct regular internal audits of subcontracting transactions to ensure full compliance with the Subcontract Act. In addition, we make sure that all subcontractors that are subject to the Subcontract Act are in full compliance by periodically checking the details of existing transactions and reports on new transactions.

## — Sustainable Procurement

In our "Basic Procurement Policy," the Group has declared our dedication to eliminating minerals from conflict-affected and high-risk areas (CAHRAs) that are clearly involved in conflicts and human rights infringement in all product procurement. We ask that all suppliers adhere to this policy, and we regularly perform studies of pertinent minerals, tracking their production all the way back to the smelting process. Furthermore, in February 2021, the Company participated in a meeting of the Roundtable on Sustainable Palm Oil (RSPO) as an associate member. The RSPO is a non-profit organization that promotes sustainable growth and use of palm oil by way of cooperation within the supply chain and open dialogue with interested parties. The Company agreed with the purpose and participated in the RSPO, and obtained mass balance certification in March 2023.

## — Announcing the "Declaration of Partnership Building"

We announced the "Declaration of Partnership Building" in December 2020, agreeing with its concept "Building the mutually beneficial relationships among entirety of the supply chain". In particular, during a negotiation of the pricing of a deal, we agree to include the appropriate profits of suppliers in the pricing and make sure that we do not make unreasonable cost reduction requests.



### Related Information

[> Multi-stakeholder policy](#)

## — Procurement Audit

By asking suppliers to complete a supplier CSR procurement questionnaire, we confirm whether they conduct business activities in accordance with the Group's "CSR Procurement Guidelines." Additionally, we visit suppliers in Japan and overseas whenever necessary to carry out audits.

## — Procurement Conferences

The Purchasing Department holds a company-wide meeting every six months with all purchasing department personnel to discuss material procurement. In this meeting, we do not only report material procurement, but we also train purchasing department personnel according to the "CSR Procurement Guidelines," check the status of CSR procurement, and learn the latest examples of CSR procurement inside and outside the Company.

## — Control of Chemical Substances Used as Raw Materials

The Group checks the ISO 14001 acquisition status of business partners and considers prioritizing suppliers that have an ISO certification so as to purchase materials with smaller environmental impact. When signing contracts on specifications for the supply of raw materials, we work to confirm the following:

- Compliance with relevant laws and regulations regarding the use of chemical substances that affect the environment in products and packaging materials
- Compliance with the RoHS Directive
- Substance management using SDS or chemSHERPA

## Employee Initiatives



Ms. SJ,  
Purchasing Department,  
SE Tylose (Germany)

### **1. Please tell us about your current responsibilities.**

I am purchasing raw materials and packaging materials and acting as Head of Purchasing and Supply Chain Logistics at SE Tylose.

### **2. Please tell us about your company's initiatives for sustainable procurement. How do you manage the supply chain?**

Over the last years Sustainability initiatives are becoming increasingly important also for SE Tylose. In order to focus the activities and results onto this subject, in 2021 a sustainability team, of which I am also part, was established.

This working group contains of members of different departments, like Environment and Safety, R&D, Human Resources, Purchasing and also our Site Manager is part of this team.

In regard to purchasing, we have developed a code of conduct for our business partners and have added sustainability items to our supplier surveys as well as to our supplier audit questionnaire.

My experience in Purchasing is helpful in order to manage the current and future challenges arising from the "Act on Corporate Due Diligence Obligations in Supply Chains". This law requires companies to ensure that all purchasing activities are in line with social and legal standards of the European Union, and my team is expected to comply with this law.

### **3. Do you ask suppliers to comply with the Shin-Etsu Group's Basic Procurement Policy and CSR Procurement Guidelines? Do you conduct CSR procurement audits?**

From 2022, we have started sending our Group Code of Conduct to our suppliers. We want to achieve on the long term, all of our main supplier to accept the here defined principles and requirements.

In addition, we conduct audits at suppliers on a frequent base and I am part of the audit team. During these audits, we investigate that our suppliers comply with our policies and sustainability goals. All audits are documented to ensure suppliers are making progress and meeting recommendations based on our findings.

### **4. Do you provide training on CSR procurement to employees in the Purchasing Department?**

As supervisor of this team the regular discussion about this topic is part of my responsibility of my job. As our Purchasing Department is a manageable team of 5 colleagues all of them are aware about the growing importance of CSR, and involved into current projects. As a member of our sustainability team I frequently share my knowledge and newly acquired information on CSR procurement with my colleagues.

### **5. What do you intend to focus on in the future regarding of Sustainable Procurement?**

At the moment we are investigating a frequent change from fossil raw materials to sustainable raw materials during the next years in order to achieve the targets of the European Union for 2030 .

The focus here is on petrochemical products. We still have a long way to go, but we want to be a pioneer on this important and forward-looking topic, and we are also interacting with leading producers. For our major raw material wood pulp we are already on a successful path as all of our suppliers are able to confirm by certification that the pulp is processed in a sustainable manner. We are also currently checking the option to purchase Caustic Soda that is produced using green energy. Another important subject is circular economy, here the focus is on packing material, mainly how we can reuse material and reduce waste. We have started several projects, in order to partially replace virgin materials by recycled materials and are looking for options to reuse. Sustainable procurement has a significant impact on ESG rating, and my target is to contribute together with my team to further improve our rating.

# Respect for Human Rights, the Development of Human Resources, and the Promotion of Diversity

## Policy

The Group will respect human rights in all business activities, and promote the development and diversity of human resources.

## Awareness of Issues

The Group respects human rights as the basis for all business activities. Amidst rising global interest in human rights, it is important to comply with this policy and respect the human rights of the Group and all stakeholders. Furthermore, we believe that the development and diversification of human resources is indispensable for the growth of our business and the sustainable development of the Group.

Respect for human rights

Human resource development

Creating a comfortable working environment

Respect for Human Rights

Human Rights Promotion Structure

Human Rights Risk Surveys

Priority Issues for Human Rights Risks

Human Rights Awareness Education

Consulting and Reporting on Human Rights

## — Respect for Human Rights

The Shin-Etsu Chemical Group supports the Universal Declaration of Human Rights. At the same time, we respect basic human rights in accordance with the core labor standards of the International Labour Organization (ILO). We conduct our business based on the constant respect for human rights at our locations around the world. In May 2019, we compiled this policy into the "Human Rights Policy", thoroughly implemented it within the Group, and disseminated it to public.

In addition, in order to confirm the status of compliance with our Human Rights Policy, we conduct an annual survey of our consolidated companies regarding items related to respecting human rights<sup>1</sup>, labor management, and whether employment is properly implemented in accordance with the laws and regulations of each country and region. Furthermore, we consider human rights impacts on local communities when building new plants.

<sup>1</sup>Items related to respecting human rights

Prohibition of child labor, proper working hours, decent wages, proper employment contract in writing, prohibition of inhuman treatment, prohibition of discrimination, freedom of association

[The Shin-Etsu Group Human Rights Policy ^](#)

### The Shin-Etsu Group Human Rights Policy

Shin-Etsu Group (the "Group") engages in business based on its Business Principle, "The Group strictly complies with all laws and regulations, conducts fair business practices and creates unrivaled value for society and industry through the provision of key materials and technologies." The foundation of this is respect for human rights. The Group respects the human rights of all individuals. All our Group companies worldwide respect human rights perpetually in accordance with the international code of conduct\* and actively promote the following actions to respect human rights.



## Respect for Human Rights

### 1. Prohibition of discrimination

We do not discriminate at all on the basis of nationality, race, ethnicity, gender, religion, personal views, beliefs, age, social status, disability, sexual orientation, gender identification, labor union participation, health, marital status, political opinion, or any other status.

### 2. Prohibition of damaging human dignity

We do not in any case conduct sexual harassment, power harassment, maternity harassment or any other acts that damage human dignity.

### 3. Protection of privacy

We protect the privacy of individuals and handle personal information properly in accordance with the applicable laws and regulations of each country.

### 4. Respect for basic labor rights

We respect the workers' right to organize, the right of collective bargaining, and further rights given to workers to establish, maintain, and improve trust and good cooperative relationships through dialogue between labor and management.

### 5. Prohibition of child labor and forced labor

We prohibit our operations in all countries and regions from using child labor in accordance with the applicable laws and regulations of each country. We also prohibit the use of forced labor.

\* International code of conduct

The Universal Declaration of Human Rights, ILO International Labour Standards, UN Guiding Principles on Business and Human Rights, UN Global Compact's 10 Principles, etc.

## Activities for Respecting Human Rights

### 1. Human rights awareness

The people responsible for human resources in each business site and company of the Group will strive to develop the proper understanding of human rights and awareness of respect for human rights through activities including education for employees on human rights.

### 2. Human resources development

The Group will create an environment in which diverse individuals can work at their full capacity and equally give all employees opportunities aligned with their aptitudes to develop and utilize their abilities.

### 3. Working environment

The Group will make efforts to create a sound and comfortable working environment and to ensure safety.

### 4. Prevention of human rights infringement

The Group will make efforts to prevent the infringement of human rights in the course of business activities by conducting human rights due diligence\* in accordance with the UN Guiding Principles on Business and Human Rights.

### 5. Measures for handling issues

If there are concerns regarding human rights infringement in our business activities, the Group will take appropriate measures promptly to resolve them.

### 6. Promotion of respect for human rights

The Group will encourage all people associated with the Group to comply with international standards for human rights.

\* Human rights due diligence

To regularly implement the identification, evaluation, preventative/corrective measures, investigation, monitoring, and information disclosure of human rights risks in accordance with the Group's human rights policy.

Established on May 21, 2019

## — Human Rights Due Diligence

### **Human Rights Promotion Structure**

The Human Rights Due Diligence Subcommittee established within the Sustainability Committee and the Shin-Etsu Chemical's Human Rights Enlightenment Promotion Committee play a central role in promoting overall human rights due diligence based on the UN Guiding Principles on Business and Human Rights. The subcommittee formulates human rights policies, conducts human rights risk surveys for the Group, identifies priority human rights risk issues, and the establishment and maintenance of a system for consulting and reporting on human rights in cooperation with relevant departments.

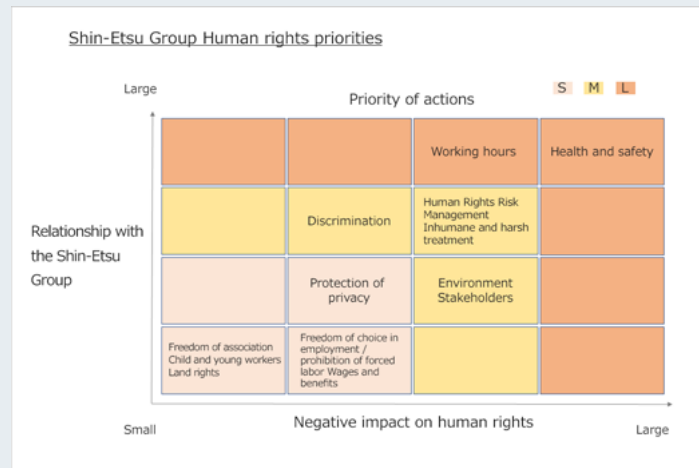
Furthermore, the company is a member of both the Industrial Federation for Human Rights, Tokyo and the Corporate Federation for Dowa and Human Rights Issue, Osaka. We discover human rights developments and obtain latest information through federation activities and training sessions held by administrative organizations to promote awareness of human rights.

### **Conducting Human Rights Risk Surveys**

In December 2019, we began conducting human rights risk surveys with all Group companies to identify human rights risks in the Group's value chain. As a result, we were able to confirm that no serious violations of human rights had occurred that conflicted with our human rights policy. The Group will continue to conduct corporate activities based on respect for human rights.

## Identification of Priority Issues for Human Rights Risks

In FY2021, we evaluated the priority of human rights issues based on the risks assumed for the Group from the two axes of "severity of potential impact on human rights" and "relationship between human rights risk and the company". As a result, the Group identified potential risks related to health and safety and working hours as high. In addition, in an analysis of the responses to the human rights risk survey, approximately 40% of Group companies responded that human rights management in the supply chain is important, indicating the need to promote efforts to respect human rights throughout the supply chain. The results of the evaluation were reported to the outside directors and outside audit & supervisory board members. The received comments and the survey results were disseminated throughout the Group as the priority risks for human rights risks of the Group. We will continue to address priority issues step by step.



### Initiatives for FY2022

#### Working hours:

The Shin-Etsu Group is actively working to introduce a system to accurately grasp working hours based on computer logs and other information. In addition, we are promoting the development of systems and working environments that enable flexible and highly productive work styles, such as the flextime system and telecommuting.

#### Health and safety:

We create the "Shin-Etsu Group Environmental Safety Management Plan", and are working to set specific numerical targets for occupational safety.

### > Implementation Status, Evaluation, and Planned Implementation Items

#### Supply Chain Management:

Starting in 2022, we sent the "Shin-Etsu Group Human Rights Policy," "Basic Procurement Policy," and "CSR Procurement Guidelines" to our major business partners, and we shared our policies regarding sustainability activities, including respect for human rights. In addition, we asked for cooperation in responding to a questionnaire regarding sustainability initiatives, including human rights, and confirmed the status of sustainability initiatives at our business partners.

## — Implementation of Human Rights Awareness Education

The subcommittee works with the Shin-Etsu Chemical's Human Rights Enlightenment Promotion Committee to promote awareness and education of human rights. This committee holds regular human rights awareness training for directors and employees. Human rights Q & A are serialized in our internal company newspaper, and the committee asks people to submit human rights enlightenment mottoes to coincide with our annual human rights week in December. In FY2022, we conducted 40 training sessions on respect for human rights, with 988 employees participating in the training. In the training, basic knowledge and countermeasures regarding power harassment, sexual harassment, LGBTQ, etc. were explained, and efforts were made to raise employee awareness of human rights.



Harassment education  
(March 2022, Shinano Electric Refining Co., Ltd.)

## — Consulting and Reporting on Human Rights

Our group has the following three contact points. The confidentiality of consulters and whistleblowers will be protected, and they will not be treated unfavorably for consulting or reporting.

### ・ Compliance Consultation Office

Officers, employees, advisors, contract employees, part-time employees, and temporary employees can report by email or phone.

### ・ Dial Shin-Etsu

Domestic employees, advisors, contract employees, part-time employees, and temporary employees can consult anonymously by phone.

### ・ Supplier Hotline

Our Group's suppliers can report by e-mail.

# Respect for Human Rights, the Development of Human Resources, and the Promotion of Diversity

## Policy

The Group will respect human rights in all business activities, and promote the development and diversity of human resources.

## Awareness of Issues

The Group respects human rights as the basis for all business activities. Amidst rising global interest in human rights, it is important to comply with this policy and respect the human rights of the Group and all stakeholders. Furthermore, we believe that the development and diversification of human resources is indispensable for the growth of our business and the sustainable development of the Group.

Respect for human rights

Human resource development

Creating a comfortable working environment

Education/Training and Personal Development

Performance-based Personnel Evaluation Systems

Promotion of Diversity

Employee Initiatives

## — Education / Training and Personal Development

The Shin-Etsu Group supports employees' growth through various training systems, which include training for different staff rank, global communication training, auditing student system, environmental education, safety education, and mental health education. As part of digitization measures, AI training also started in FY2021.

### Training for different staff grades

We provide various level-specific training programs to learn management, leadership, communication, and problem-solving skills that are essential for improving performance and are required at each level of the organization.

- General manager training (Advanced management training, S staff group/ M staff group training)
- Section manager training (Middle management training)
- Junior manager training (Line management training/ Staff management training)
- Regular employees (Mid-career employees training, Women employee training, Junior leader training, Third-year training)

### Global Communication Training

The Group is expanding its business activities throughout the world. Competency in a foreign language is an essential skill for smooth operations. Therefore, the company offers the following kinds of training:

- English language training (meeting skills course and presentation skills course)
- Cross-cultural communication training
- Chinese conversation classes

## AI Training

In FY2021, we started the following AI training programs in order to discover and develop human resources capable of using AI and to improve the overall level of AI in the company.

- AI literacy training (e-learning for new and young employees)
- Data analysis skill acquisition training : Problem-based learning for mid-career employees to solve practical problems
- AI project management training : E-learning for general and section manager involved in projects

## Auditing Student System for Employees

In 1962, Shin-Etsu Chemical established an auditing student system for employees. Under this learning system with the goal of improving the workforce, up to about 10 operators from manufacturing sites of the Group are chosen each year to study at universities for one year. In the 60 years since the system was introduced, a total of 547 employees have completed the program and are now active in various workplaces.

## Training system list

	Training for different staff grades		Specialized education		Environment and safety education	Quality control education	Special education	General education	
			AI/MI education						
General manager level	Advanced management training	S staff group/ M staff group	Patent training  Training for adaptation to internationalization  English language training	Introduction course  AI management training  MI training	Specialized education in environmental control and safety  · Supervisor education  · ISO education	Environmental health and safety education  Hazardous materials safety education  Industrial Safety and Health Act.  Radiation		Mental health seminars  · self-care · line-care · Human rights awareness training	
Section manager level	Middle management training								Course for management development training (external raining)
Junior manager level	Line management training	Staff management training	· meeting skills course I/II  · presentation skills course I/II		· Basic training  · PBL**		QC intermediate course		
Regular employees	Mid-career employees		· Chinese conversation Classes				High-pressure gas		
	Women employee					Mono-pressure, boilers, etc.	QC basic course	Auditing student system (1 year)	
	Junior leader training		· Intercultural communication training						
	Third-year training								
	New employee induction/second-phase training				New recruit education				

## New lecturing style in COVID-19 calamity Ms. YD, lecturer in Chinese

I have been in charge of Chinese-language classes at Shin-Etsu Chemical since about 20 years ago. Affected by the global spread of COVID-19, classes took the form of online sessions, an unprecedented format, instead of in-person sessions. At first, the classes were slow to progress partly because I was not accustomed to the online format while being unable to meet learners in person, which made me feel lonesome. I would like to express gratitude to the students who worked hard, undaunted in the face of that hardship. I hope the COVID-19 crisis will end as soon as possible, and hold classes with students in person. I will strive to teach Chinese in an easy-to-understand way so that students can use it effectively for work and travel.



## — Performance-based Personnel Evaluation Systems

The Group has introduced an employee evaluation system that emphasizes their ability and work performance. This system aims to increase employees' motivation by reflecting their performance and attitude to the benefits that they will receive, and evaluates how they meet their challenges to achieve higher goals.

To manage the personnel system in a fair and appropriate manner, evaluation training is provided for all managers who conduct performance review, so that they can carry out personnel evaluations fairly. Transparency is increased by informing evaluation standards to employees. In addition, there is a system of interviews between an evaluator and a direct report to ensure that they can communicate successfully. During interviews, each staff member and their immediate supervisor use Communication Sheets to ensure mutual awareness of expectations and set half-year goals. Furthermore, feedback on progress is given for further development of skills.

### Related Information

#### > 「Multi-Stakeholder Policy」

In April 2023, we announced our “Multi-Stakeholder Policy”. Please refer to the PDF file for details.

## — Promotion of Diversity



### Active Promotion of Diverse Human Resources

The Group hires local employees at overseas Group companies and hires foreign nationals in Japan.

The entire Group is also working to proactively employ people with disabilities and create environments where it is easy for them to work.

Furthermore, in order to promote women's participation and advancement, the Group set a five-year goals in FY2016. From FY2021, we set new five-year goals and started to work on them.

#### Goals to Promote Women's Participation and Advancement

In the next five years from FY2021, the company aims to achieve the following:

1. The rate of hiring women will be 40% for administrative positions and 10% for engineering positions.
2. The number of women in managerial positions, including junior manager level, will be quadruple compared to number in FY2014.

#### Changes in the number of female managers compared to the 2014 level

FY 2020	FY 2021	FY 2022
Approx.258%	Approx.284%	Approx.300%

#### Changes in the rate of hiring women

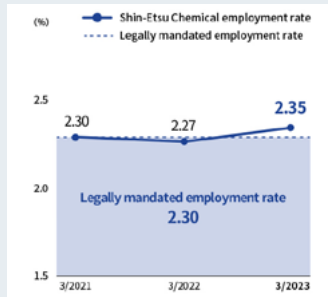
	April 2021	April 2022	April 2023
Administrative position	36.4%	40.0%	42.9%
Engineering position	6.9%	4.5%	6.3%

#### Initiatives to Promote Women's Participation and Advancement

1. Promoting the development of a working environment to support a balance between childcare and work
  - Enhancement of information provision to support work-life balance
  - Continue and expand measures to enable employees to continue working
2. Promote the operation of a fair personnel evaluation system for the appointment of women to managerial positions
  - Promotion of understanding of the system by holding regular evaluator training
3. Providing learning opportunities to encourage employees to change their mindsets
  - Plan and hold trainings to change employees' awareness of women's participation and advancement

## Employment Rate of Persons with Disabilities

We are working to create a workplace where people with or without disabilities can play an active role. At the head office, we are working to maximize employment opportunities by flexibly setting working hours and working locations according to the degree of disability and situation. At our plants, we are improving the environment from both a hardware perspective, such as facilities and equipment, and a software perspective, such as disaster drills, so that people with disabilities can work safely.



Wheelchair ramps  
(Shiin-Etsu Chemical Gunma Complex)

## Related Information

### > Sustainability data

#### Raising Retirement Age

In April 2019, the company raised the retirement age from 60 to 65 after continuing discussions with the Shin-Etsu Chemical Labor Union. It is the first time that such a system was implemented at a major Japanese chemical company. After turning 60, they will receive 80% of the salary received at age 59. We will also raise salaries and promote people based on personnel evaluation.

By adjusting the employment environment after the age of 60, skilled workers at manufacturing sites will be able to pass on the technology and their experience to the next generation.

## Employee Initiatives



Ms. SH,  
Human Resources  
Department,  
Simcoa Operations  
(Australia)

### **1. Please tell us about your current responsibilities.**

After joining the company, I was assigned to the human resources department, and I am working on respecting human rights, developing human resources, and creating an environment where employees can work comfortably. Since we are a small company, we have many opportunities to interact directly with our employees and strive to build good relationships with them. I also work closely not only with HR but also with other departments, so it feels great to be able to tackle our company's challenges as a team.

### **2. Please tell us about your efforts to respect human rights and develop human resources.**

We are continuously working to improve our stakeholder engagement and our recruitment process. We have implemented some initiatives to ensure our supply chain doesn't engage in human trafficking. We have submitted a Modern Slavery Statement to the Australian Border Security to comply with the Modern Slavery Act 2018. Our employees are also trained by external experts on the importance of promoting human rights initiatives in our supply chain. In addition, we have various training systems such as level-specific training programs and safety education on handling equipment and machine. We have also introduced a work-life balance system to make it comfortable for employees to work.

### **3. Please tell us about your efforts to promote diversity.**

I work closely with Australia's WGEA (Workplace Gender Equality Agency). I submit annual reports on diversity, inclusion and gender pay gaps. I am involved in the working groups with other companies and with the Australian Government on Workplace Gender and Equality. I dial into meetings with the teams regularly to find out what and share information with others about what they are doing to promote diversity, inclusion and to the respect of human rights in workplace. I also attend online seminars with our legal team and Australia Work Health and Safety seminars on how to ensure the workplace is safe, diverse, and free from bullying and harassment.

### **4. What do you intend to focus on in the future with regard to respect human rights, development of human resources and promotion of diversity?**

Currently I am updating and implementing some new policies and procedures to ensure we meet the legislation. For example, we completed a Remediation Policy for Human Rights, Team Building Activities Policy and Retention Policy for prevention of outflow of human resources. These policies ensure that our company treats all employees fair and equitable. As for our supply chain we will continually monitor, implement strategies and improve our relationships with Simcoa supply chain to ensure we are not involved with any suppliers that exploit humans to substandard working conditions.

---

\* Personnel subject to human resource development and promotion of diversity in the Group are the employees of and loaned employees from Shin-Etsu Chemical.

# Respect for Human Rights, the Development of Human Resources, and the Promotion of Diversity

## Policy

The Group will respect human rights in all business activities, and promote the development and diversity of human resources.

## Awareness of Issues

The Group respects human rights as the basis for all business activities. Amidst rising global interest in human rights, it is important to comply with this policy and respect the human rights of the Group and all stakeholders. Furthermore, we believe that the development and diversification of human resources is indispensable for the growth of our business and the sustainable development of the Group.

Respect for human rights

Human resource development

Creating a comfortable working environment

System for Work-life Balance

Nursing Care Leave System

Welfare and Benefits

Labor-management Relations

Conducting employee awareness survey

## — System for Work-life Balance

### Childcare Support System

The Group supports employees' childbirth and childcare. The Company has published the "Childbirth and Childcare Guidebook," which summarizes the governmental systems and procedures related to childbirth and childcare. Employees can use the company's childcare leave system for children up to three years old. About 30 employees on average use the childcare leave system in the company and consolidated companies in Japan. In addition, we grant a paid leave of five days to an employee whose spouse gives birth. Employees are allowed to use the short-time work system, which shortens their working hours for a maximum of two hours a day. This system can be used until their children graduate from elementary school. Furthermore, we will promote use of the teleworking system.

Childcare is supported according to local laws and regulations in overseas Group companies.

### Main System for Childcare Support (Shin-Etsu Chemical)

	Childbirth	Three years old	Entering elementary school	Graduating from elementary school
Maternity leave	Six weeks before and eight weeks after the childbirth			
	Three days when a spouse has childbirth			
Childcare leave				
	* Legally 1.5 years old			
Sick/injured child care leave				
	Five days per year when having one child 10 days per year when having two children			
	* As per the legal requirements			
General manager level				
	* Legally three years old			
	Legal	Progressive measures at Shin-Etsu Chemical		

\* From October 2017 onwards, employees can take childcare leave until their child reaches the age of two, provided they meet certain conditions.

## Number of Employees Who have Taken Childcare Leave

	FY2020		FY2021		FY2022	
	Male	Female	Male	Female	Male	Female
Shin-Etsu Chemical (Non-consolidated)		8	15	8	23	10
Consolidated in Japan	12	24	24	24	66	27
Consolidated	84	66	88	99	156	151

\* The length of childcare leave differs from country to country, because the program is based on local laws.

## — Nursing Care Leave System

### Nursing Care Leave System

The Group has a nursing care leave system as shown in the chart on the right. The system enables employees to work in the company while caring for elders.

The "Nursing Care Guidebook" is issued in which all of the necessary information on our nursing care system and care insurance is provided. Furthermore, we started health care and nursing support services in FY2014 to provide counseling by external experts.

### Main System for the Nursing Care System (Shin-Etsu Chemical)

	93 days		One year	
	Legal	Progressive measures at Shin-Etsu Chemical	Legal	Progressive measures at Shin-Etsu Chemical
Care leave	* Legally 93 days			
Measures such as short-time work, etc. *	* Legally 93 days			
Time off for nursing care	Five days per year when having one person to be cared for 10 days per year when having two persons to be cared for			
	* As per the legal requirements			

\* Flextime system, measures to start/finish early or late

### Number of Employees Who Have Taken Nursing Care Leave

	FY2020	FY2021	FY2022
Consolidated in Japan	2	2	3

## — Welfare and Benefits

### **Saved Holidays System**

If the annual paid leave granted in accordance with labor regulations has expired without being taken, a certain number of days can be treated as saved holidays. Employees may use these saved holidays for nursing care, for injury or illness, for volunteer work for regional disasters, or for donating organs or bone marrow transplants.

### **Counseling Hotline for Employees**

As a counseling service for troubles at work or other issues, we have set up Dial Shin-Etsu, which is staffed by external counselors, who are specialists from outside of the company. Consultations are received anonymously and treated with strict confidentiality, but if requested by the consulter, the counselor will contact the Personnel and Labor Relations Department to discuss possible solutions.

### **Shinkansen Commuting Allowance System**

Since 1989, the Group has allowed employees to commute by Shinkansen at company expense. This system allows employees who relocate from Gunma Fukushima Prefectures, where our plants are located, to work in the Tokyo area without changing their lifestyles or educational environments. This also, promote employees to own houses.

As of March 2021, 71 employees have used this system.

### **Other Systems**

The Dr. Kanagawa Scholarship was established in June 2012 for employees to study at Clark College in Washington, USA, for one year. This scholarship was created due to the relationship of trust that was built over many years between the college and our former Chairman, Dr. Kanagawa.

In addition, we have established asset-building schemes, an employee shareholding system, and mutual aid groups to provide support for weddings, childbirths, and sudden hospitalizations of family members.

### **Dormitories and Company housing**

We have dormitories and company housing near the head office and plants for employees who live outside the commutable area.

### **Recreational Facilities**

We have directly operated recreational facilities in Kanagawa, Shizuoka, Fukushima, and Niigata Prefectures. The Group's employees can use these facilities with family and friends. Furthermore, we have partnerships with external recreational facilities, and subsidies are given to the users.



Shin-Etsu Chemical Hakone Shinsensou  
(Kanagawa Prefecture)



## — Labor-management Relations

The company engages in various dialogues with the Shin-Etsu Chemical Labor Union to promote mutual understanding between labor and management. The Central Labor-Management Meeting is held once a month at the head office and is attended by top management. They engage in thorough discussions with the labor union on subjects such as the management policy, overview on individual businesses, and personnel systems. Each business site also holds a monthly local labor meeting with the local branch of the Shin-Etsu Chemical Labor Union.

Repeated dialogues and discussions between labor and management deepen mutual understanding and trust and facilitate the expansion of business operations in which staff and management can come together to respond quickly to the changing business environment.

## — Conducting employee awareness survey

In 2022, we conducted an employee awareness survey targeting employees working at Shin-Etsu Chemical in order to help create a more rewarding workplace. In the survey, we asked about items such as compliance, customer orientation, penetration of management philosophy, future prospects of the company, personnel system, career outlook, workload, work environment, and relationship with superiors. The response rate was 86.5%, and the analysis showed that our employees have a high awareness of compliance. Using the results of this survey as a reference, we will continue to make efforts to improve the strengths of our company and improve the points that need to be improved, so that more employees can find job satisfaction.

---

\* Personnel subject to human resource development and promotion of diversity in the Group are the employees of and loaned employees from Shin-Etsu Chemical.

### Related Information

---

[> Sustainability Data](#)

## Policy

The Group will protect and respect intellectual property and manage information assets appropriately and strictly.

## Awareness of Issues

The Shin-Etsu Group believes intellectual property such as products and technologies developed in-house are important information assets and they need to be controlled strictly. At the same time, we think it is important to respect the intellectual property of other entities.

We are adequately controlling information in our possession such as intellectual property, business information, and technology information, and are taking utmost care for measures to counter potential information leakage and cyberattack incidents.

Intellectual Property Management

Employee Initiatives

Initiatives for Information Asset Management

Protection of Personal Information

Cyber Security

## — Intellectual Property Management

The Company has established "Basic Regulations for Intellectual Properties", based on the 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." In accordance with these regulations, we are working to acquire, manage, and utilize intellectual property assets.

We acquire useful and highly original intellectual property assets based on these regulations and we protect them from infringement by third parties. These regulations also require us to respect all intellectual property rights of third parties.

In addition, we educate each researcher so that they can prepare specifications for patent applications, and we are focusing on creating a system that allows them to conduct research while keeping patents in mind.

Furthermore, employees who have devised useful inventions, improvements, and devices at work have been awarded under the following systems:

### Actual Compensation Awards

A system to recognize and award employees who have created an invention or idea which greatly contributed to the company in the form of patents

### Multiple Inventor Awards

A system to recognize employees who have made a large number of inventions and acquired a large number of patent rights in the company

## Related Information

> Sustainability Data

## Employee Initiatives



Ms. RA,  
Development Headquarters  
Intellectual Property  
Department,  
Shin-Etsu Polymer

### 1. Please tell us about your current responsibilities.

I am mainly in charge of domestic and overseas patent applications and acquisition of patents related to semiconductor transport containers and wrapping films including Kitchi Nista Co., Ltd. I am also in charge of handling counterfeit goods from overseas that have been consulted by departments, and confirmation of contract drafts requested by the general affairs department. In addition, the company began digitizing documents with the introduction of telecommuting and I manage these documents as well. Furthermore, I provide explanations at IP training sessions for new employees and those with limited IP experience, and create e-learning materials for beginner-level IP training. And I also report and make proposals on the latest topics, cases and issues that should be shared throughout the company at the monthly Patent Managers' Meeting and at the Patent Committee meetings held twice a year.

### 2. How do you protect your company's intellectual property?

We strive to maximize our rights by filing patent applications at an early stage of development concept design or prototyping, and then filing multifaceted applications, such as priority applications and divisional applications, as the business progresses. We also protect and utilize intellectual property that can ensure the competitive advantage of our business by filing applications for peripheral technologies that prevent other companies from entering the market. In addition to patents, design protection is also used as countermeasures against counterfeit goods overseas, and effective utility model rights are used in some case for some countries. For technologies that should be kept secret as know-how without being disclosed to the public, in addition to withdrawing them prior to disclosure, we periodically ask each department to submit a list of their know-how and encourage them to keep it appropriately anonymized. For these activities, it is important to have the latest and correct information on trends provided by patent managers and inventors selected from each department. Communication with departments is also important to ensure that the intellectual property that the business will need in the future is adequately protected. We have also started working on securing usage rights using timestamps<sup>1</sup>. I feel that since the developers themselves started adding time stamps, the awareness of intellectual property has changed significantly from the perspective of "protecting information."

### 3. Please tell us about your efforts to ensure that you do not infringe on the intellectual property rights of others.

Patent gazettes related to the development themes and products of each division are distributed monthly to each department, and ongoing periodic searches (SDI) of gazettes that have caught the attention of the department are conducted. Depending on the scope of the rights of others, it may be necessary to take measures. Therefore, I set alert emails to be sent when cases such as requests for examination or acquisition of rights for other people's publications occur, and check each time whether or not necessary actions are taken.

### 4. What do you plan to focus on in the future regarding the respect and protection of intellectual property?

Recently, there is a case where we submitted a report on intellectual property rights investigation results to a retailer to determine whether or not to sell the product. I feel that there is a growing awareness of respect for intellectual property, including the Unfair Competition Prevention Act. We would like to protect our intellectual property and the Shin-Etsu brand by conducting business activities that comply with laws and regulations, corporate ethics, and social norms, and conduct intellectual property activities that respect intellectual property.

---

<sup>1</sup> Time stamp

A technology that proves that electronic data existed at the time the stamp was applied and that it has not been modified or tampered with since then.

## — Selected as a Clarivate Top 100 Global Innovator™ for the 12 Consecutive Year

For the 12 consecutive year, the company has been awarded the Top 100 Global Innovator, which identifies and celebrates the world's most innovative companies and organizations.

The award is granted by Clarivate (United Kingdom)—a global information services company that analyzes intellectual property assets and patent trends based on its patent data—to the world's leading companies and organizations that are engaged in protecting original inventions with intellectual property rights, and successfully commercializing them. Nine Japanese companies, including our company, have been awarded for the 12 consecutive year, and we are the only chemical company among them.

Top 100  
Global  
Innovator  
2023

Clarivate™

## — Initiatives for Information Asset Management

For daily business operations and smooth communication, it is extremely important to use information assets effectively. On the other hand, the risk of information being leaked or otherwise mishandled is growing due to the inappropriate management of information assets. For this reason, all personnel who handle information are required to understand the importance of information assets and manage and use them properly. In the case of an emergency, we must prevent it from becoming worse and affecting other operations, and make the greatest possible effort to maintain information security on a Group-wide basis.

Regulations are set under the "Information Asset Management Basic Policy" to protect, utilize, control, and manage information assets. Furthermore, related rules and regulations such as "Information Asset Management Standards" stipulate the details concerning the handling, management, retention period, and discarding of all information related to our customers and suppliers.

In addition, we have formulated the "Standards for Preventing Technology Leaks" in order to prevent the outflow of technologies. We also regularly carry out training related to information asset management, check the status of compliance with the "Information Asset Management Basic Policy" and other rules, and perform internal audits. The Shin-Etsu Chemical head office and information management local offices established in each region play a central role in confirming the storage and management status of information assets through audits of all departments throughout the company. We are working to further advance the prevention of information leaks and the organizing information and effective use of information.

## — Protection of Personal Information

In order to properly protect personal information in accordance with the Act on the Protection of Personal Information, we have established a "Privacy Policy," which is available on our website. We also educate our staff on laws and regulations and hold lectures regarding personal information protection in trainings for each staff rank in order to ensure the appropriate handling and protection of personal information.

Group companies in the EU area comply with the EU's General Data Protection Regulation (GDPR),<sup>1</sup> which came into force in May 2018.

---

<sup>1</sup> General Data Protection Regulation (GDPR)

The General Data Protection Regulation stipulates on the handling and transfer of personal information. EU member countries had their own regulations to protect personal data, and these regulations were unified under the General Data Protection Regulation in May 2018.

## — Cyber Security

In preparation for cyber-attacks, we have bolstered our surveillance system with an intrusion detection service that operates 24 hours a day, 365 days a year. We also received security diagnoses from external contractors, and continue to take necessary security measures.

In addition, we invite outside experts to give lectures on cyber security. In FY2022, we set August as Security Enhancement Month, and a lecture was held by the National Police Agency on the themes of "Risk of Technology Leakage to Foreign Countries" and "Cyber-Attack Countermeasures conducted by the Police".

We have deployed a system to prevent targeted email attacks. In addition to measures for preventing intrusions, we are strengthening our measures for detecting and analyzing attacks. Furthermore, we have separated the information network from the control network to minimize the impact of any incidents.

In order to raise employee awareness of security, we also conduct targeted email attack drills every year for the Shin-Etsu Chemical and group companies. E-mails simulating the latest targeted attack techniques were sent to all participants four times a year, and after the training was completed, explanatory materials on targeted attack e-mails were distributed to all participants. We provide individual training to each employee those who opened the targeted e-mails at least twice during the drill.

### Policy

The Group will participate in a variety of activities in local communities and work to resolve global issues.

### Awareness of Issues

In addition to obtaining the understanding of local communities, it is important to develop together with local communities in order to conduct business activities, including manufacturing at our plants. To this end, we are conducting various social contribution activities, such as volunteer activities, at our plants and offices around the world.

At the same time, we support to resolve global issues that cannot be addressed by the Group alone, such as by providing ongoing donations to the UN's refugee support activities.

Fundraising for U.N. World Refugee Day ▾	Traffic post guard activities ▾	Career development for local elementary school students (Naoetsu Plant) ▾	Supporting the Science and Technology in Society forum ▾
Supporting the Children of the Next Generation ▾	Support for Eradicating Poverty in Africa ▾	Contribution to Society Activities at Overseas Group Company ▾	

## — Fundraising for the U.N. World Refugee Day



### Japan

Since 2006, the Group have donated the money to the Office of the United Nations High Commissioner for Refugees (UNHCR) for the World Refugee Day (June 20), which was established by the United Nations. We have supported world refugees who have been driven out of their homes due to conflict, persecution, and disaster by donating the money to the UNHCR. Since 2012, we have continued to make matching donations in which the company contributes the same amount as donations from employees.



## — Traffic Safety Activities (Shirakawa Plant)

### Japan

The Shirakawa Plant conducts traffic safety activities in conjunction with the Spring National Traffic Safety Campaign every year. It was held at two entrances of the plant, and greet to commuting employees and children who were going to school, remind people of traffic safety.



## — Career development for local elementary school students (Naoetsu Plant)

### Japan

The Shin-Etsu Chemical Naoetsu Plant held a lecture on chemistry for 8 elementary school children in the local area as part of their career development. In the lecture, our researchers conducted experiments using our products, conveying how our technology is bringing about changes in our daily lives. In this course, the children learned about the fun of chemistry through our products, and felt that chemistry could lead to a comfortable life and solve problems such as global warming. We hope that this will be an opportunity for children to find their career.





## — Supporting the Science and Technology in Society forum

### Japan

Shin-Etsu Chemical supports the STS Forum, a non-profit organization that organizes the International Forum on Science, Technology and the Future of Humanity. The problems facing humanity are becoming increasingly complex against the backdrop of globalization and international competition, and cannot be solved by a single country alone. Many of these problems can be solved through a review of social systems, international cooperation, worldwide networking, and the formation of common rules. The STS Forum has been holding the "Science and Technology in Society forum (STS Forum)" in Japan every year since 2004. The purpose of this annual forum is to build a human network where not only researchers in science and technology but also politicians, managers, journalists, and other public opinion formers from around the world can frankly discuss and solve problems in an informal setting. It also explores opportunities arising from science and technology, and takes measures to overcome barriers to the use of science and technology to solve problems facing humanity.

The annual general meeting was held in October 2022, and from our company, employees from the Silicone-Electronics Materials Research Center also attended, and participated in dialogue with the nine Nobel Prize winners and a networking event among the participants.



## — Supporting the Children of the Next Generation

### Japan

Shin-Etsu Chemical supports the "JOES Davos Next" project implemented by the Japan Overseas Educational Services. This project aims to provide opportunities for students in Japan and abroad, who will be the leaders of the next generation, to develop an interest in global issues, to cultivate the independence to "research, think, communicate, and act on their own initiative," to work with peers with different perspectives to refine their skills, and to learn how to solve and improve issues.



## — Support for Eradicating Poverty in Africa

### Japan

Shin-Etsu Chemical supports the activities of SDGs Promise Japan (SPJ), a non-profit organization working to eradicate poverty in Africa and other regions in order to achieve the Sustainable Development Goals (SDGs). Through the training program in Africa organized by MPJ Youth\*, an organization under SPJ, we donated our PVC wraps and reusable bags to local students. In addition, when SPJ had a booth at the 7th Tokyo International Conference on African Development (TICAD7) in Japan in 2019, we provided PVC wraps for distribution to visitors.



\*MPJ Youth

An organization of students who support the activities of SPJ

## — Contribution to Society Activities at Overseas Group Company



### Shin-Etsu Magnetic Materials Vietnam Co., Ltd. (Vietnam)

A tree planting campaign was held at the industrial park where Shin-Etsu Magnetic Materials Vietnam Co., Ltd. is located. As a pioneer in the development of environmentally friendly industrial parks, our industrial park has been working on projects such as the use of renewable energy, promotion of recycling, and environmental protection for many years. Shin-Etsu Magnetic Materials Vietnam Co., Ltd. did the tree-planting, donating seedlings and more than 30 employees actively participate in the event.



### S.E.H. Europe, Ltd. (England)

S.E.H. Europe, Ltd. donated supplies to support refugees in Ukraine as part of its activities to achieve the goals of the SDGs. Thanks to the kindness of our employees, essential items such as food, clothing, and children's toys were quickly collected and delivered to Ukraine.

# Accurate and timely information disclosure and communication with stakeholders

## Policy

The Group will continue to hold dialogue with stakeholders at every opportunity.

## Awareness of Issues

The Group recognizes that it is important to gain an accurate understanding of its business and management by disclosing information and communicating with stakeholders. At the same time, we also understand the importance of incorporating the opinions of our stakeholders into our management. We continue to pursue these goals and strive to achieve sustainable growth and increase corporate value.

Information Disclosure

Communication with Stakeholders

Employee Initiatives

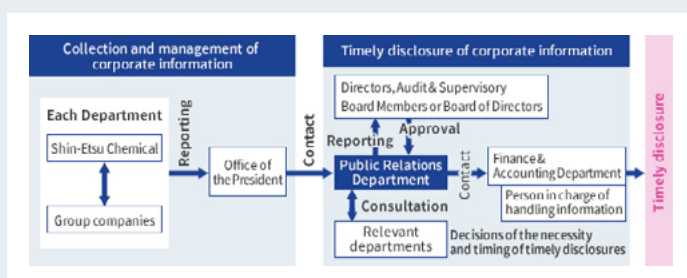
## — Information Disclosure

The Group believes that the appropriate and timely disclosure of company information boosts the understanding of stakeholders and leads to the creation of a fair market evaluation.

The company has disclosed financial information in accordance with the Financial Instruments and Exchange Act and the regulations regarding information disclosure set by the stock exchange. Regarding the collection, management, and timely disclosure of corporate information, the company formulated internal regulations such as the "Regulations on Timely Disclosure of Corporate Information" and the "Rules on Regulations of Insider Trading." We have announced these regulations to all of the departments in the company and Group companies to promote seamless and timely disclosure.

For non-financial information, we disclose information voluntarily, such as posting information on the company's website, publicizing it through the news media, and providing an annual report, financial statements and other reports.

### State of the internal system for timely disclosure



General Meeting of Shareholders  
(June 2022, Shin-Etsu Chemical Head Office)

## — Communication with Stakeholders

The Group communicates with stakeholders actively through a variety of methods and opportunities. We believe that this effort contributes to the sustainable growth of the Group and increases corporate value.

### Major Communication Method and Opportunities

#### Shareholders and Investors

General Shareholders' Meeting  
Presentations of earnings and conference calls for analysts and institutional investors (4times in 2022)  
Plant tours for analysts and institutional investors / Business briefing session (once in 2022)  
One-on-one meetings with analysts (about 300 times in 2022)  
Small meetings for investors hosted by securities companies (5 times in 2022)  
Information provided on the company website, annual report, etc.

We held an online silicone business briefing for securities analysts and investors. From the Company, the director in charge of the silicone business, the plant director of Shin-Etsu Chemical's Gunma Complex, the director of the Silicone-Electronics Materials Research Center, and the general manager of the Public Relations Department attended. At the briefing, we explained the overview of the silicones business, focus areas, growth areas, the development of carbon-neutral products, and efforts to reduce environmental impact at the Gunma Complex. As many as 116 analysts and investors participated, and it was a good opportunity to deepen their understanding of our business.



Silicone business briefing  
(December 2022, Shin-Etsu Chemical  
Gunma Complex)

#### Customers

Day-to-day communications by sales representatives  
Information provided on the company website, exhibitions, etc.

#### Suppliers

Day-to-day communications by the Purchasing Department  
Supplier Hotline

#### Local communities

Communication with organizations such as local governments  
Participation in local events

The Governor of Gunma Prefecture and the Mayor of Annaka City visited the Shin-Etsu Chemical Gunma Complex. An overview of the Gunma Complex and development themes related to the SDGs were explained, and a forum for exchanging opinions was set up after the plant tour. We will continue to aim for further development together with everyone in the local community.



Silicone-Electronics Materials  
Research Center,  
(October 2022, Shin-Etsu Chemical  
Gunma Complex)

#### Employees

Communication and consultation with labor unions  
Information provided on the company magazine and intranet  
Conducting employee satisfaction surveys



## Employee Initiatives



Mr. SM  
Silicone Div.  
Shin-Etsu Chemical Head  
Office

### 1. Please tell us about your current responsibilities.

I handle sales of silicon-based defoaming agents globally. These defoaming agents improve production efficiency by eliminating foam in the manufacturing processes. Domestically, in collaboration with distributors and trading firms, I pursue sales activities aimed at a wide range of users, from petroleum producers to food manufacturers. In the international market, I work to develop new users by teaming up with salespeople at local Group companies.

### 2. What are the strengths and attractive features of the products you handle?

Silicon-based defoaming agents are products that support a wide range of industries, such as the chemical, food, and water treatment industries. In particular, the defoaming agents used in food production play an indispensable role during the manufacturing processes of all kinds of foods and beverages. Precisely because they are used in such a wide range of foods, some products have obtained Halal certification and contribute directly to enabling Muslim people, who account for one-quarter of the world's population, to obtain foods with peace of mind both in Japan and overseas.

### 3. What do you consider important when speaking with customers and have you had any encounters that made a particularly strong impression?

There was one customer whose industry had long been had common practice not adding defoaming agents. However, sensing that there was potential for our materials to be used in that industry, I persisted in telling the customer about the benefits of using defoaming agents and carefully explained the usage method and product selection, which led to their adoption. Later on, the customer told me that "Without your defoaming agents, we would be in big trouble. I want you to keep supplying them to us from now on." That made me really happy. It taught me once again that while customers and material manufacturers have different perspectives, by confirming with them until I understand what they truly want, adopting a shared perspective, and working toward a common target, we become a team with the aim of improving society.

### 4. What do you want to focus on in your business activities in the future?

I will contribute to a better society and environment by increasing the range of products we can offer to customers and conveying the appeal of our materials to untapped markets and regions, not only in Japan but also around the world.

## — Corporate Governance

Aspect	Classification	Scope	Unit	End of June 2021	End of June 2022	End of June 2023
Number of Board Directors	Directors	Shin-Etsu Chemical	Persons	21	11	10
	Outside directors	Shin-Etsu Chemical	Persons	5	5	5
	Women on the board	Shin-Etsu Chemical	Persons	0	0	0
Number of Audit & Supervisory Boards	Audit & Supervisory Boards	Shin-Etsu Chemical	Persons	5	5	5
	Outside Audit & Supervisory Boards	Shin-Etsu Chemical	Persons	3	3	3
	Women on the Audit & Supervisory Boards	Shin-Etsu Chemical	Persons	0	1	1
Structure of Officers' Remuneration Committee	Independent outside directors ratio	Shin-Etsu Chemical	%	20	60	60

Aspect	Classification	Scope	Unit	FY2020	FY2021	FY2022
Remuneration of directors	Excluding outside directors	Shin-Etsu Chemical	Millions of yen	1,851	1,507	1,269
Remuneration of Audit & Supervisory Boards	Excluding the Audit & Supervisory Boards	Shin-Etsu Chemical	Millions of yen	36	36	38
Remuneration of Outside directors and the Audit & Supervisory Boards		Shin-Etsu Chemical	Millions of yen	165	171	185
Payments of income taxes		Japan	Millions of yen	765	811	1,286
		United States	Millions of yen	249	581	1,261
		Europe	Millions of yen		41	50
		Asia / Oceania	Millions of yen		40	71
Amount of political contributions		Shin-Etsu Chemical	Millions of yen	2	0.3	0.3

\*Please refer to IR information for details on financial information.

## — The foundation of all activities : legal compliance, fair corporate activities

Aspect	Classification	Scope	Unit	FY2020	FY2021	FY2022
Number of violators of the Anti-Bribery Regulations		Consolidated	Persons	0	0	0
Total costs of penalties regarding corruption		Consolidated	Yen	0	0	0
Number of reports to Compliance Consultation Office		Shin-Etsu Group	Number of reports	12	9	8

## — Health and safety of employees and contractors

Aspect	Classification	Scope	Unit	FY2020	FY2021	FY2022
Management	ISO45001/OHSAS18001 certification ratio <sup>1</sup> (Employees)	Consolidated manufacturing companies	%	25	35	34
Occupational health and safety	Number participants in safety training (Total number of persons)	Consolidated	Persons	46,998	56,236	75,406
	Lost-time accidents rate <sup>2</sup>	Japan		0.19	0.00	0.00
		Overseas		1.57	1.71	1.15
		Industry average (JCIA)		0.28	0.41	0.43
	Rate of accidents not accompanied by an of absence a day <sup>2</sup>	Japan		0.43	0.53	0.37
		Overseas		3.57	3.82	3.18
	Lost-time accidents severity rate <sup>2</sup>	Japan		0.01	0.00	0.00
		Overseas		0.04	0.07	0.03
		Industry average (JCIA)		0.11	0.01	0.07
	Number of work-related employee fatalities	Consolidated	Persons	0	0	0

<sup>1</sup> ISO45001/OHSAS18001 certification ratio

The plants which does not have certification has a occupational health and safety management system the same level as ISO45001/OHSAS18001.

<sup>2</sup> Lost-time accidents rate and Rate of accidents not accompanied by an of absence a day and Lost-time accidents severity rate  
These were calculated in calender year.



## — Energy-saving, resource-saving, and reduction of environmental impacts

Aspect	Classification	Scope	Unit	FY2020	FY2021	FY2022
Management	ISO14001 certification ratio <sup>1</sup> (Plants)	Shin-Etsu Chemical	%	100	100	100
		Consolidated plants	%	66	70	73
	Total costs of environmental fines and penalties	Shin-Etsu Chemical	Yen	0	0	0
Response to climate change	Energy Consumption (Crude Oil Equivalent)	Consolidated	Million ℓ	2,860	3,106	3,428
	GHG Emissions (Scope1+Scope2)	Consolidated	Thousand tons of CO <sub>2</sub> e	6,274	6,081	6,613
	GHG Scope1 emissions <sup>2</sup>	Consolidated	Thousand tons of CO <sub>2</sub> e	2,111	2,077	2,246
	GHG Scope2 emissions <sup>2</sup>	Consolidated	Thousand tons of CO <sub>2</sub> e	4,163	4,003	4,367
	GHG Scope3 emissions <sup>3</sup>	Consolidated	Thousand tons of CO <sub>2</sub> e	10,298	10,315	11,139
	Emissions intensity index of production volume relative to 1990	Shin-Etsu Chemical	%	49.8	46.3	46.8
		Shin-Etsu Group	%	53.6	52.9	54.2
Water resource conservation	Warer use <sup>4</sup>	Consolidated	Million m <sup>3</sup>	2,475	2,606	2,618
	Water withdrawals	Consolidated	Million m <sup>3</sup>	182	187	193
	Water recycle	Consolidated	Million m <sup>3</sup>	2,293	2,420	2,425
	Water recycle ratio	Consolidated	%	92.6	92.8	92.6
	Water discharge	Consolidated	Million m <sup>3</sup>	170	174	183
	COD emission	Consolidated	t	4,528	4,941	3,259
	BOD emission	Consolidated	t	653	747	699

Waste reduction	Waste generated	Japan	Thousand tons	99	116	112
		Overseas	Thousand tons	152	143	178
	Waste recycled	Japan	Thousand tons	67	81	80
		Overseas	Thousand tons	120	96	134
	Waste recycling ratio	Japan	%	68	70	71
		Overseas	%	79	68	75
	Waste for landfill	Japan	Thousand tons	1.13	1.10	1.18
		Overseas	Thousand tons	31.81	46.22	40.17
	Disposal ratio	Japan	%	1.14	0.95	1.05
		Overseas	%	20.95	32.44	22.52
Prevention of Air Pollution	Soot	Consolidated	t	37	33	26
	NO <sub>x</sub>	Consolidated	t	925	1,035	895
	SO <sub>x</sub>	Consolidated	t	145	147	140
	VOC	Shin-Etsu Chemical	t	238	286	280
Reduction of chemical emissions	PRTR Controlled Substance: Trend of Total Amount Released	Japan	t	149	183	154
	PRTR Controlled Substance: Trend of Total Amount Transferred	Japan	t	1,365	1,579	1,485
	PRTR Controlled Substance: Chloromethane Release Trend	Japan	t	58.4	78.3	57.8
	PRTR Controlled Substance: 1,2-Dichloroethane Released Amounts	Japan	t	13.7	15.4	11.2
	PRTR Controlled Substance: Chloroethylene Release Trend	Japan	t	13.4	13.0	13.6

<sup>1</sup> ISO14001 certification ratio

The plants which does not have ISO14001 certification has a occupational health and safety management system the same level as ISO14001.

<sup>2</sup> GHG Scope1,2 emissions

In cases where emissions were reported to national governments, the reported values were retroactively used for Scope 1 and Scope 2 calculations.

<sup>3</sup> GHG Scope3 emissions

After reviewing the amount of activities and emission factors to be calculated, emissions in categories 1, 3, 4, and 12 were revised retroactively to previous years.

<sup>4</sup> Warer use

Amount of water withdrawals and water recycle.

## — Product quality improvements and product safety control

Aspect	Classification	Scope	Unit	FY2020	FY2021	FY2022
Product safety training	Number participants (Total number of persons)	Consolidated	Persons	42,933	49,851	71,142

## — Respect for human rights, the development of human resources, and the promotion of diversity

Aspect	Classification	Scope	Unit	FY2020	FY2021	FY2022
Employees	Number of employees by region	Japan	Persons	8,748	9,101	9,401
		Asia/Oceania	Persons	10,262	10,617	10,935
		Latin America	Persons	0	0	0
		United States	Persons	3,474	3,638	3,745
		Europe	Persons	1,585	1,598	1,636
		Consolidated	Persons	24,069	24,954	25,717
	Number of employees (male)	Consolidated	Persons	16,840	17,434	18,120
	Number of employees (female)	Consolidated	Persons	7,229	7,520	7,597
	Turnover rates	Shin-Etsu Chemical	%	1.2	1.3	1.4
		Consolidated	%	12.6	18.4	15.0
	Voluntary turnover rates	Shin-Etsu Chemical	%	1.0	1.1	1.2
		Consolidated	%	12.1	17.2	13.8
Human rights	Number of child labour	Consolidated	Persons	0	0	0
	Number of forced labour	Consolidated	Persons	0	0	0
Percentage of women in managerial positions including manager level	Employment rate of persons with disabilities	Shin-Etsu Chemical	%	2.30	2.27	2.35
	The number of women in managerial positions including manager level	Consolidated	Persons	517	538	576
Work-life balance	Number of employees who have taken childcare leave <sup>1</sup> (female)	Consolidated	Persons	66	99	151
		Japan	Persons	24	24	27
		Overseas	Persons	42	75	124
	Number of employees who have taken childcare leave <sup>1</sup> (male)	Consolidated	Persons	84	88	156
		Japan	Persons	12	24	66
		Overseas	Persons	72	64	90
	Number of people obtaining nursing care leave	Japan	Persons	2	2	3

<sup>1</sup> Number of employees who have taken childcare leave

The length of childcare leave differs from country to country, as the program is based on local law.

## — Respect for and protection of intellectual property

Aspect	Classification	Scope	Unit	FY2020	FY2021	FY2022
Patents acquired	Japan	Main consolidated manufacturing companies	Number of patents	466	606	601
	Overseas	Main consolidated manufacturing companies	Number of patents	1,363	1,351	1,113
	Asia/Oceania	Main consolidated manufacturing companies	Number of patents	614	768	672
	North America	Main consolidated manufacturing companies	Number of patents	259	205	189
	Europe	Main consolidated manufacturing companies	Number of patents	482	374	246
	Other	Main consolidated manufacturing companies	Number of patents	8	4	4
	Total	Main consolidated manufacturing companies	Number of patents	1,829	1,957	1,714
Patents held	Japan	Main consolidated manufacturing companies	Number of patents	7,350	7,535	7,730
	Overseas	Main consolidated manufacturing companies	Number of patents	13,352	14,102	14,580
	Asia/Oceania	Main consolidated manufacturing companies	Number of patents	6,120	6,633	7,028
	North America	Main consolidated manufacturing companies	Number of patents	3,191	3,203	3,206
	Europe	Main consolidated manufacturing companies	Number of patents	3,973	4,197	4,278
	Other	Main consolidated manufacturing companies	Number of patents	68	69	68
	Total	Main consolidated manufacturing companies	Number of patents	20,702	21,637	22,310

## — Contribution to industry and social initiatives

Aspect	Classification	Scope	Unit	FY2020	FY2021	FY2022
Total Amount of donations		Consolidated	Millions of yen	60	59	72

\*Sustainability data covers the following

Consolidated: Shin-Etsu Chemical and its domestic and overseas consolidated companies.

Japan: Shin-Etsu Chemical and its domestic consolidated companies.

Overseas: Shin-Etsu Chemical's overseas consolidated companies.

Shin-Etsu Chemical Group: Shin-Etsu Chemical and its domestic and overseas group companies.





レスポンシブル・ケア

## 「信越化学サステナビリティレポート2023」

### 第三者検証 意見書

2023年6月26日

信越化学工業株式会社  
代表取締役社長 斉藤 恭彦 殿

一般社団法人 日本化学工業協会  
レスポンシブル・ケア検証センター長

尾崎 智



#### ■ 検証の目的

本検証は、信越化学工業株式会社が作成した「信越化学サステナビリティレポート2023」(以後、報告書と略す)に記載された下記の事項について、レスポンシブル・ケア検証センターが化学業界の専門家としての意見を表明することを 目的としています。

- 1) パフォーマンス指標(数値)の算出・集計方法の合理性及び数値の正確性について
- 2) 数値以外の記載情報の正確性
- 3) レスポンシブル・ケア活動(以後RCと略す)及びサステナビリティ活動の内容について
- 4) 報告書の特徴について

#### ■ 検証の手順

- ・ 本社において、各サイト(事業所、工場等)から報告される数値の集計方法の合理性、及び数値以外の記載情報の正確性について調査を行いました。調査は、報告書の内容について各業務責任者及び報告書作成責任者に質問すること、並びに彼らより資料提示と説明を受けることにより行いました。
- ・ 群馬事業所の検証は、本社と群馬事業所を繋いだWeb会議で、本社に報告する数値の算出方法の合理性、数値の正確性、及び数値以外の記載情報の正確性の調査を行いました。調査は、各業務責任者及び報告書作成責任者に質問すること、証拠となる資料提示・説明を受けることにより行いました。
- ・ 数値及び記載情報の調査についてはサンプリング手法を適用しました。

#### ■ 意見

- 1) パフォーマンス指標(数値)の算出・集計方法の合理性及び数値の正確性について
  - ・ 本社および群馬事業所では換算係数等を組込んだ自動集計システムを採用しています。さらに、異常値入力時の警告表示、数値の変更があったことを認識させるセルの着色化等を実施し、数値の正確性確保に工夫されており数値は正確、かつ効率的に集計されています。
- 2) 数値以外の記載情報の正確性について
  - ・ 報告書に記載された情報は正確であることを確認しました。原案段階では表現の適切性或いは表現の分かりやすさに関し若干の指摘をしましたが、現報告書では修正されており、現在修正すべき重要な事項は認められません。
- 3) RC活動及びサステナビリティ活動の内容について
  - ・ 地球の未来への貢献に向けて、従来からサステナブル経営を標榜され、グループのサステナビリティの基本方針を制定して、経営トップがRC活動及びサステナビリティ活動の推進にリーダーシップを発揮されていることを評価します。
  - ・ 社長が委員長を務めるサステナビリティ委員会にタスクフォースチームを構築し、カーボンニュートラル達成に向けた温室効果ガス(GHG)削減計画を検討し公表したことを評価します。
  - ・ 2022年度の安全活動では、国内での重大事故ゼロ、休業災害ゼロの目標を達成したことを評価します。
  - ・ 群馬事業所では、保安防災、労働安全に関し定常時のみならず非定常にも踏み込んでリスクアセスメントを実施しています。設備やプロセスの安全性向上に向け、「開放系で可燃物を取り扱う作業」等重大事故につながる危険性がある作業の安全総点検を実施しています。またコージェネレーションシステムの導入を積極的に進めてきており「熱エネルギーの循環の取り組み」が確実に進んでいることを確認しました。
- 4) 報告書の特徴について
  - ・ 今年度の報告書では「2050 年カーボンニュートラル実現に向けた計画」として特集を組み、これまで取り組んできた生産量原単位の削減に加えて排出量(SCOPE1、SCOPE2)を実質ゼロとするために策定した計画を開示しています。
  - ・ 女性の活躍を積極的に進めているグローバル企業として海外拠点の「女性社員の取り組み」記事が増えています。

-以上-





## 温室効果ガス排出量検証報告書

2023 年 6 月 27 日

信越化学工業株式会社  
代表取締役社長 斉藤 恭彦 殿

一般社団法人 日本化学工業協会  
レスポンシブル・ケア検証センター長

尾崎 智



### ■検証の目的

検証の目的は、国内連結会社及び海外連結会社を含む信越化学グループより報告された 2022 年度のスコープ 1、2 及びスコープ 3 (カテゴリー1、12) の温室効果ガス排出量についてレスポンシブル・ケア検証センターが検証を行い、第三者として意見を表明することにあります。

### ■検証の概要

- ①検証は、スコープ 1、2 及びスコープ 3 (カテゴリー1、12) の範囲であり、限定的保証水準である。
- ②検証の判断基準は、「ISO 14064-1:2018 及び ISO 14064-3:2019」であり、「温室効果ガス排出量算定・報告マニュアル Ver.4.9」等を算定の参考とした。
- ③検証は、信越化学工業株式会社及び同社の国内連結会社、海外連結会社、更に詳細確認サンプリング調査として信越化学工業株式会社武生工場について、温室効果ガス集計値及びそのインベントリーに関する集計範囲、元データ、手順書に基づく集計方法及び算出手法、算出数値の正確性確認等について実施した。  
2022 年度とは、日本国内については、2022 年 4 月 1 日から 2023 年 3 月 31 日までの期間、海外については、2022 年 1 月 1 日より 2022 年 12 月 31 日までの期間である。
- ④調査・確認は、本社の責任者、工場の担当者・責任者からの資料の提示と説明、質疑応答により行った。

### ■検証の結果

2023 年 6 月 7 日、9 日及び 13 日に実施した検証の結果、同社グループの GHG 排出量及び武生工場のデータ取扱い及び算出方法は適正であり、数値の正確性に関し何ら重大な誤りは認められませんでした。

### ■検証意見

温室効果ガス排出量算定に関し、正確性の向上に向けた改善がなされ、マニュアル、基準類のバージョンアップ及びデータ収集・確認体制の見直しが進められてより効率的且つ誤りの無い対応が行われていることを確認しました。

以上



[www.shinetsu.co.jp](http://www.shinetsu.co.jp)