

## Material Issues for Social Value Creation

# Contribute to the Environment Climate Change Mitigation and Adaptation

Sumitomo Chemical regards climate change as a social issue that chemical companies should take the lead in addressing, and has been making various efforts to solve it from early on. In recent years, as the movement toward carbon neutrality has gained momentum around the world, Sumitomo Chemical has been promoting group-wide efforts to achieve carbon neutrality by leveraging its technological capabilities and knowledge accumulated as a diversified chemical company.

## Disclosure in Line with TCFD Recommendations

Sumitomo Chemical expressed its support for the TCFD recommendations when they were published in June 2017. In line with the four recommended disclosure items, "Governance," "Risk Management," "Strategy," and "Metrics and Targets," the Group's efforts to address climate change issues are introduced on pages 37-42.

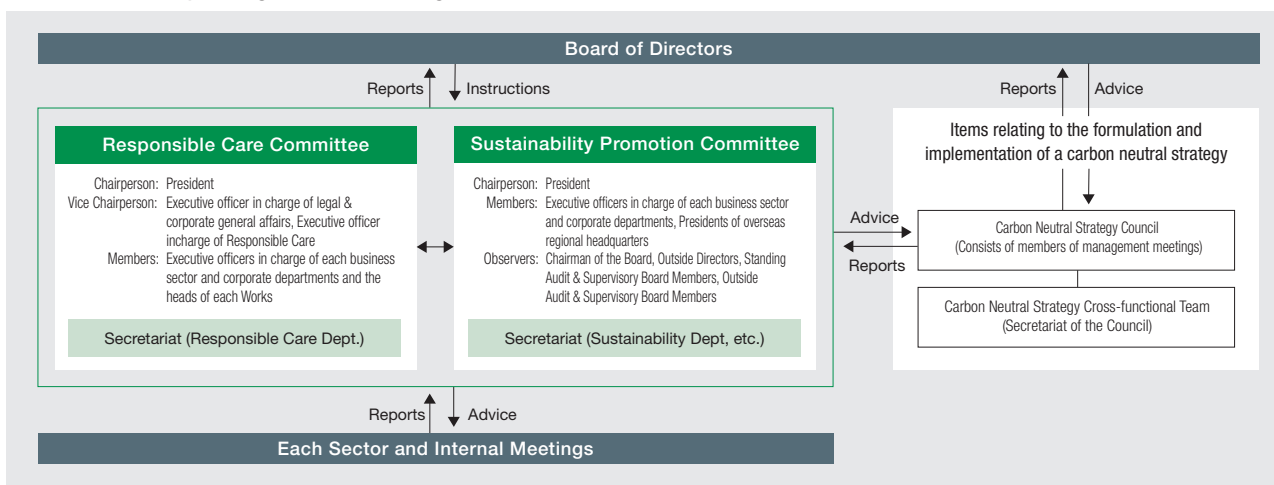
Please refer to the Sustainability Data Book (to be released in October 2023) for other information on climate-related information.

## Governance

Sumitomo Chemical has established meetings and committees to deliberate important matters related to the management of the Group from a broad and diverse perspective in order to enhance its business execution and supervisory functions. Through these meetings and committees, the Company reports to the Board of Directors at least once a quarter on issues related to the promotion of sustainability, including climate change.

<b>Management Meetings</b>	Deliberation of important matters such as management strategies and capital investments, including agenda items and report items related to climate change response
<b>Sustainability Promotion Committee</b>	Deliberations on important matters related to sustainability promotion
<b>Responsible Care Committee</b>	Formulation of annual policies, mid-term plans, and specific measures to address climate change, as well as analysis and evaluation of performance
<b>Carbon Neutral Strategy Council</b>	Deliberation and promotion of the grand design for achieving carbon neutrality by 2050

### Structures for Responding to Climate Change



## Risk Management

To achieve sustainable growth, Sumitomo Chemical makes an effort to detect, at an early stage, various risks that may hinder the achievement of its business objectives, and takes proper measures. We focus on building and expanding a system relating to risk management so that we can promptly and properly address risks when they emerge.

Climate change issues are positioned as one of the Group's major medium- to long-term risks through, for example, an assessment from the perspective of the likelihood of their occurrence and impact, and are integrated into the Group's overall risk management process.

Specific Initiatives → **P.98 Risk Management**

## Strategy

In December 2021, Sumitomo Chemical formulated a grand design for achieving carbon neutrality by 2050. We will promote efforts to mitigate climate change from the perspectives of both “**Obligation**” (to bring the Group’s GHG emissions close to zero) and “**Contribution**” (to reduce global GHG emissions through the Group’s products and technologies).

In addition, as part of our efforts to adapt to climate change, we are striving to provide solutions adapted to global environmental changes in agriculture and infectious diseases, and to strengthen new product development.

### ● Investments to achieve carbon neutrality

Starting in FY 2019, in order to contribute to the realization of carbon neutrality for society as a whole, we calculate economic indicators reflecting internal carbon pricing (10,000 yen per ton) when GHG emissions are expected to increase or decrease for individual investment projects, and make investment decisions.

### ● Investment Scale

We expect to invest a total of approximately 200 billion yen between FY2013 and FY2030 in carbon neutral-related investments.

### ● Scenario Analysis

Scenario analysis, with regard to climate change, is a method in which we consider multiple scenarios, predict the impact of climate change and changes in the business environment due to long-term policy trends, and study the potential impact of these changes on our business and management. Currently, Sumitomo Chemical analyzes both risks and opportunities with respect to both a scenario in which a variety of measures are taken to limit average global temperature increase to 1.5°C above the pre-industrial revolution levels, and a scenario in which countermeasures are not taken and temperatures increase by 4°C, evaluating both the impacts on our businesses and future actions that need to be taken.

### Scenario Analysis(excerpt)

Scenario	Risks and Opportunities	Impact on our Company	Risks	Opportunities	Our Response
Common	Increasing Demands for Disclosure of Information	<ul style="list-style-type: none"> <li>Improvement of reputation among stakeholders through enhanced information disclosure</li> <li>Increased cost of compliance</li> </ul>	○	○	<ul style="list-style-type: none"> <li>Formulate and release our Grand Design for achieving carbon neutrality</li> <li>Develop a carbon footprint calculation tool (CFP-TOMO™) and provide it to other companies for free → P.40</li> <li>Disclosure of quantitative GHG reduction contributions through our products and technologies (Science Based Contributions) → P.42</li> </ul>
1.5°C (Reduced GHG Emissions)	Increased Demand for Products and Technologies Contributing to the Mitigation of Climate Change	<ul style="list-style-type: none"> <li>Increase in demand for Sumika Sustainable Solutions (SSS)-certified products due to expansion of the market for products and technologies that contribute to GHG emission reductions, as well as expansion of needs for technological development of future SSS-certified candidate products</li> </ul>		○	<ul style="list-style-type: none"> <li>Development and diffusion of products that contribute to GHG emission reductions → P.42</li> <li>Develop plastic recycling technology → P.40</li> <li>Develop products that contribute to negative carbon emissions → P.40</li> <li>Promote licensing of technologies that contribute to reducing GHG emissions → P.65</li> <li>Promote the utilization of CO<sub>2</sub>-free hydrogen → P.40</li> </ul>
	Increased Regulation on GHG Emissions	<ul style="list-style-type: none"> <li>Increased operational costs due to higher energy taxes including carbon prices*</li> <li>Phasing out subsidies for fossil fuels and requests from customers to promote the use of renewable energy</li> </ul>	○		<ul style="list-style-type: none"> <li>Consider carbon-neutral petrochemical complexes and ports → P.40</li> <li>Switch to renewable energy → P.39</li> <li>Switch fuel to LNG → P.39</li> <li>Collaborate with other companies to secure a stable supply of clean ammonia → P.39</li> </ul>
4°C (Business as Usual)	Increased Demand for Products and Technologies adaptable to Climate Change	<ul style="list-style-type: none"> <li>Increased demand for SSS-certified products and growing needs for technological development of future SSS-certified candidate products due to the expanding market for crops that are resistant to environmental changes such as rising temperatures and drought, etc.</li> </ul>		○	<ul style="list-style-type: none"> <li>Provide solutions that respond to global changes in the environment for agriculture and infectious diseases</li> </ul>
	Intensified Climate Disasters due to Temperature Rise	<ul style="list-style-type: none"> <li>Decrease in cost competitiveness of factories due to increased costs for disaster countermeasures such as sea level rise, storm surge damage, flood damage, heat wave generation, etc.</li> <li>Decreased demand due to lower agricultural productivity</li> </ul>	○		<ul style="list-style-type: none"> <li>Manage and respond to risks from a business continuity planning perspective</li> <li>Expand and diversify the regions in which we do business</li> </ul>

\*Assuming that carbon prices in developed countries will rise to \$140/ton in 2030 and \$250/ton in 2050 (based on World Energy Outlook 2022), the total GHG emissions of the Group in FY2050 will be approximately 6.58 million tons/year (Scope 1+2), the same level as in FY2022, and the carbon price will be 19,000-34,000 yen/t-CO<sub>2</sub>, an increase in burden of 130-230 billion yen per year.

For the full scenario analysis, please see the Sustainability Databook

Material Issues for Social Value Creation

Contribute to the Environment

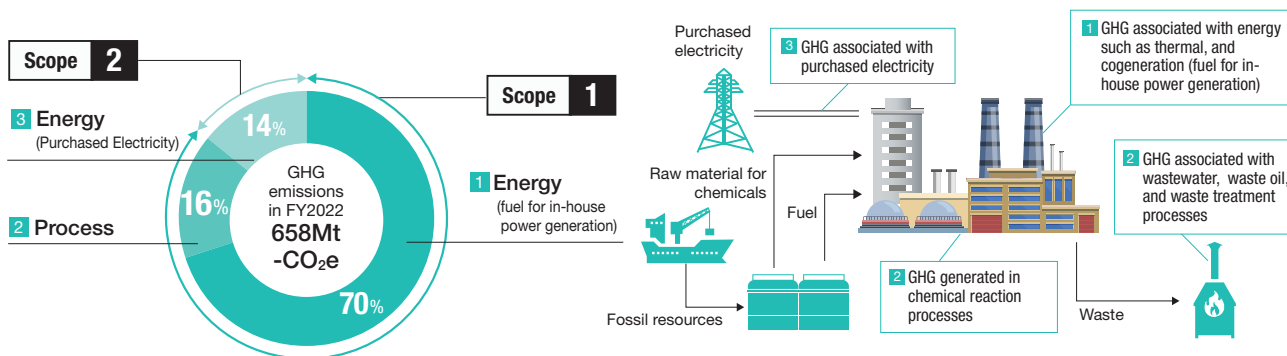


# Climate Change Mitigation and Adaptation

## Specific initiatives for “Obligation”

### Major sources of GHG emissions from chemical plants

The chemical industry is an industry in which raw materials are converted into products through chemical reactions that are driven by electricity, heat from steam, and other forms of energy. In FY2022, 70% of our GHG emissions came from **1** Energy (fuel for in-house power generation), 16% from **2** Process (chemical reaction and waste treatment), and 14% from **3** Energy (purchased electricity). We aim to reduce GHG emissions by focusing on the conversion to clean energy for energy-derived GHG and on the development of necessary technologies for process-derived GHG.



### 1 Reduction of GHG from energy (fuel for in-house power generation): Fuel Conversion

In the Ehime and Chiba regions, where our plants are located, we are promoting the conversion from coal, petroleum coke, heavy oil, and other fuels with high CO<sub>2</sub> emission coefficients to LNG, which has a low CO<sub>2</sub> emission coefficient.

- In FY2022, started operation of thermal power plant using LNG instead of existing fossil fuels in Ehime region.



- In the fall of 2023, the existing petroleum coke power generation facility will be decommissioned in the Chiba region, and a high-efficiency gas turbine power generation facility is scheduled for completion.

	Ehime region	Chiba region
Fuel	Coals and heavy oil ▶ LNG	Petroleum coke ▶ LNG
Amount of CO <sub>2</sub> reduction	650,000 tons/year	240,000 tons/year

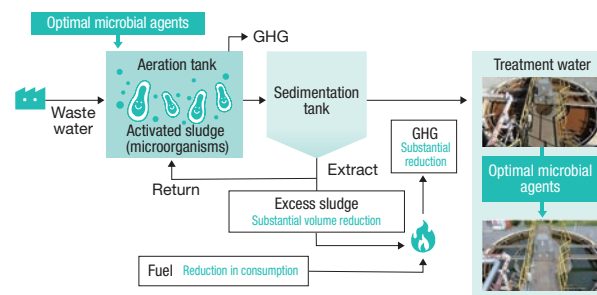
In addition, the following initiatives are being implemented with respect to the conversion from LNG to cleaner fuels.

- Focused on hydrogen and clean ammonia (blue and green), and initiated discussions with Yara, a major foreign ammonia manufacturer, regarding the possibility of its stable procurement.
- In addition, four domestic ammonia suppliers, UBE Corporation, Mitsui Chemicals, Inc., Mitsubishi Gas Chemical Company, Inc., and SUMITOMO CHEMICAL COMPANY, LIMITED have agreed to jointly start discussions to secure a stable supply of clean ammonia, and discussions are ongoing.

We will continue to study the possibility of making each power generation facility cleaner (zero GHG emissions) based on the development status of ammonia and hydrogen combustion technologies, biomass fuel market trends, and regional collaboration efforts.

### 2 Reduction of GHG from process (chemical reaction and waste treatment)

Sumitomo Chemical is promoting biotechnological wastewater treatment. Wastewater treatment is an essential initiative to prevent water pollution and promote the recycling and reuse of water resources, however there was the issue that it requires a lot of energy and causes GHG emission when incinerating excess sludge. To address this issue, we have improved wastewater treatment capacity while reducing the amount of sludge generated, GHG emissions associated with wastewater treatment, and fuel consumption through the use of optimal microbial agents.



### 3 Reduction of GHG from energy (purchased electricity): Use of renewable energy

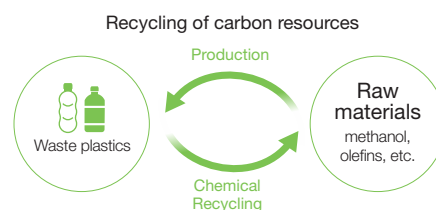
At our Oita Works, we have achieved GHG reductions of approximately 20% by converting 100% of purchased electricity to renewable energy, and approximately 10% by switching from heavy oil to city gas, resulting in a total GHG reduction of approximately 30% of the Oita Works' emissions compared to FY2013.

## Specific initiatives for “Contribution”

### Establishment of carbon resource recycling system

We are developing chemical recycling technologies to convert garbage and waste plastics into basic raw materials for chemicals, such as methanol, ethanol, and olefins, and to use them as raw materials for new plastics.

Specific Initiatives → **P.43** Contribute to recycling resources

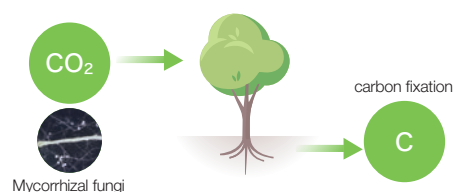


### Challenges to carbon negative emissions

We are developing a technology whereby attaching useful microorganisms existing in soil to the roots of plants and allowing them to coexist, we not only promote the absorption of CO<sub>2</sub> by plants through photosynthesis, we also fix CO<sub>2</sub> in the ground in the form of carbon compounds. This will enable ordinary fields, forests, and other natural spaces to absorb and fix even greater amounts of CO<sub>2</sub>, contributing a net negative amount of carbon to the atmosphere.

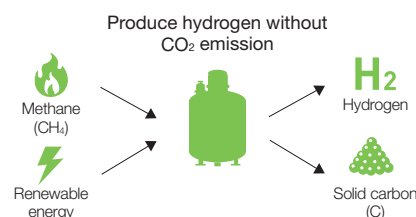
Specific Initiatives → **P.45** Sustainable use of natural capital

Utilizes the power of nature to promote absorption of atmospheric CO<sub>2</sub> and its fixation in the ground



### Response to methane gas

The future shift to clean energy will require the availability of CO<sub>2</sub>-free hydrogen. To address this issue, we are developing a technology to produce hydrogen from methane without CO<sub>2</sub> emissions. This technology will help reduce methane, a GHG, and contribute to the realization of a carbon neutrality.



## External Cooperation Initiatives

### Dissemination efforts of Carbon Footprint of Products (CFP)\* calculation tool

Although the evaluation of product CFP is essential to reduce GHG emissions in society, it is not easy to analyze the CFP of chemical products due to the complexity of their manufacturing processes. In response, we have developed our own automated calculation tool and calculated the CFP of approximately 20,000 products. Currently, we are expanding the scope of evaluation to Group company products. We also provide the tool free of charge to other companies, and at present, more than 70 companies are using the tool, and we have also started collaboration with the Japan Chemical Industry Association.

\*Greenhouse gas emissions from each stage of the product lifecycle, from procurement of raw materials to manufacturing, use, and disposal, expressed in terms of CO<sub>2</sub> emissions.

Our original calculation tool speeds up the calculation of CFP for our products

#### Created the original automatic CFP calculation tool

- Built based on commercially available software (Microsoft Access/Excel)
- Prepared multiple calculation models accounting for the characteristics of chemical manufacturing processes (co-products, by-product fuels, steam generation, etc.) (Choose from the pull-down menu of models and execute calculation)
- Can easily calculate carbon footprint for each stage (intermediates or final product). E.g., raw material to Intermediate A to Intermediate B ... to final product.

#### Cradle to Gate



### Initiatives through Regional Collaboration

Since there are limits to what individual companies can do to achieve carbon neutrality, it is necessary to accelerate regional collaboration with external parties such as companies outside our group and government agencies. In addition to participating in the Keiyo Coastal Industrial Complex Council on Carbon Neutrality, which was established in November 2022 mainly in Chiba Prefecture, we are also studying ways to achieve carbon neutrality, such as securing biomass feedstock and recovering waste, in cooperation with Maruzen Petrochemical Co. Ltd. and Mitsui Chemicals, Inc. We are proceeding with the study about the port decarbonization plan which is currently promoted by government agencies in cooperation with the local community.

## Material Issues for Social Value Creation

Contribute to the Environment



## Climate Change Mitigation and Adaptation

## Metrics and Targets (Risk)

As a metric for climate-related risks, we are the first diversified chemical company in the world to utilize GHG emission reduction targets certified as Science Based Targets (SBT).

Our group's<sup>\*1</sup> GHG emissions (Scope 1 + 2) reduction target for 2030 is 50%<sup>\*2</sup>, and has been certified under SBT's Well Below 2.0°C standard. Until 2030, we aim to achieve this goal by utilizing the best available technology (BAT) in the manufacturing process at existing plants and by making thorough energy conservation and fuel switching in the manufacturing process.

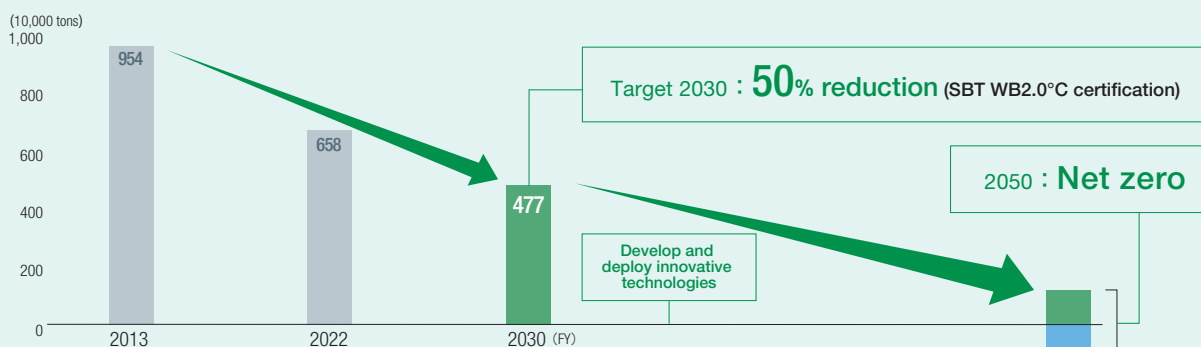
On the other hand, to reach net-zero emissions by 2050, it will be difficult to respond only with existing technologies, and innovative technologies such as carbon-negative emissions and CCUS<sup>\*3</sup> will be necessary. We will continue to study the development of them and their early implementation

\*1 Sumitomo Chemical + domestic and overseas consolidated subsidiaries

\*2 Compared to FY2013

\*3 Capture, effective utilization, and storage of CO<sub>2</sub> emitted from plants, etc.

## Scope 1 + 2 GHG Emissions Trends and Reduction Targets



## Past Initiatives

- Energy conservation and rationalization in manufacturing processes
- Restructuring of Chiba Works and Ehime Works (Ethylene plant shutdown, liquid-phase caprolactam shutdown, etc.)
- Fuel conversion (introduction of LNG, etc. at Ehime Works)

## Initiatives for FY2030

- Thorough energy conservation and rationalization of manufacturing processes (use of BAT)
- Fuel conversion (introduction of LNG, etc. at Chiba Works)
- Promotion of introduction of renewable energy sources
- Avoided GHG emissions other than CO<sub>2</sub>, etc.

## Scope 3

Reduce GHG emissions (Scope 3 (Categories 1 and 3)) of major Group companies by

14% from  
FY2020 by  
FY2030

## Supplier Engagement Initiatives

As part of our efforts to encourage our major suppliers to reduce GHG emissions, we hold an annual supplier information exchange meeting. In 2023, we held a hybrid face-to-face and web-based meeting with 43 major suppliers in Japan to explain our efforts to reduce Scope 3 emissions and to request their cooperation in reducing GHG emissions and sharing information on reductions. In recognition of these efforts, the company has been selected as a "Supplier Engagement Leader," the highest rating in the Supplier Engagement Rating conducted by CDP, an international NGO, for four consecutive years.

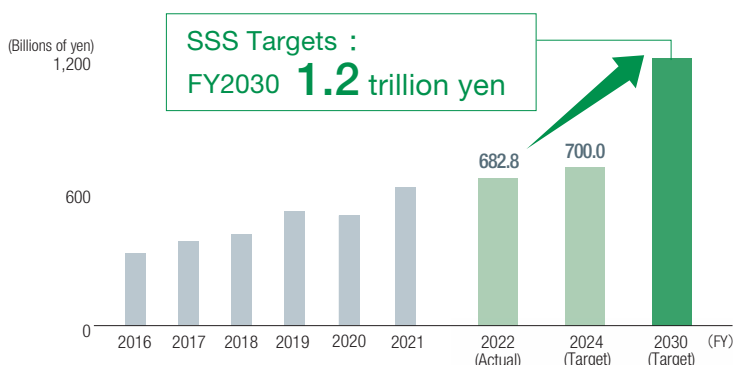


## Metrics and Targets (Opportunities)

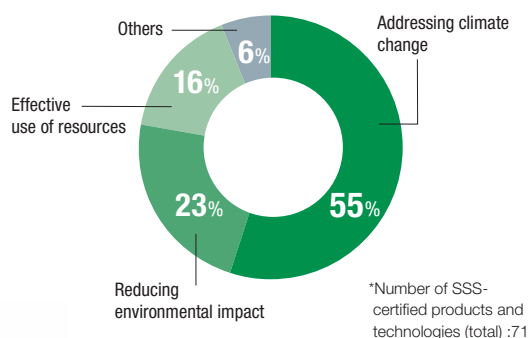
Sumika Sustainable Solutions (SSS) is used as a metric for climate-related opportunities. SSS is an initiative in which we designate those of our Group's products and technologies that contribute to the fields of addressing climate change, reducing environmental impact, and effective use of resources in order to promote their development and spread. In FY2022, sales revenue from SSS-certified products totaled 682.8 billion yen, making steady progress toward the FY2030 goal of 1.2 trillion yen.

### Sumika Sustainable Solutions

#### Sales Revenue Targets



#### Percentage of products and technologies in each certified field (FY2022)



### Quantifying avoided GHG emissions through SSS-Certified Products and Technologies

## Science Based Contributions (SBC)

### Avoided GHG emissions through products and technologies

In order to more clearly demonstrate the contribution of our products and technologies to carbon neutrality (CN), we have established a new indicator, Science Based Contributions. By calculating and visualizing the contribution to avoided greenhouse gas (GHG) emissions, we will accelerate our efforts to achieve CN for society as a whole through our products and technologies.

The SBC quantitatively and scientifically calculates the amount of GHG reductions achieved in society through the use of SSS-certified products and technologies that we have sold and provided. The figures are calculated based on the product CFP and sales volume of the subject products and the production capacity of the licensed plants, etc. The calculation method is validated by external experts.

We will strive to promote understanding of the contribution of our products and technologies to society through active disclosure of information to our stakeholders using the SBC, and promote efforts to realize CN around the world.

### FY2022 SBC results: 8.3 million tons

<b>SSS Technology</b>	Propylene oxide (PO)-only process Hydrochloric acid oxidation process		<b>Licensees</b>	<b>2.7 million tons</b>
<b>SSS End Products</b>	Methionine Flumioxazin, etc.		<b>Users</b>	<b>5.6 million tons</b>
<b>SSS Materials &amp; Components</b>	Components for Secondary Batteries and aircraft, etc.		<b>Users</b>	<b>Not applicable (under consideration)</b>

### Calculation Method

SSS are classified into the three categories of technology, end products, and materials/components, and CFP is calculated from the difference by comparing the CFP of SSS with that of technologies and products in widespread use as of 2013. (Based on single-year sales volume)

#### SSS Technology

- PO-only process is compared to the average of other PO manufacturing processes, such as the chlorine process, and hydrochloric acid oxidation process is compared to the salt electrolysis process..

- Calculation of reduction contribution by licensees.

#### SSS Products

- Methionine is compared to feed without additives.

- The contribution to the reduction of N<sub>2</sub>O in poultry waste was calculated.

- Regarding the Flumioxazin, contributions to emissions reduction achieved by no-till farming in the U.S. were calculated by comparing no-till farming for soybean cultivation with the conventional farming method.

Material Issues for Social Value Creation

# Contribute to the Environment Contribute to Recycling Resources

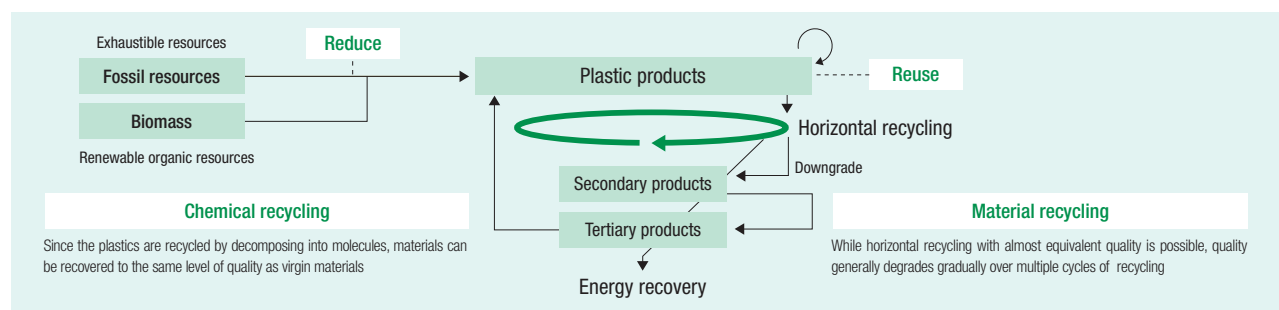
Our lives are based on limited resources. For sustainable use of resources, we need to reduce the consumption of natural resources while at the same time circulating the resources we have. In addition to waste management and effective use of resources at our offices and Works, Sumitomo Chemical is working on the development and social implementation of recycling technologies for plastics and other resources.

## Initiatives to Realize Circular System for Plastics

### Overall picture of circular system for plastics

Toward a circular system for plastics, it is important to make an effort to reduce, reuse, and recycle (material recycling and chemical recycling) at each stage of the plastic value chain.

#### Overall picture of circular system for plastics



### Our KPIs for resource recycling

Sumitomo Chemical has identified “contribution to recycling resources” as one of our material issues to be addressed as management priorities, and we have set the amount of recycled plastic resources used in the manufacturing process as a KPI for this purpose. We are working to replace 200k tons/year of plastic used in our manufacturing process with recycled resources by 2030.

KPI: The amount of recycled plastics utilized in manufacturing processes	
Target	<b>200k tons/year by FY2030</b>
Results	<b>FY2022 5,900 tons</b>

### Development of the Meguri® brand

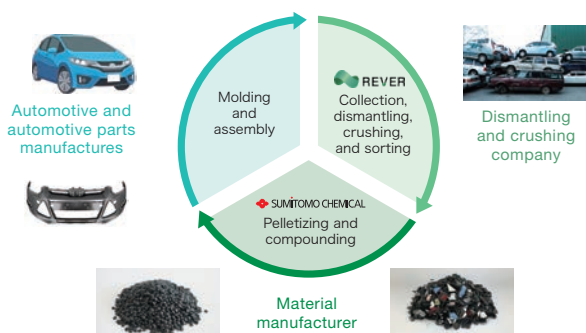
Meguri® is a brand of plastic products and chemicals that can be obtained through recycling technology and contribute to reducing environmental impact. Meguri® products are the crystallization of the latest recycling technologies and the environmentally friendly technologies that we have cultivated in various fields as a diversified chemical company. We will expand the Meguri® product lineup and increase production and sales of these products, thereby playing a role in realizing a circular economy.



The brand name Meguri® means “circularity” in Japanese. The design of the icon is a deformed version of the kanji character “廻”, which means “circularity” in Japanese.

### 1 Initiatives for Material Recycling

As one of our material recycling initiatives, Sumitomo Chemical and REVER CORPORATION have concluded a business alliance agreement for material recycling of waste plastics derived from end-of-life vehicles. Through this alliance, the two companies will work to build a circular system for recycling waste plastics that includes the whole process, from collection to sorting to recycling into useful plastic resources, and to accelerate business development for plastic recycling.



In September 2022, we made a decision to introduce a pilot-scale mechanical waste processing facility that performs an integrated process of high-precision sorting and removal of foreign matter according to the type and characteristics of waste plastics.

In addition, we will work towards the acceleration of business development, and aim to being able to supply samples to automotive-related manufacturers in FY2023.

## 2 Initiatives for Chemical Recycling

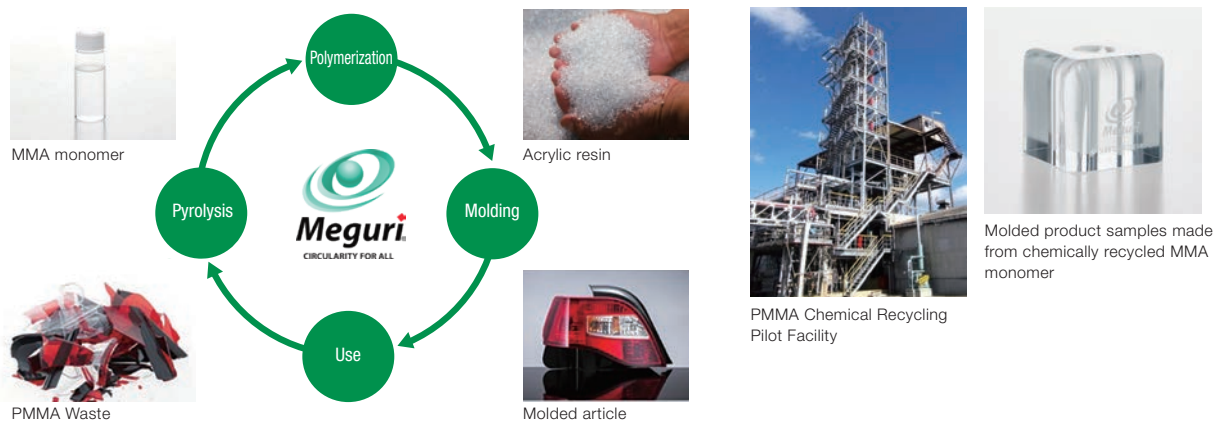
We promote development of chemical recycling technologies through multiple routes in parallel, by combining our catalyst design and chemical process design technologies, in collaboration with external parties. Utilization of these technologies will reduce fossil resource use and plastic waste emissions, as well as GHG emissions from plastic waste incineration.

### Chemical Recycling System for Acrylic Resin

Sumitomo Chemical has jointly developed with The Japan Steel Works, Ltd. a technology for pyrolyzing acrylic resin and recycling it, with high efficiency, into MMA monomer, which is a raw material for acrylic resin (polymethyl methacrylate or PMMA). We have built the new pilot facility at Ehime Works and aim to supply samples in the fall of FY2023.

\*PMMA made from recycled monomers reduces GHG emissions throughout the product lifecycle compared to products derived from fossil resources.

#### PMMA Recycling Mechanism



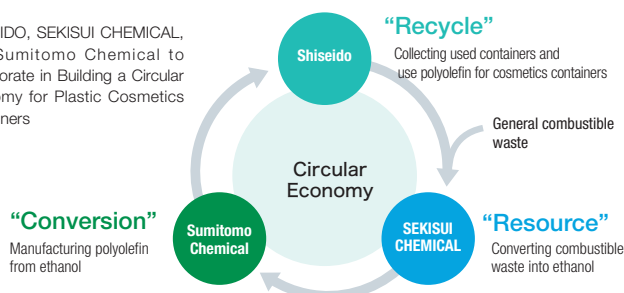
### Started Sample Production of Ethanol-Based Ethylene for Environmentally-Sustainable Polyolefin

Sumitomo Chemical completed the construction at its Chiba Works of a pilot facility to manufacture ethylene using renewable ethanol as a raw material, ethanol produced from waste by SEKISUI CHEMICAL CO., LTD. (SEKISUI CHEMICAL), and bio-ethanol derived from biomass, such as sugarcane and corn, and started manufacturing samples to develop the market, with the aim of contributing to creating a circular economy. We aim to commercialize ethanol-based polyolefin in FY2025 as an example of our efforts to build a new recycling model for plastic cosmetic containers through collaboration among the three companies, SHISEIDO CO., LTD. (SHISEIDO) and SEKISUI CHEMICAL.



Pilot facility to produce ethylene from renewable ethanol

SHISEIDO, SEKISUI CHEMICAL, and Sumitomo Chemical to Collaborate in Building a Circular Economy for Plastic Cosmetics Containers



Investors' Handbook 2023 → **P.26** Our Chemical Recycling Initiatives and List of Themes Selected by NEDO\* for their Green Innovation Fund Project

\*New Energy and Industrial Technology Development Organization (NEDO)

## Direct Recycling Initiatives for Battery Cathode Materials

We are developing recycling technology that regenerates cathodes collected from used lithium-ion secondary batteries without returning it to metal. By simplifying the conventional process, CO<sub>2</sub> emissions are reduced and recycled cathode materials can be produced at low energy and cost. JERA Co., Inc. and we were selected for NEDO's "Green Innovation Fund Project: Development of Next-Generation Storage Batteries and Next-Generation Motors". Both companies will promote development of the recycling technology and social implementation.

\*New Energy and Industrial Technology Development Organization (NEDO)

Specific Initiatives → **P.68** Direct Recycling of Cathode Materials



## Material Issues for Social Value Creation



Contribute to the Environment

## Sustainable Use of Natural Capital

Sumitomo Chemical has been conducting its business using various types of natural capital such as water and soil, and the entire Group has been implementing various initiatives for the sustainable use of natural capital. Now that the Kunming-Montreal Global Biodiversity Framework was adopted at COP15 in December 2022, and the so-called Nature Positive direction was outlined in the framework, which aims to halt, reverse and put biodiversity loss on a recovery track by 2030, we recognize that biodiversity conservation and sustainable use of natural capital are again material issues and we will make further initiatives.

## Our Initiatives

Sumitomo Chemical is considering and promoting initiatives to realize Nature Positive from the perspectives of both obligation and contribution.

## Obligation

- Works to reduce GHG emissions to near zero
- Reduction of chemical substance emissions
- Reduction of waste
- Effective use of water resources
- Promotion of sustainable procurement initiatives, etc.

## Specific Initiatives (Effective use of water resources)

- Water risk assessment in areas where major production sites are located

We conduct water risk assessments from two perspectives: physical water risk (regional water stress, seasonal changes in water supply, flooding conditions, etc.) and vulnerability risk to water quality (water pollution conditions of water intake and discharge, impact on ecosystems, etc.).

- Initiatives in regions with declining water resources

Based on the results of water risk assessment, we are taking measures tailored to local needs.

Locate	Around Bhavnagar Plant of Sumitomo Chemical India Ltd.
Evaluate	Water resources are decreasing due to population growth, increased demand for agricultural water, and decreased precipitation.
Assess	In the event of a water supply shortage, Sumitomo Chemical India will not be able to secure sufficient water for its production activities and will not be able to maintain stable operations.
Prepare	The company purchases domestic wastewater from households, treats it in the factory using earthworm farming technology, and reuses it. This approach reduces the use of river water by more than 70% while ensuring a stable water supply for production activities.

## Wastewater treatment

Treatment using earthworm farming technology instead of the common activated sludge method to suit the characteristics of domestic wastewater, which contains relatively high levels of nutrients



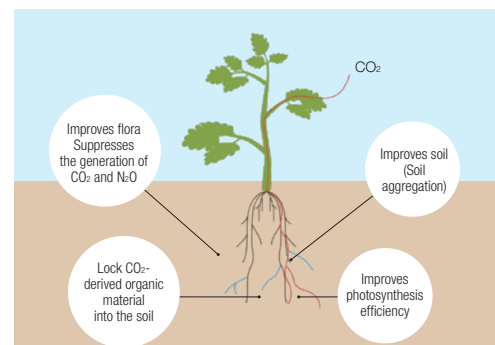
## Contribution

- Through products and technologies
  - Reduction of global GHG emissions
  - Improvement of soil environment
  - Improvement of water environment
- Nature conservation activities (30 by 30 initiatives), etc.

## Specific Initiatives (Improvement of soil environment)

- Soil fertility by mycorrhizal fungi

Mycorrhizal fungi, a type of soil-dwelling microorganism that lives in symbiosis with plant roots, stimulates plant growth by accepting carbon compounds produced by plants through photosynthesis. This property increases the amount of carbon compounds in the soil and promotes carbon fixation, thereby reducing atmospheric CO<sub>2</sub> and contributing to soil fertility. We are working on the development of technology utilizing mycorrhizal fungi to achieve carbon neutrality and solve food problems.

Benefits of mycorrhizal fungi  
(including some hypotheses undergoing validation)

- Spread of no-till farming

Specific Initiatives → P.76 Health & Crop Sciences