Environment

Contributing to the SDGs through Environmental Activities

Contents

Environmental Activity Goals and Results

Goal achieved or steadily progressing: ○ Goal not achieved: △

Items		Boundary	Goals	Fiscal 2021 Results	Evaluation	Page
Climate Change Mitigation and Adaptation	Greenhouse gas emissions Scope 1+2*1	Sumitomo Chemical Group Consolidated	Reduce 36% compared to fiscal 2020 levels by 2030	Increased 3% relative to fiscal 2020	△	Pages 109–121
	Scope 3*2	Sumitomo Chemical Group Consolidated	Reduce 14% relative to fiscal 2020 for categories 1 and 3*3 by fiscal 2030	Maintain emissions at the fiscal 2020	△	
	Unit energy consumption*4	Sumitomo Chemical Group Consolidated	Improve more than 3% over the three years of the Corporate Business Plan (fiscal 2019–2021)	Improved 13% relative to fiscal 2018	○	
	Unit energy consumption in the logistics division	Sumitomo Chemical and Group companies in Japan*5	Improve over 1% per year on average over five years	Improved by an annual average of 0.5% over five years	△	

Note: Further details on goals based on the Act on the Rational Use of Energy and results are provided in the supplementary data (pages 139–140).

*1 Scope 1: Direct greenhouse gas emissions from operators themselves (fuel burning and industrial processes)
Scope 2: Indirect emissions from purchases of power and heat from outside the factory

*2 Scope 3: Emissions from the manufacturing and transportation of purchased raw materials

*3 Category 1: Purchased goods and services
Category 3: Fuel and energy activities not included in Scopes 1 or 2

*4 Energy consumption divided by consolidated net sales

*5 Within the scope of specified shippers according to the definition stipulated under the Act on the Rational Use of Energy

Goal achieved or steadily progressing: ○ Goal not achieved: △

Items		Boundary	Fiscal 2021 Goals	Fiscal 2021 Results	Evaluation	Fiscal 2022 Goals	Page
Contribute to Recycling Resources	Promoting the effective use of plastic resources	Sumitomo Chemical and Group companies in Japan	Improve total amount of valuable resources and effective usage*6 by at least 1% on average per year relative to fiscal 2020	Increased 6.3% relative to fiscal 2020	○	Improve total amount of valuable resources and effective usage by at least 1% on average par year relative to fiscal 2020	Pages 122–128
		Group companies overseas	Improve total amount of valuable resources and effective usage*6 by at least 1% on average per year relative to fiscal 2020	Increased 0.2% relative to fiscal 2020	△	Improve total amount of valuable resources and effective usage by at least 1% on average par year relative to fiscal 2020	
	Reduce the amount of industrial waste sent to landfills	Sumitomo Chemical	Maintain 80% reduction compared to fiscal 2000 levels	Reduced by 92.3% relative to fiscal 2000	○	Maintain 80% reduction compared to fiscal 2000 levels	
		Sumitomo Chemical and Group companies in Japan	Maintain waste volume at below fiscal 2020 levels to fiscal 2021	Increased by 23.7% relative to fiscal 2020	△	Maintain waste volume at below fiscal 2020 levels to fiscal 2022	
	Promoting the effective use of industrial waste	Sumitomo Chemical and Group companies in Japan	Improve effective usage rate*7 by at least 1% on average per year relative to fiscal 2020	Improved 4.5% relative to fiscal 2020	○	Improve effective usage rate by at least 1% on average per year relative to fiscal 2020	
		Group companies overseas	Improve effective usage rate*7 by at least 1% on average per year relative to fiscal 2020	Worsened by 1.7% relative to fiscal 2020	△	Improve effective usage rate by at least 1% on average per year relative to fiscal 2020	
	Properly treated PCB waste	Sumitomo Chemical and Group companies in Japan	• (High concentrations of PCB*8) Work toward appropriate storage and recovery of waste containing high concentrations of PCBs and complete PCB waste treatment at an early stage • (Minute amounts of PCB*9) Work toward appropriate storage and recovery of waste containing minute amounts of PCBs and complete PCB waste treatment by March 2025	• (High concentrations of PCB) Sumitomo Chemical: Completed treatment Group companies in Japan: Completed treatment • (Minute amounts of PCB) Implemented the treatment of waste containing minute amounts of PCBs at certain factories; continuing to promote the storage and recovery of untreated waste	○	• (High concentrations of PCB) Work toward appropriate storage and recovery of waste containing high concentrations of PCBs and complete PCB waste treatment at an early stage • (Minute amounts of PCB) Work toward appropriate storage and recovery of waste containing minute amounts of PCBs and complete PCB waste treatment by March 2025	

Note: Further details are provided in the supplementary data (pages 141–161).

*6 Effective usage amount = (amount of internally recycled and reused + amount of internally recovered heat) + (amount of externally recycled and reused + amount of externally recovered heat)

*7 Effective usage rate = {(amount of internally recycled and reused + amount of internally recovered heat) + (amount of externally recycled and reused + amount of externally recovered heat)}/amount of waste generated × 100

*8 High concentrations of PCB: Polychlorinated biphenyl (PCB) intentionally used as insulation oil in such items as electric appliances

*9 Minute amounts of PCB: PCB unintentionally mixed in as insulation oil in such items as electric appliances (over 0.5 mg/kg)

Environmental Activity Goals and Results

Goal achieved or steadily progressing: ○ Goal not achieved: △

Items		Boundary	Fiscal 2021 Goals	Fiscal 2021 Results	Evaluation	Fiscal 2022 Goals	Page
Sustainable Use of Natural Capital	Severe environmental accidents	Sumitomo Chemical and Group companies in Japan	0	0	○	0	Pages 129–138
	Laws and regulations, etc.	Sumitomo Chemical	Properly respond to more stringent laws and regulations and proactively address trends in new environmental regulations	Studied and responded to amendments to the PRTR Act, the Act on Rational Use and Proper Management of Fluorocarbons, and the Air Pollution Control Act (asbestos). Thoroughly discussed legislation to ease or tighten regulations with the National government.	○	Properly respond to more stringent laws and regulations and proactively address trends in new environmental regulations	
	Environmental protection management methods, etc.	Sumitomo Chemical	Provide individual support to Group companies for responding to environmental regulations	Provided individual support related to the Waste Management and Public Cleansing Law, the Soil Contamination Countermeasures Act, the Act on Rational Use and Proper Management of Fluorocarbons and the PRTR Act.	○	Provide individual support to Group companies for responding to environmental regulations	
	Conservation of Biodiversity	Sumitomo Chemical	Ensure compliance with "Sumitomo Chemical's Commitment to the Conservation of Biodiversity"	Ensured compliance with "Sumitomo Chemical's Commitment to the Conservation of Biodiversity" and promoted detailed initiatives based on ISO 14001	○	Ensure compliance with "Sumitomo Chemical's Commitment to the Conservation of Biodiversity" and strengthening effort	
	Prevention of air and water pollution	Sumitomo Chemical	Meet voluntary management criteria*1	There were no exceeded instance of the legal standard limit and voluntary management criteria.	○	Meet voluntary management criteria	
	Prevention of ozone layer depletion	Sumitomo Chemical and Group companies in Japan	• Eliminate the use of refrigeration units that use CFCs as coolants by fiscal 2025 • Eliminate the use of refrigeration units that use HCFCs as coolants by fiscal 2045	Systematically replaced refrigeration units that use CFCs and HCFCs as coolants	○	• Eliminate the use of refrigeration units that use CFCs as coolants by fiscal 2025 • Eliminate the use of refrigeration units that use HCFCs as coolants by fiscal 2045	
	Response to PRTR	Sumitomo Chemical	Maintain 60% lower total emissions relative to fiscal 2008	Reduced emissions by 90.6% relative to fiscal 2008	○	Maintain 60% lower total emissions relative to fiscal 2008	
		Sumitomo Chemical and Group companies in Japan	Maintain total emissions of air and water pollutants at below fiscal 2020 levels to fiscal 2021	Increased by 0.4% relative to fiscal 2020	△	Maintain total emissions of air and water pollutants at below fiscal 2020 levels to fiscal 2022	
	Reduction of VOC emissions	Sumitomo Chemical	Maintain VOC emissions reductions at 30% relative to fiscal 2000	Reduced emissions by 55.7% relative to fiscal 2000	○	Maintain VOC emissions reductions at 30% relative to fiscal 2000	
	Effective use of water resources	Sumitomo Chemical	Promote effective and efficient use of water resources	Water usage increased by 3.1% relative to fiscal 2020	△	Promote effective and efficient use of water resources	
		Group companies overseas	Improve unit water consumption by at least 1% on average per year	Improved 4.5% relative to fiscal 2020	○	Improve unit water consumption by at least 1% on average per year	
	Prevention of soil and groundwater contamination	Sumitomo Chemical and Group companies in Japan	Keep hazardous materials strictly within Company premises*2	Continued to keep hazardous materials strictly within Company premises	○	Keep hazardous materials strictly within Company premises	

Note: Further details are provided in the supplementary data (pages 141–161).

*1 Voluntary management targets that are stricter than the mandated levels and criteria of relevant laws and regulations, including agreements reached with local authorities.

*2 Keep hazardous materials strictly within Company premises: Controlled on the premises.

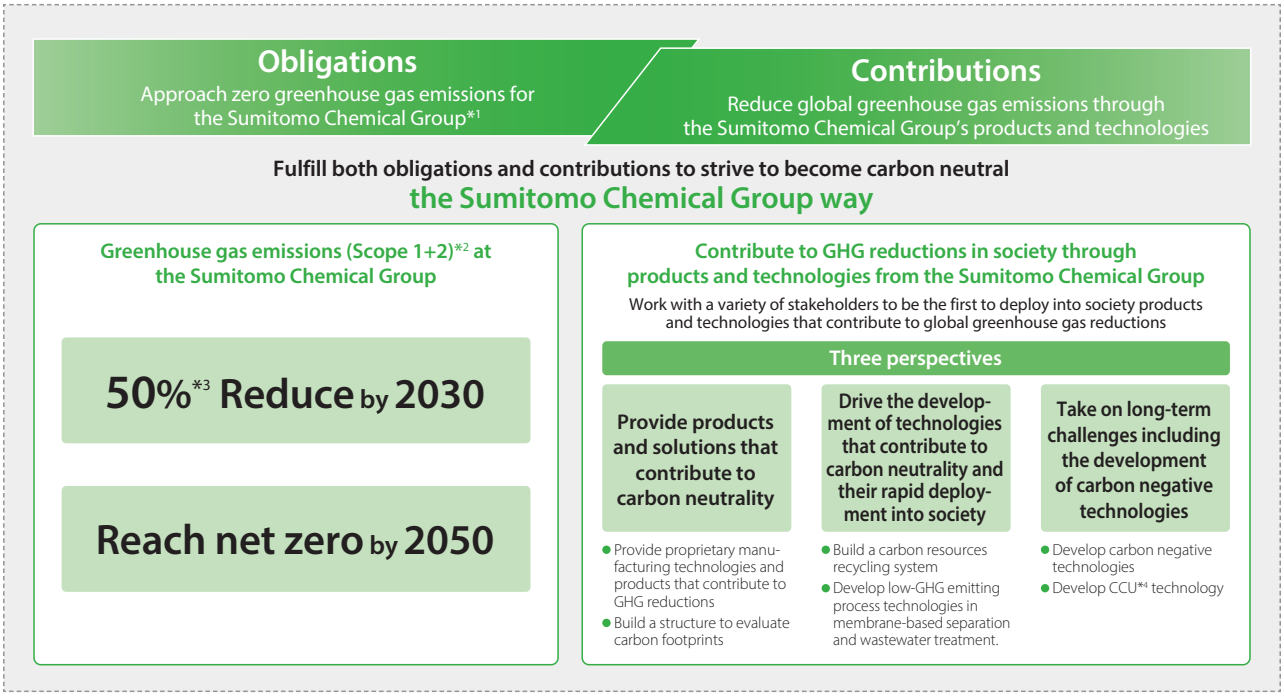
Climate Change Mitigation and Adaptation

Basic Stance

Sumitomo Chemical considers climate change a pressing challenge facing society. To address this problem, we are actively working to respond to risks and to seize opportunities by utilizing the technology we have cultivated as a diversified chemical company. In addition, regarding disclosure related to climate change, we will continue gaining the trust of society by actively raising awareness of our initiatives using the framework of the TCFD recommendations.

Furthermore, with movements aimed at achieving carbon neutrality picking up steam in recent years, the chemical industry is being strongly called upon to create innovation and contribute to the achievement of carbon neutrality for society at large through its businesses. In December 2021, Sumitomo Chemical formulated and publicized its "grand design to achieve carbon neutrality," setting out a direction for its initiatives aimed at realizing carbon neutrality by 2050. In line with this, we will push ahead with initiatives that address both our obligation to bring our own greenhouse gas (GHG) emissions close to zero and the contribution we can make to promoting carbon neutrality for society as a whole through our technologies and products. To fulfill our obligation, we have committed ourselves to reducing our GHG emissions by 50% by 2030 (compared to the level of emissions in FY2013), and to achieving net zero GHG emissions by 2050. We will also contribute to the reduction of GHG emissions throughout society by engaging in external collaboration and otherwise facilitating innovation to develop products and technologies that serve this end, along with pursuing their social implementation, with the aim of helping communities around the world realize carbon neutrality.

■ Grand Design Toward Achieving Carbon Neutrality



*1 Referring to Sumitomo Chemical Co., Ltd. and its consolidated subsidiaries in and outside Japan

*2 Scope 1: Greenhouse gases directly emitted by plants, such as in the use of fuels and in manufacturing products
Scope 2: Greenhouse gases emitted indirectly, such as through the purchase of electric power or steam from outside the company's plants

*3 Compared to FY2013

*4 CCU: Carbon dioxide Capture and Utilization

Climate Change Mitigation and Adaptation

<Disclosure in Line with TCFD Recommendations>

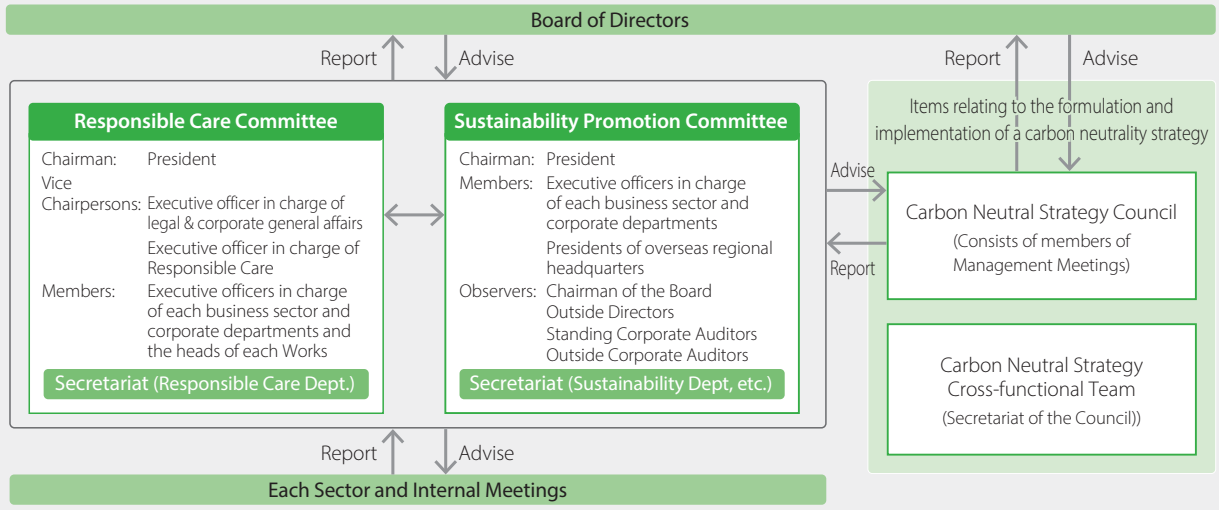
Sumitomo Chemical expressed its support for the TCFD recommendations when they were published in June 2017. In line with the four recommended disclosure items, "Governance," "Risk Management," "Strategy," and "Metrics and Targets," the Group's efforts to address climate change issues are introduced on pages 110-121.

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.

Management Meetings	Deliberation of important matters such as management strategies and capital investments, including proposals and reports to be submitted to the Board of Directors
Sustainability Promotion Committee	Deliberations on important matters related to sustainability promotion
Responsible Care Committee	Formulation of annual policies, mid-term plans, and specific measures to address climate change, as well as analysis and evaluation of performance
Carbon Neutral Strategy Council	Promotion of specific measures set forth in the grand design for achieving carbon neutrality in 2050

■ Structures for Responding to Climate Change



A wide range of specific issues related to energy and greenhouse gases (GHGs) are taken up for detailed discussion at Company-wide Science Based Targets (SBTs) GM Meetings, SBT Promotion Working Groups, Company-wide Energy Manager Meetings, Department Liaison Meetings on Global Warming, Group Company Information Exchange Meetings, and other gatherings. Through the establishment of these various meetings, we have created a system capable of steadily and swiftly sharing important information in addition to managing energy and GHGs for Works, research laboratories, business sectors, and Group companies.

Meeting	Coordinator	Members	Content
Company-wide SBTs GM Meeting	Executive officer responsible for Responsible Care	General managers in charge of SBTs at individual worksites	Discussing various measures aimed at achieving SBTs
SBT Promotion Working Group	Process & Production Technology & Safety Planning Department general manager	Corporate Planning Office, Research Planning and Coordination Department, Process & Production Technology & Safety Planning Department, Responsible Care Department, and Environmental Burden Reduction Technology Development Group	Proposing various multi-faceted measures to achieve SBTs
Company-wide Energy Manager Meeting	Responsible Care general manager	Section managers in charge of Energy and GHGs at their worksites	Sharing and spreading information on initiatives at each worksite
Department Liaison Meeting on Global Warming	Responsible Care general manager	Section managers in charge of climate change action at the departmental and corporate levels	Sharing Company-wide policies and ESG issues
Group Company Information Exchange Meeting	Executive officer responsible for Responsible Care	Managers in charge of climate change action for Group companies	Sharing Group policies and issues and promoting best practices

Climate Change Mitigation and Adaptation

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 Procedures

Each organization, including Group companies in Japan and overseas, conducts risk evaluations from the perspectives of probability of emergence (frequency) and financial impact in the event of emergence. The Internal Control Committee, which is chaired by the President, deliberates and identifies Company-wide material risks that need Group-wide initiatives, which may later be approved. The seriousness of each risk is determined by multiplying the probability of the individual risk by the financial or strategic impact on the Group's businesses.

Based on these processes, we have identified climate change-related risks and opportunities as detailed in the following table.

■ Risks and Opportunities

Risks

Transition risks
- Increases in tax burden due to the introduction and increase of carbon prices
- Increases in manufacturing costs associated with the increase in energy taxes
- Higher logistics costs due to higher energy prices

Physical risks
- Damage to production facilities due to intensified climate disasters caused by temperature rise
- Decline in sales of related businesses due to changes in crop cultivation in various regions worldwide amid abnormal weather

Opportunities
- Increasing demand for products that contribute to reducing green house gas (GHG) emissions
- Increasing demand for products that adapt to the impacts of climate change
- Growing market for low-carbon processes
- Development of new businesses in the area of climate change measures through research and development and digital innovation

Responding to Risk
- Initiatives Aimed at Achieving Carbon Neutrality
  - Adopts the internal carbon price system to enhance energy saving and promote investment in reducing of GHG emissions
  - Switching fuel for power generation (including the establishment of the Niihama LNG Station and the use of renewable energy)
  - Introduction of innovative low-carbon technologies
  - Initiatives for raising awareness and building momentum in the Group
  - Calling on major suppliers to set GHG emission reduction targets
- Strengthening measures against wind and flood damage at production sites

Initiatives for Seizing Opportunities
- Sales expansion for SSS*-designated products
  - Products that contribute to reducing GHG emissions
  - Products, components, and materials used for the creation of new energy sources
  - Products that contribute to adapting to the impacts of climate change
- Expansion of revenue from licensing low-carbon process technologies
- Acquisition of investment capital through information disclosure

* Sumika Sustainable Solutions

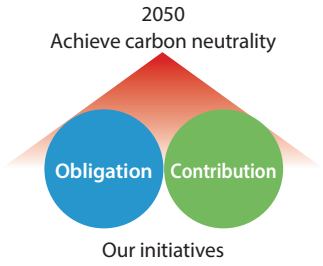
P.80 Risk Management

Climate Change Mitigation and Adaptation

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

From FY2013 to FY2021, we have implemented or made decisions to make approximately 80 billion yen of carbon neutral-related investments. We plan to consider investments of approximately 120 billion yen through FY2030, for a total of approximately 200 billion yen.

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℃ above the pre-industrial revolution levels, and a scenario in which countermeasures are not taken and temperatures increase by 4℃, evaluating both the impacts on our businesses and future actions that need to be taken.

Climate Change Mitigation and Adaptation

Summary of the Scenario Analysis

● In blue: positive impact ● In red: negative impact

Scenario	Risks and Opportunities	Anticipated Situation (Example)	Impact Assessment	Action
Common for All Scenarios*1	Increasing Demands for Disclosure of Information	● Expansion of ESG investment ● Increased demands for disclosure of the results of life cycle assessment ● Legalization of disclosure of climate change-related information, and introduction of new environmental accounting standards	● Increased opportunity to get access to ESG investment capital by enhancing information disclosure ● Improved rating in stakeholder assessments with regard to the disclosure of the amount of GHG emissions reduction calculated by life cycle assessment ● Increased cost of compliance	● Formulate and release our Grand Design for achieving carbon neutrality ● Calculate and disclose the carbon footprint of the Company's products ● Develop a carbon footprint calculation tool (CFP TOMO™) and provide it to other companies for free ● Respond to trends in regulations and movements by related institutions
1.5°C Scenario (Reduced GHG Emissions)	Increased Demand for Products and Technologies Contributing to the Mitigation of Climate Change	● Increasing investment and growing market for products and technologies contributing to the reduction of GHG emissions and for products and technologies related to recycling [Examples] • Growing markets for EVs and fuel cell vehicles (2020 to 2050) • Growing markets for components and materials for high-efficiency communication, due to change in consumer behavior (including expansion of the sharing economy and more efficient logistics with the use of IT) • Shift to low-carbon energy sources • Expansion of CCUS*2 (2030 onward) • Expansion of the circular economy, with the aim of reducing CO_2 derived from fossil fuels (2020 to 2050) • Growing markets for energy-saving homes and building materials	● Increased demand for SSS*3-designated products ● Increasing need for technological development for future SSS-designated products [Examples] • Components and materials for EVs and fuel cell vehicles • Increased sophistication in IT devices, demand for electronic components necessary to reduce energy consumption, demand for related products and technologies necessary for distributed power systems and semiconductor control devices • Technology that contributes to reducing GHG emissions • Products and technologies for CO_2 recovery, on the back of the expansion of CCUS • Carbon negative technologies • Recycling-related products and technologies • Biologically derived products and technologies • Energy-saving construction materials, such as heat-storing materials	● Enhance development and production systems for products such as lightweight materials, battery materials, and materials for optical products and electronic components ● Develop a process for recycling lithium-ion batteries ● Enhance development and production systems for materials for next-generation power devices and high-efficiency communications ● Promote licensing of technologies that contribute to reducing GHG emissions (for example: the hydrogen chloride oxidation process and the propylene oxide-only process) ● Develop technologies relating to CO_2 recovery ● Develop products that contribute to negative carbon emissions (for example: agricultural materials utilizing fungi, resins produced from microbes) ● Develop plastic recycling technology and build a recycling chain in cooperation with waste management companies ● Develop technology for biologically derived products ● Develop technology for and expand sales of heat storage material products
	Increased Regulation on GHG Emissions	● Higher carbon prices (in developed countries, USD 135/ton for 2030, USD 245/ton for 2050)*4	● Increased operational costs due to higher energy taxes including carbon prices (Assuming a volume of GHG emissions in fiscal 2050 is about 7.65 million tons/year (Scope 1+2), the same level as in fiscal 2021, and a carbon price between 18,000–33,000 yen per ton of CO_2, our expense burden will increase by about 140–250 billion yen per year.)	● Consider carbon-neutral petrochemical complexes and ports ● Switch to highly efficient equipment by actively utilizing government subsidies ● Switch to renewable energy ● Switch fuel to LNG ● Rationalization research for manufacturing processes
		● Stronger requirements for GHG emissions reductions and making energy-saving performance mandatory ● Phased abolishment of subsidies for fossil fuels (in India and Southeast Asia, etc.) ● Accelerating transition to a circular society and increased regulation ● Increase in calls to promote use of renewable energy from customers	● Lower utilization of high-energy consumption production facilities ● Increase in utility expenses due to an increased proportion of renewable energy	● Develop technologies to capture, separate, and utilize GHG, and deploy them in society ● Promote the deployment of GHG emission removal equipment ● Collaborate with other companies to secure a stable supply of clean ammonia ● Promote the utilization of CO_2-free hydrogen and ammonia
	Increased Cost of Raw Materials	● More use of resources from circular systems and progress in the transition to lower environmental impact processes ● Increased costs due to more use of recycled materials ● Increase in calls for green procurement	● More difficult to procure raw materials ● Lower profitability of the existing businesses	● Diversify raw material sources ● Evaluate the use of recycled raw materials ● Shift to a local production, local consumption model (for products where raw material procurement costs make up a relatively high proportion of the price)
4°C Scenario (Business as Usual)	Increased Demand for Products and Technologies adaptable to Climate Change	● Growing market for crops resistant to environmental changes such as temperature rise and drought ● Spread of infectious diseases due to the impact of climate change	● Increased demand for SSS-designated products ● Increased need for technological development for future SSS-designated products [Examples] • Biorationals and soil amendments • Agrochemical products adaptable to the change in crop growth • Agents for prevention and treatment of infectious diseases	● Develop products such as biorationals ● Provide solutions that respond to global changes in the environment for agriculture and infectious diseases ● Enhance sales and marketing structures and new product development structures with an eye on changes in demand in targeted markets
	Intensified Climate Disasters due to Temperature Rise	● More impact on plant operations ● Rising sea level, damage from storm surges and floods, and heat waves ● Damage to farmland due to droughts and soil degradation	● Facilities located on seashores and river banks cease operations ● Decreased cost competitiveness of plants due to increased costs for measures to be prepared for disasters ● Decreased demand due to lower agricultural productivity	● Manage and respond to risks from a business continuity planning perspective ● Expand and diversify the regions in which we do business

*1 Common for all scenarios: Situations that can be expected in both 1.5°C scenario (reduced GHG emissions) and 4°C scenario (business as usual)
*2 Carbon dioxide capture, utilization and storage *3 Sumika Sustainable Solutions *4 Assumptions based on the IPCC Special Report on "Global Warming of 1.5°C"

Climate Change Mitigation and Adaptation

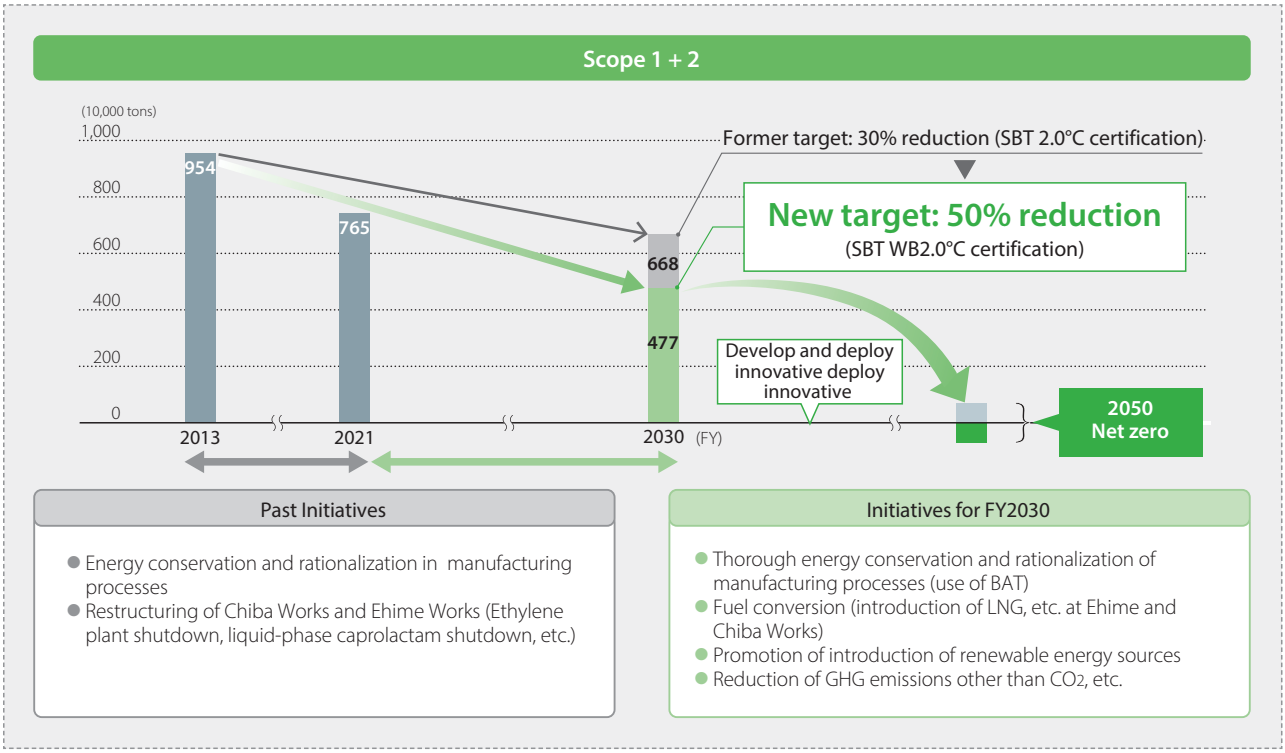
Metrics and Targets (Risk)

As a metric for climate-related risks, we are the first integrated chemical company in the world to utilize GHG emission reduction targets approved as Science Based Targets (SBT). In 2021, our group*1 revised its 2030 GHG emissions (Scope 1+2) reduction target significantly upward from 30% to 50%*2. With regard to this new reduction target, we obtained certification of SBT's Well Below 2°C standard in December of the same year. In addition, we established a target of reducing GHG emissions (Scope 3 (categories 1 and 3)) of major Group companies by 14% relative to fiscal 2020 by fiscal 2030. Until 2030, we aim to achieve this target through thorough energy conservation and fuel conversion in the manufacturing processes of existing plants and the use of the best available technologies (BAT) at this point in time.

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 will be necessary. We will continue to study the development of these and their early implementation.

*1 Sumitomo Chemical + domestic and overseas consolidated subsidiaries
*2 Compared to FY2013

■ GHG Emission Reduction Targets Approved under the Science Based Targets initiative (Scope 1+2)



Note: New target is reduce by 36% by 2030, with 2020 as the base year, and applied for a new SBT certification.

P.20 KPIs for material issues for social value creation: Amount of Group's GHG emissions (Scope 1+2)

Climate Change Mitigation and Adaptation

★: Assured by an independent assurance provider

FY2021 Energy Consumption and Greenhouse Gas Emissions

The Group's greenhouse gas emissions for fiscal 2017 onward are calculated in accordance with the GHG Protocol (refer to page 249 "Calculation Standards for Environmental and Social Data Indicators"). The boundary of calculation has been expanded to include principal consolidated Group companies, which account for up to 99.8% of consolidated net sales.

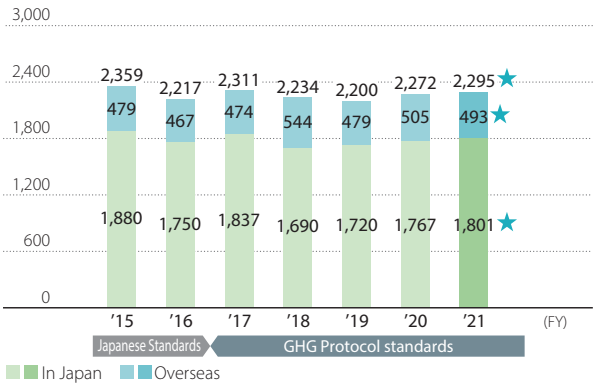
Greenhouse Gas Emissions ★

(Thousand tons of CO_2e)

	Sumitomo Chemical and Group Companies in Japan	Overseas Group Companies	Total
Scope 1	5,996	596	6,592
Scope 2	245	811	1,056
Total	6,241	1,407	7,648

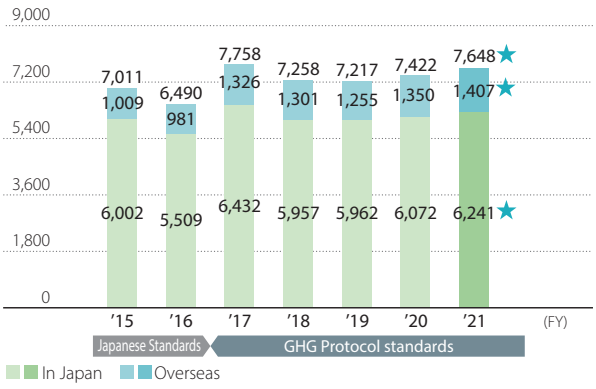
Note: Biomass-derived emissions were 50 thousand tons of CO_2e

Energy Consumption



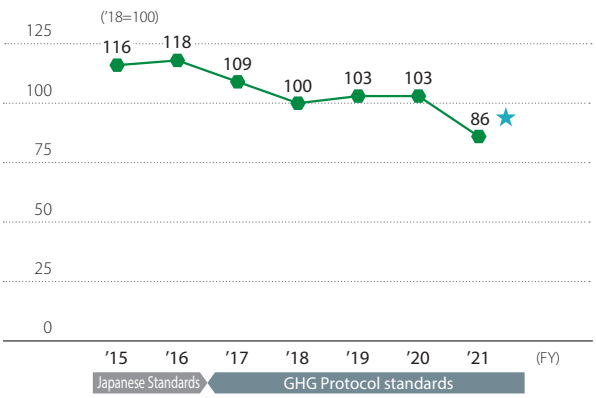
Notes: • Japanese Standards: Calculated based on the Act on the Rational Use of Energy.
• Having adopted the GHG Protocol standards for our GHG emission disclosures, we now include the following data previously excluded from calculations: amount of energy consumed in the production of power and steam sold to external parties by Sumitomo Chemical Group (the portion attributable to energy provider subsidiaries was included in years prior to fiscal 2016). The amount of energy consumed by Sumitomo Chemical's non-production sites and the Group's non-production sites is included from fiscal 2017 and fiscal 2018, respectively.

Greenhouse Gas Emissions



Notes: • Japanese Standards: Calculated based on the Act on the Rational Use of Energy and the Act on Promotion of Global Warming Countermeasures.
• Having adopted the GHG Protocol standards for our GHG emission disclosures, we now include the following data that was not included in previous calculations: CO_2 emissions from energy sold to external parties by the Group (the portion attributable to energy provider subsidiaries was included prior to fiscal 2016); CO_2 emissions from energy use attributable to Sumitomo Chemical's non-production sites; CO_2 emissions from non-energy sources not included in the scope of the Act on Promotion of Global Warming Countermeasures. CO_2 emissions from energy use attributable to Sumitomo Chemical's non-production sites and the Group's non-production sites is included from fiscal 2017 and fiscal 2018, respectively.

Unit Energy Consumption Index



Notes: • The figures are indexed to energy consumption (GJ) per sales
• The figures are indexed to fiscal 2018 at 100 because we aim to improve at least 3% over the three years of our Corporate Business Plan (FY2019–2021)

Climate Change Mitigation and Adaptation

★: Assured by an independent assurance provider

GHG Emission Reduction Targets Approved under the Science Based Targets initiative (Scope 3)

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 2022, we held a hybrid face-to-face and web-based meeting with 22 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, we have been selected as a Supplier Engagement Leader by CDP for two consecutive years.

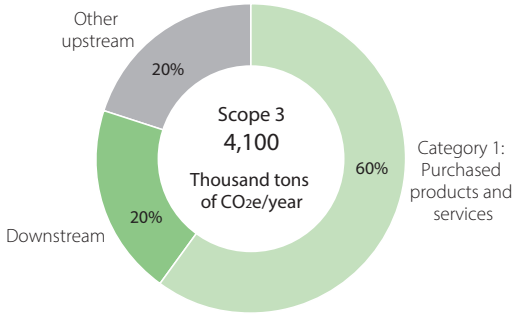
CDP SUPPLIER ENGAGEMENT LEADER 2021

Status of Scope 3 GHG Emissions

(Thousand tons of CO_2e/year)

Category	Emissions			
	FY2018	FY2019	FY2020	FY2021
1. Purchased goods and services	2,132	2,276	2,346	2,441★
2. Capital goods	394	151	164	141
3. Fuel- and energy-related activities not included in Scopes 1 and 2	298	581	585	559★
4. Upstream transportation and distribution	61	60	53	55★
5. Waste generated in operations	30	35	41	58★
6. Business travel	7	10	2	3
7. Employee commuting	9	11	11	9
8. Upstream leased assets	<1	<1	<1	<1
9. Downstream transportation and distribution	<1	<1	<1	<1
10. Processing of sold products	—	—	—	—
11. Use of sold products	44	40	42	45★
12. End-of-life treatment of sold products	780	879	806	788
13. Downstream leased assets	—	—	—	—
14. Franchises	—	—	—	—
15. Investments	—	—	—	—

Notes:
- For Scope 3 data, indirect greenhouse gas emissions from business activities throughout the supply chain are calculated separately by category and then added together.
- Calculated for Sumitomo Chemical and Group companies listed on stock indices in Japan (Sumitomo Pharma Co., Ltd.; Koei Chemical Co., Ltd.; Taoka Chemical Co., Ltd.; and Tanaka Chemical Corporation).
- Category 4 does not include Taoka Chemical Co., Ltd., but includes Nippon A&L Inc.
- Category 11 figures are N_2O converted into CO_2



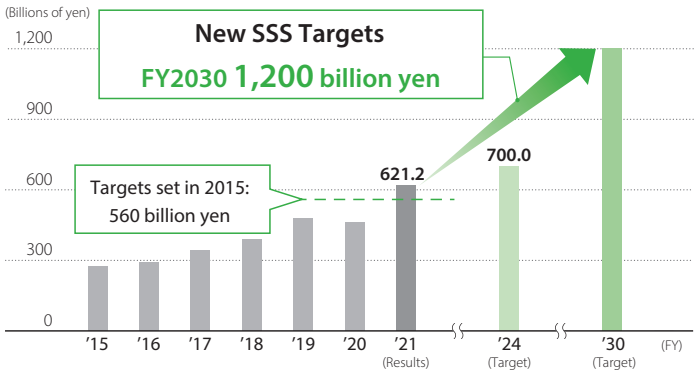
Climate Change Mitigation and Adaptation

Metrics and Targets (Opportunities)

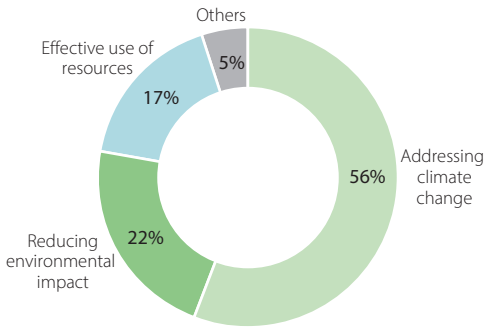
Sumika Sustainable Solutions (SSS) is used as a metric for climate-related opportunities. SSS is an initiative in which we designate those of our Group's products and technologies that contribute to the fields of addressing climate change, reducing environmental impact, and effective use of resources in order to promote their development and spread.

We have achieved our goal of 560 billion yen in sales revenue from designated products by FY2021. We have now set a new target of 1.2 trillion yen in FY2030, more than double the FY2021 level.

Sumika Sustainable Solutions' New Sales Revenue Targets



Environmental Contribution of Products and Technologies in Each Designated Field (FY2021)



	Results for FY2021
Sales of our group	2,765.3 billion yen
Sales revenue of SSS-designated products	621.2 billion yen
Number of SSS-designated products and technologies (total)	66

Sumika Sustainable Solutions

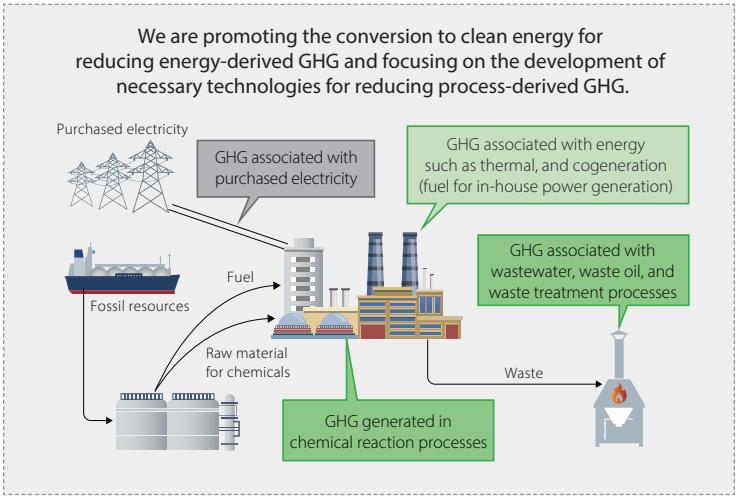
https://www.sumitomo-chem.co.jp/english/sustainability/management/promotion/sss/

Climate Change Mitigation and Adaptation

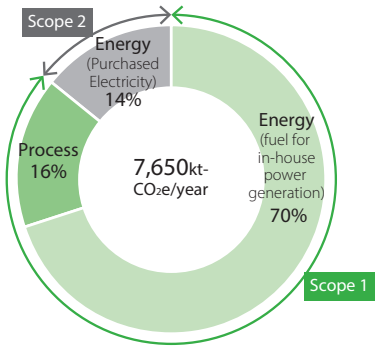
Specific Initiatives for "Obligation"

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. Of our GHG emissions in FY2021, 70% come from energy sources such as in-house power generation, 16% came from processes resulting from chemical reactions and waste treatment, and 14% come from energy sources associated with 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.



■ GHG Emissions in FY2021



● Reduction of GHG from Energy (fuel for in-house power generation): Fuel Conversion

Sumitomo Chemical is working to reduce GHG emissions as an SBT-certified company. At plants in Japan, we are introducing highly efficient gas turbine generators and decommissioning a number of existing boilers. Aiming to reduce carbon emissions, we are switching from using conventional high CO_2-emission fuels like coal, petroleum coke, and heavy oil to using low CO_2 emission intensity fuels like liquefied natural gas (LNG).

In March 2022, at Ehime Works, Niihama LNG Co., Ltd.* operates the Niihama LNG Station, which supplies LNG instead of the conventional coal or heavy oil. In addition, Sumitomo Joint Electric Power Co., Ltd. plans to start operations in 2022 of the Niihama North Gas-Fired Power Plant, a facility currently under construction that will use LNG. The switchover to this power source is expected to result in a 650,000-ton annual reduction in CO_2 emissions in the near future. In addition, we plan to construct highly efficient gas turbine power generation equipment at Chiba Works that uses LNG instead of the existing petroleum coke, looking to complete construction in autumn 2023. With the construction of this equipment, we expect to reduce annual CO_2 emissions by over 240,000 tons (equivalent to around 20% of the CO_2 emitted by Chiba Works). It will also enable the supply of power to neighboring Group companies as we work hard to reduce GHG emissions across the entire Group.

* Funded by Tokyo Gas Engineering Solutions Corporation, Shikoku Electric Power Co., Inc., Shikoku Gas Co., Ltd., Sumitomo Joint Electric Power Co., Ltd., and Sumitomo Chemical

	Ehime region	Chiba region
Fuel	Coals and heavy oil ▶ LNG	Petroleum coke ▶ LNG
Amount of CO_2 reduction	650,000 tons/year	240,000 tons/year

March 2022: Completion of one of the largest LNG tanks in Japan on the Ehime Works site and start of supply

● Reduction of process-derived GHG: Innovations in Wastewater Treatment Technology

We have developed wastewater treatment technology utilizing biotechnology and realized reductions in the GHGs emitted by and fuel used in water treatment.

P.129 Sustainable Use of Natural Capital

Climate Change Mitigation and Adaptation

★: Assured by an independent assurance provider

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

From November 2021, as part of its efforts to reduce GHG emissions, Sumitomo Chemical switched from externally purchased electric power at Oita Works to 100% renewable energy-derived power. Through this effort, we will reduce CO_2 emitted from the Works by around 20% relative to fiscal 2013. In addition, at the same Works, we switched the fuel used on site from heavy oil to the low CO_2 emission intensity city gas. We are working to optimize the plant operation conditions to maximize the effect and will achieve a total reduction in GHG emissions of around 30% year on year.

Initiatives Aimed at Reducing GHG Emissions at Each Worksite

Each Sumitomo Chemical worksite helps reduce GHG emissions, including in the following ways: installing the latest highly efficient equipment; introducing rationalization and energy-saving measures in production processes; switching to lower-carbon fuels and other forms of energy; installing LED lighting; and soliciting employee suggestions on how to further improve our energy-saving efforts. Furthermore, regarding cleanrooms and other facilities that are highly specialized and difficult to manage, we have launched initiatives in cooperation with experts. Information on the state of these activities is exchanged at Company-wide Energy Manager Meetings, at which representatives from each worksite gather in one location to work on reducing the GHG emissions of the Company as a whole.

State of Installing LED Lighting

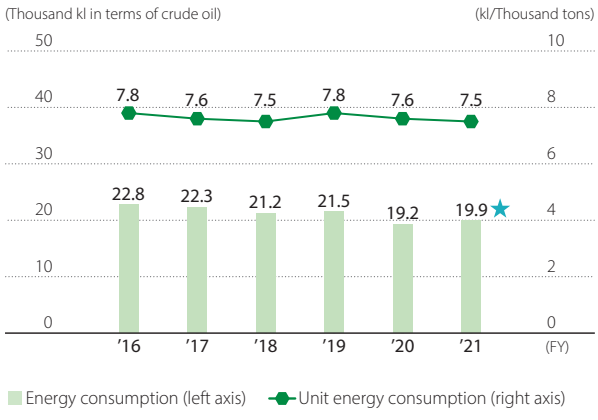
Over 50% of the lighting at all Sumitomo Chemical worksites has already been converted to LEDs, and we achieved the Japan Lighting Manufacturers Association's target of an SSL rate of 50% in 2020. Going forward, we will continue installing LEDs with the aim of achieving a 100% SSL rate in 2030 as a Company-wide initiative.

Logistics Initiatives

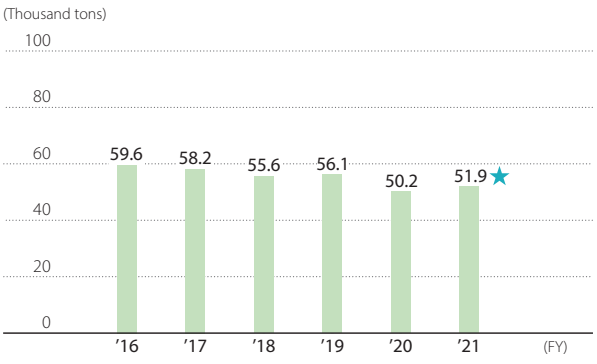
Sumitomo Chemical continues to promote modal shift, or transportation by more efficient and environmentally friendly modes, such as rail and ship instead of trucks. In fiscal 2021, energy consumption (crude oil equivalent) and carbon dioxide emissions increased compared with fiscal 2020 due to a recovery in the volume of cargo transported after falling in the previous year. Unit energy consumption fell 1.5% overall, for an average 0.5% improvement over the past five years, because of an increase in the amount of cargo loaded in intercoastal transport and a switchover to chartered vessels with better fuel performance. We will continue aiming to improve unit energy consumption by our target of 1% or more.

■ Reduction of Environmental Impact in Logistics Operations (Sumitomo Chemical and Group companies in Japan)

Energy Consumption and Unit Energy Consumption



CO_2 Emissions



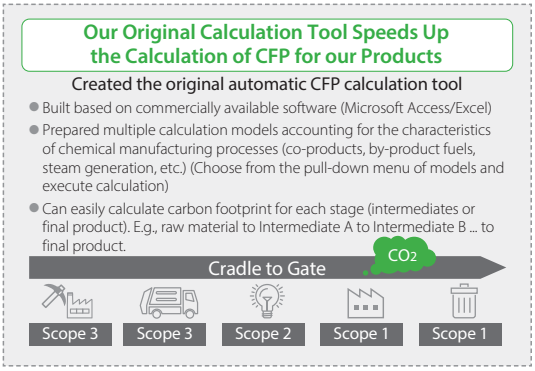
Note: Calculated for Sumitomo Chemical and a Group company in Japan (specified consigner: Nippon A&L Inc.)

Climate Change Mitigation and Adaptation

Specific Initiatives for "Contribution"

Development of Tools to Calculate the Carbon Footprint of Products (CFP)

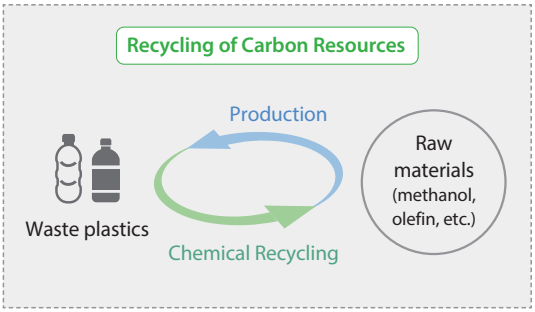
The evaluation of product CFP is essential to reduce GHG emissions in society. However, it is not easy to calculate the CFP of chemical products due to the complexity of their manufacturing processes. In response, we developed our own automatic calculation tool and completed the CFP evaluation of all of our products (approximately 20,000 items) by the end of 2021. In addition to aiming to complete CFP evaluations of Group companies' products by the end of FY2022, we have begun providing this tool to other companies free of charge.



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.

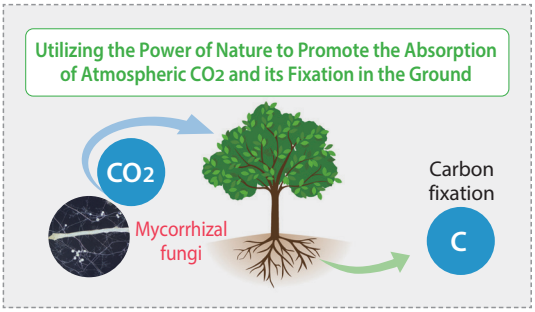
P.122 Contribute to Recycling Resources



Challenges to Carbon Negative Emissions

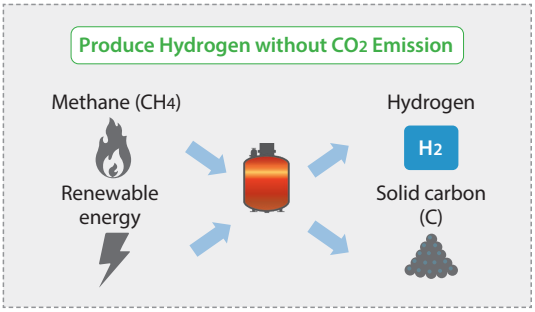
We are developing a technology whereby attaching useful micro-organisms existing in soil to the roots of plants and allowing them to coexist, we not only promote the absorption of CO_2 by plants through photosynthesis, we also fix CO_2 in the ground in the form of carbon compounds. This will enable ordinary fields, forests, and other natural spaces to absorb and fix even greater amounts of CO2, contributing a net negative amount of carbon to the atmosphere.

P.129 Sustainable Use of Natural Capital



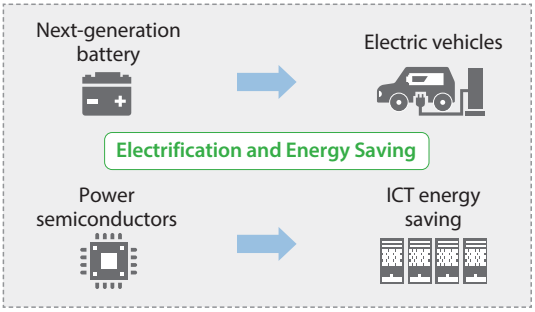
Response to Methane Gas

The future shift to clean energy will require the availability of CO_2-free hydrogen. To address this issue, we are developing a technology to produce hydrogen from methane without CO_2 emissions. This technology will help reduce methane, a GHG, and contribute to the realization of a carbon neutrality.



Highly Efficient Energy Infrastructure

One issue in the Society 5.0 concept is the increase in CO_2 emissions from the electricity necessary for transmitting massive volumes of data. In light of this, our company is contributing to creating energy-saving power supplies by providing compound semiconductor materials for next-generation power semiconductors. In addition, in response to the spread of electric vehicles, which is expected to accelerate going forward, we are working to develop next-generation storage batteries, such as solid-state batteries.

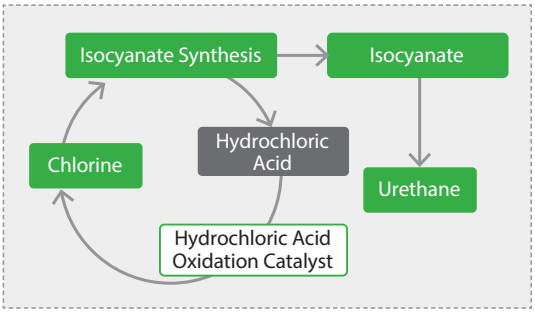


Climate Change Mitigation and Adaptation

Development of Hydrochloric Acid Oxidation Process Technology

Sumitomo Chemical has achieved a major reduction in environmental impact by recycling hydrochloric acid—a manufacturing byproduct—into a raw material through the development of technology that efficiently produces chlorine from hydrogen chloride. This technology allowed us to switch from energy-hungry conventional chlorine manufacturing to a process that uses less than one-fifteenth the energy and, over the next few years, will reduce our GHG emissions by two million tons per year (compared with electrolysis and other processes). We received the Grand Prize at the 54th JCIA Technology Awards (May 2022) for this technology from the Japan Chemical Industry Association (JCIA) for enabling the development and commercialization of a low-environmental impact process for manufacturing chlorine using hydrogen chloride (HCl).

■ Hydrochloric Acid Oxidation Process



JCIA Responsible Care Award

The Japan Chemical Industry Association awarded the Sumitomo Chemical Group the Excellence Award at the 14th JCIA Responsible Care Awards (Japanese only) for the Group's initiatives to promote sustainability, with the Misawa Works RC activities used as a case study (May 2020), and the Excellence Award at the 15th JCIA Responsible Care Awards (Japanese only) for Sumika Agro Manufacturing Co., Ltd.'s initiatives to reduce environmental impact (July 2021).

Maintained ISO 50001 Certification

In February 2020, Sumitomo Chemical acquired third-party ISO 50001 certification for energy management systems, the first diversified chemical manufacturer in Japan to do so, for its Responsible Care Department and the Ehime Works' methionine and electrolysis plants. In February 2021, the first surveillance audit* conducted since the third-party certification found no nonconformity or problem points and we were approved for maintaining certification.

* Conducted online due to the COVID-19 pandemic

Looking Ahead

In line with the Grand Design aimed at achieving carbon neutrality by 2050, which was released in December 2021, Sumitomo Chemical will leverage the technological capabilities and insights it has cultivated as a diversified chemical company to continue promoting initiatives to "fulfill its obligation" to realize zero Group GHG emissions by leveraging the technological capabilities and insights it has cultivated as a diversified chemical company and to "contribute" to the promotion of carbon neutrality throughout society via Group products and technologies.

Going forward, under Sumitomo Chemical's Business Philosophy of "working to contribute to society through our business activities," we will continue actively working to solve climate change problems and achieve carbon neutrality.

Contribute to Recycling Resources

<Resource Saving and Waste Reduction>

Basic Stance

Our lives are based on limited resources. Massive consumption of resources and disposal of waste lead not only to resource depletion, but also to the destruction of ecosystems. For sustainable use of resources, we need to reduce the consumption of natural resources while at the same time circulating the resources we have. Sumitomo Chemical is working on waste management and effective use of resources at our offices and works.

Management System

The president serves as the chief coordinator and the executive officer in charge of Responsible Care serves as the coordinator of the Environment and Climate Change Action Group of the Responsible Care Department. This group is responsible for matters related to environmental protection for the Company as a whole and supports the environmental protection activities of Group companies.

Our worksites (head offices, Works, research laboratories, etc.) have established sections in charge of environmental protection operations, appointed coordinators and managers, and execute specific duties. Regarding the execution of duties, the corporate department (Responsible Care Department) formulates Company-wide annual policies and Company-wide medium-term (three-year) policies. Then each worksite, in light of these policies and in consideration of its own characteristics and regional situation, formulates an action policy and undertakes specific activities from the new fiscal year.

Regarding amendments to laws and regulations, the Responsible Care Department vigilantly pays attention to trends related to the enactment and amendment of environmental laws and, as appropriate, provides feedback through national specialized committees and other organizations. All people addressing the problems also establish targets (details of the amendments, possible impacts, visualization of countermeasures, etc.) and commit the Company to addressing the issue being targeted.

Furthermore, with regard to amendments that have a large impact on business, we access the necessary information in advance and notify worksites to prepare for meeting compliance requirements.

P.96 Organization of Responsible Care

Examples of Initiatives

We are systematically working to reduce the amount of exhaustible raw materials used, quickly and properly dispose of PCB waste, and reduce the amount of industrial waste sent to landfills. Furthermore, we are setting targets related to recycling industrial and plastic waste and are promoting resource recycling initiatives.

Promoting Resource Saving

We are striving to enhance the economic benefits gained from resource saving activities, such as improving the throughput yield of exhaustible raw materials and product yield.

■ Exhaustible Raw Material Use (Sumitomo Chemical and Group Companies in Japan)

(Thousand tons)

	FY2019		FY2020		FY2021	
	Sumitomo Chemical and Group Companies in Japan	Sumitomo Chemical	Sumitomo Chemical and Group Companies in Japan	Sumitomo Chemical	Sumitomo Chemical and Group Companies in Japan	Sumitomo Chemical
Hydrocarbon compounds	1,829	1,545	1,704	1,449	1,713	1,429
Metals (excluding minor metals)	109	105	90.2	86.3	115	111
Minor metals	11.20	0.02	12.5	0.1	17.4	0.03

Note: Economic effects are detailed in the supplementary data (page 145)

Contribute to Recycling Resources

Thoroughly Managing Waste and Promoting Increased Recycling Internally and Externally

We have achieved a major reduction in industrial landfill waste by reducing the amount of industrial waste generated and promoting recycling. In addition, as a specified resource industry identified by the Act on Promotion of Effective Use of Resources, we are also working to reduce the generation of industrial byproducts (sludge). Furthermore, we are setting new targets related to recycling industrial and plastic waste from fiscal 2021 and are promoting resource recycling initiatives at each of our worksite and our Group company.

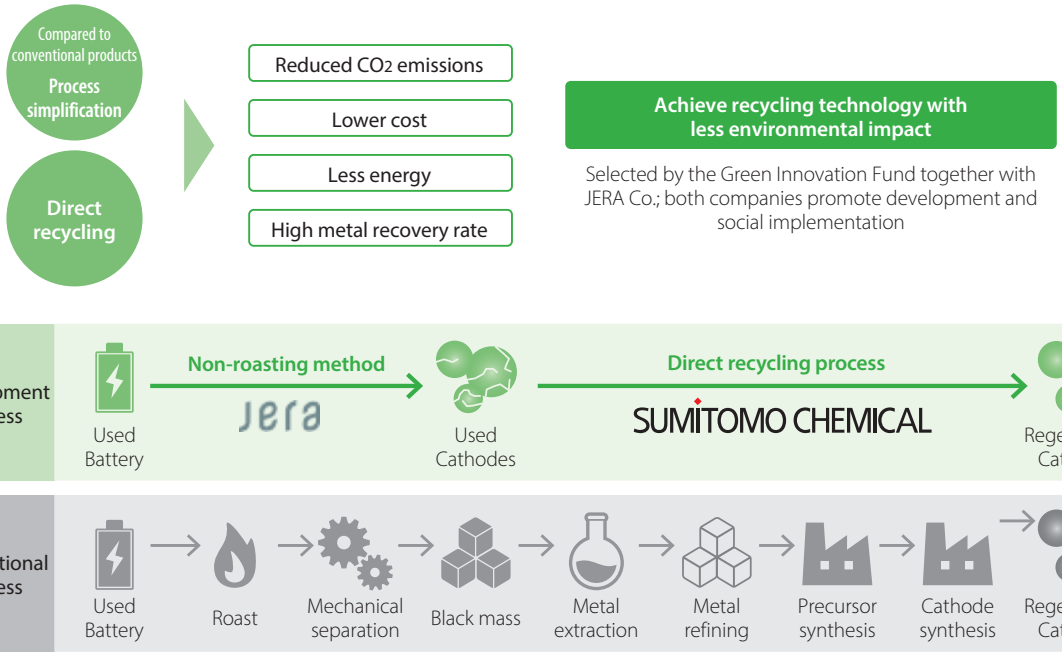
Moving up the Schedule for the Treatment of Waste with Minute Amounts of PCBs before Legal Disposal Deadline Set by the PCB Special Measures Law

We winnowed the external operators jointly contracted to dispose of waste by Group companies in Japan down to just one. Regarding the waste with minute amounts of PCBs (transformers, condensers, etc.) being stored or used by each company, we formulated and are carrying out a plan to treat the waste over multiple years. We plan to treat all applicable equipment by March 2025.

Initiatives to Realize Circular System for Rare Metals

Cathodes direct recycling

Recycling technology that regenerates cathodes collected from used lithium-ion secondary batteries without returning it to metal. JERA Co. 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.



Contribute to Recycling Resources

<Circular System for Plastics>

Basic Stance

In order to further promote the development of recycling technologies and their implementation in society, Sumitomo Chemical have set KPI and target related to our contribution to recycling resources.

We will continue to utilize waste plastics as raw materials and promote actively the recycling in order to realize a society in which waste plastics are recycled as resources instead of being discharged into the environment.

Sumitomo Chemical Group Basic Policy Towards a Circular System for Plastics

Recognizing that plastic is a useful material supporting a sustainable society, the Sumitomo Chemical Group is committed to work towards building a circular system for plastics and resolving plastic waste problems in accordance with its Basic Principles for Promoting Sustainability and the following policy:

1. The Group contributes to resolving plastic waste problems through its business, particularly by providing technologies, products and services that leverage the power of chemistry.
2. The Group focuses on innovation regarding 3Rs—reduction, reuse and recycling—of plastics and works to accelerate the adoption of new solutions by society, while also considering an impact on actions against climate change issues.
3. The Group takes on challenges difficult to resolve alone, such as marine plastic problems, by working with various stakeholders through alliances and open innovation partnerships.
4. The Group provides its employees with education and awareness-raising programs based on sound science, while also engaging in social actions, such as initiatives for promoting waste sorting and collection and riverside and beach cleaning campaigns, to ensure that every one of its employees has a sense of ownership and can change their actions as needed to address plastic waste problems.
5. The Group constantly reviews progress and works to enhance and improve its efforts by the Plan-Do-Check-Act (PDCA) cycle method.

(Formulated June 2020)

Management System

To promote R&D related to chemical recycling, in 2020 we established research groups that deal with technologies to reduce environmental impact at the Petrochemicals Research Laboratory (currently the Essential Chemicals Research Laboratory).

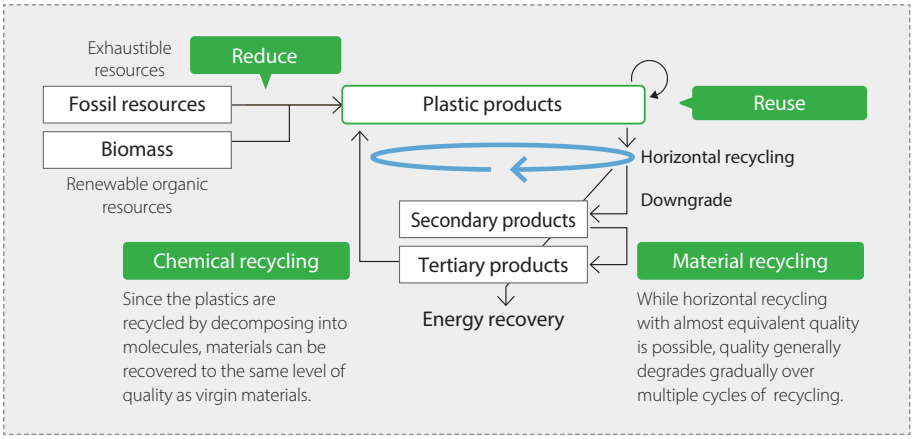
In pursuit of more practical, socially beneficial applications of this research, we are working to cultivate the market for plastic products made possible by securing and recycling plastic waste, especially through the Business Development Office for a Circular System for Plastics, which was established in 2021.

Contribute to Recycling Resources

Examples of Initiatives

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. These efforts contribute to the reduction of fossil resource extraction and reduce greenhouse gas (GHG) emissions from manufacturing processes and disposal by reducing plastic use and waste.

Overall Picture of Circular System for Plastics



Efforts for 3Rs (reduce, reuse and recycle)

Method		Example of our initiatives	
Reduce	Reduce the amount of plastic used and the amount of waste plastic generated	<Refill Pouch> Compared with a bottle, this refill pouch is lighter, and therefore offers higher transportation efficiency, while also being stronger.	
Reuse	Reuse the same products	<Returnable Box> Compared with a cardboard box, this returnable box made of foamed polypropylene sheets can be used repeatedly, and therefore offers higher environmental friendliness, while also being superior in water resistance, load capacity and cleanliness.	
Material recycling	Reuse waste plastics as raw materials for new products	P.126 Material Recycling	
Chemical recycling	Chemically decompose municipal solid wastes and waste plastics and use them as new raw materials for plastics	P.127 Chemical Recycling	

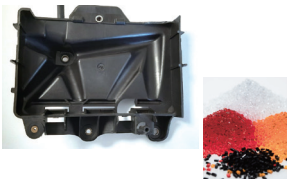
Contribute to Recycling Resources

Material Recycling

We are promoting the development of various technologies to realize material recycling of plastic products.

● Recycled polypropylene (PP) for automotive applications

We have advanced technology to produce recycled PP using plastics from waste materials and End-of Life parts as a resource. Since June 2021, we have been studying a business alliance with REVER CORPORATION to establish a business alliance of recycling systems from resource recovery to sorting, reprocessing, and sales.



https://www.sumitomo-chem.co.jp/english/news/detail/20210609e.html

● A polyethylene product for packages and containers that contributes to achieving horizontal recycling

We have advanced technology to produce recycled PP using plastics from waste materials and Plastic packages and containers for food and daily necessities are composed of several layers, each of which is made of a different type of resin with a different characteristic, depending on the application, making them difficult to separate and sort for recycling. Sumicle® is a highly rigid PE product developed by our company for packages and containers, to the outer base layer where nylon or PET was traditionally used, all the raw materials of packages and containers can be unified to PE, making it possible to achive horizontal recycling of plastic product. We have already started providing samples and aim to commercialize the product as early as FY2022.

https://www.sumitomo-chem.co.jp/english/news/detail/20220331e.html

● Recycling technology for decolorizing printed layers of plastic packages and containers

Most plastic packages and containers have printing on their surface, so even if processed for material recycling, the ink colors remain, making it difficult to apply them for horizontal recycling.

In cooperation with PILOT CORPORATION, we are jointly developing a technology for decolorizing printed layers of plastic packages and containers through a recycling process.

https://www.sumitomo-chem.co.jp/english/news/detail/20220412e.html

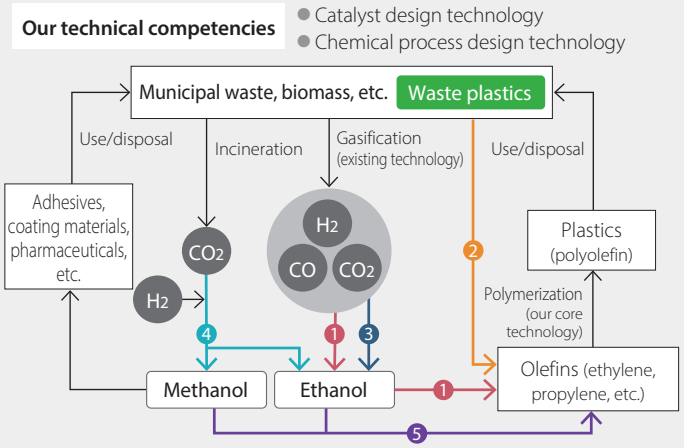
Contribute to Recycling Resources

Chemical Recycling

We are developing chemical recycling technology by leveraging our catalyst design and chemical processing design technologies, while also collaborating with partners. With chemical recycling technology, we will help to reduce the use of fossil resources, the amount of waste plastics, and GHG emissions from the incineration of waste plastics, and thereby contribute to building a sustainable society. In February 2022, in recognition of our ambitious efforts, two projects comprising four themes of chemical recycling technologies we are working on in collaboration with other companies and academia were selected by NEDO* for their Green Innovation Fund projects. We will continue to promote efforts to realize chemical recycling.

* New Energy and Industrial Technology Development Organization (NEDO)

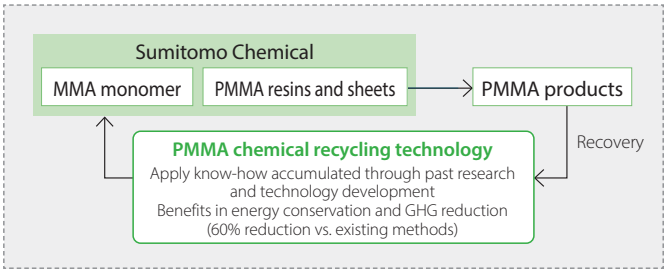
Develop Technology for Chemical Recycling Overview of Initiatives



Number on a chart	Technology	Cooperating Partners	Reference
1	Polyolefin production from waste derived ethanol	SEKISUI CHEMICAL CO., LTD.	Completion of test production facility (See TOPICS below)
2	Olefin production through direct cracking of waste plastics	Maruzen Petrochemical Co., Ltd. Muroran Institute of Technology	Adopted by NEDO (Project scale: approx. 25.30 billion yen)
3	Ethanol production using synthesis gas derived from waste plastics	National Institute of Advanced Industrial Science and Technology (AIST)	
4	Highly efficient alcohols production from CO_2	AIST Shimane University	Adopted by NEDO (Project scale: approx. 24.08 billion yen)
5	Olefin production from alcohols	AIST	

In addition to these efforts, we have established its own chemical recycling technology to pyrolyze acrylic resin (PMMA, polymethyl methacrylate) and regenerate it as raw material MMA monomer in collaboration with The Japan Steel Works, Ltd. We plan to construct a pilot facility at our Ehime Works and begin pilot tests in the fall of 2022, with sample provision starting in 2023.

PMMA Chemical Recycling Image of Initiatives



Sumitomo Chemical Completes Construction of Pilot Facility to Produce Renewable Ethanol-Based Ethylene for Environmentally-Sustainable Polyolefin
A New Initiative toward Achieving a Circular Economy

https://www.sumitomo-chem.co.jp/english/news/detail/20220411e.html

Sumitomo Chemical and Maruzen Petrochemical's Chemical Recycling Technology Project Selected as a NEDO Green Innovation Fund Project

https://www.sumitomo-chem.co.jp/english/news/detail/20220218e_2.html

Sumitomo Chemical's Projects to Develop Chemical Recycling Technologies Selected for NEDO's Green Innovation Fund Project

https://www.sumitomo-chem.co.jp/english/news/detail/20220218e_1.html

PMMA Chemical Recycling *a new Initiative to achieve carbon recycling* (Japanese Only)

https://www.sumitomo-chem.co.jp/automotive/new-products/03.html

Contribute to Recycling Resources

Completed construction of pilot facility to produce renewable ethanol-based ethylene for environmentally sustainable polyolefin

In April 2022, we established a new pilot ethylene production facility at our Chiba Works (Ichihara City, Chiba Prefecture) that uses environmentally friendly ethanol derived from waste and biomass as a raw material. This will enable us to manufacture polyolefin product with both reduced environmental impact and high quality equivalent to conventional products. Currently, we are cultivating the market by providing samples, aiming for commercialization in FY2025.

https://www.sumitomo-chem.co.jp/english/news/detail/20220411e.html

Recycled Plastic Brand

In September 2021, we launched Meguri®, a new brand for recycled plastic products. In the future, we will expand the Meguri® product lineup and increase production and sales of these products, thereby playing a role in realizing a circular economy.

Meguri
CIRCULARITY FOR ALL

https://www.sumitomo-chem.co.jp/english/news/detail/20210908e.html

https://www.sumitomo-chem.co.jp/circular-plastics/en/

Looking Ahead

Sumitomo Chemical identified contributing to resource recycling as a material issue to be undertaken by management. Going forward, to achieve greater progress, we will continue to further promote initiatives aimed at developing resource recycling technology and promoting practical, socially beneficial applications by leveraging the technological capabilities and insights we have cultivated as a diversified chemical company.

Sustainable Use of Natural Capital

Basic Stance

Now that the goal of halting the decline of natural capital and putting it on a recovery track by 2030 is widely supported by the international community, we have once again recognized ecosystem conservation and sustainable use of natural capital as important issues and are promoting relevant initiatives across the entire Group. Specifically, we have set targets in each field, including biodiversity conservation, air conservation, sustainable water and soil usage, and appropriate chemical substance management, and strive to enhance initiatives aimed at achieving these targets at each worksite and Group company.

We are focusing on the following specific measures.

1. Appropriate Response to Laws and Regulations
   (1) By maintaining careful control of the execution and management of construction plans, we ensure appropriate response to notifications when changing the soil type of specified facilities that use hazardous substances and an expansion of opportunities for soil contamination surveys. (Soil Contamination Countermeasures Act)
   (2) We have enhanced the evaluation and management of environmental risks related to specified chemical substances expected to be selected under the PRTR Act. (PRTR Act)
   (3) Regarding refrigeration units using CFCs and HCFCs, we are systematically upgrading to equipment that uses lowGWP HFCs or non-fluorocarbon refrigerants (Ozone Layer Protection Law). We are also steadily disposing of the fluorocarbons from refrigeration and air conditioning equipment to be thrown away. (Act for Rationalized Use and Proper Management of Fluorocarbons)
   (4) We will remove all electronic equipment that uses PCBs (in storage or in operation) ahead of the deadline of March 2025. (Act on Special Measures against PCB Waste)
2. Reducing Environmental Impact
   Going forward, we will keep working to achieve our medium- to long-term voluntary management targets in the fields of air, water, soil, and waste, focusing our response on production bases.
3. Responding to Biodiversity Preservation
   We will promote initiatives unique to each worksite in line with the particular characteristics of their location.

Management System

Regarding the management system for the sustainable use of natural capital, please refer to Management System for Resource Saving and Waste Reduction (p.122).

P.122 **Contribute to Recycling Resources:** Management System

Sustainable Use of Natural Capital

★: Assured by an independent assurance provider

Goals and Results

The Sumitomo Chemical Group has established key environmental protection items as common goals. By following up on the results of each Group company, we are working to reduce our environmental impact in a systematic way.

P.108 Sustainable Use of Natural Capital

Environmental Performance

Sumitomo Chemical collects and totals environmental data for the Company and Group companies in Japan, including data on energy and resource consumption, production quantities, and environmental impact (e.g., release of pollutants into the air and water).

PP.141–143 FY2019–2021 Environmental Performance

■ FY2021 Primary Environmental Performance (Sumitomo Chemical and Group companies in Japan)

Figures in black: Sumitomo Chemical and Group companies in Japan
Figures in green: Sumitomo Chemical

INPUT Energy and Resources

Water ★

(Million tons)

Industrial water	70.5	67.1
Drinking water, etc.	0.9	0.5
Seawater	862	176
Groundwater	25.5	22.7
Other water	2.7	2.7

Energy ★
Calculated as kl of crude oil

(Thousand kl)

Fuel, heat, and electricity*1	1,801	1,008

Exhaustible Resources

(Thousand tons)

Hydrocarbon compounds	1,713	1,429
Metals (excluding minor metals)*2	115	111
Minor metals*3	17.4	0.03

PCB/CFCs under Secure Storage

No. of electrical devices containing high concentrations of PCBs*4	0 units	0 units
PCB volume*4	0 kl	0 kl
No. of refrigeration units using specified CFCs as a coolant	27 units	11 units
No. of refrigeration units using HCFCs as a coolant	233 units	98 units

OUTPUT Product Manufacturing and Environmental Impact

Products ★

(Thousand tons)

(Calculated on the basis of ethylene production)*5	2,613	1,401

Water Pollutant Emissions ★

(Tons)

COD	Coastal waters/waterways	960	895
	Sewer systems	207	87.4
Phosphorus	Coastal waters/waterways	36.1	33.8
	Sewer systems	5.9	5.3
Nitrogen	Coastal waters/waterways	1,303	1,226
	Sewer systems	68.6	28.4
Substances subject to the PRTR Act		11.1	6.5

Waste Materials ★

(Thousand tons)

Waste emissions*6	276	65.5
Landfill*6	30.7	1.9
(Breakdown)		
On-site landfill	0	0
External landfill	30.7	1.9

Atmospheric Emissions ★

(Thousand tons of CO_2e)

Greenhouse gases (seven gases)*1	6,241	3,372
CO_2 emissions from energy use	5,435	2,736
CO_2 emissions from other than energy use	655	612
CH_4	6	1
N_2O	143	22
HFC, PFC SF_6, NF_3	2	2

(Tons)

Others		
NOx	3,901	1,743
SOx	3,896	943
Soot and dust	173	98.5
Substances subject to the PRTR Act	420	222

*1 The energy (calculated as kl of crude oil) and greenhouse gas (all seven gases) indices were calculated in accordance with the GHG Protocol (refer to page 249 "Calculation Standards for Environmental and Social Data Indicators") for principal consolidated Group companies in Japan, which account for up to 99.8% of consolidated net sales.
• Having adopted the GHG Protocol standards for our GHG emission disclosures, we now include the following data that was not included in previous calculations: amount of energy used to produce electricity and steam sold to external parties by the Group and the resultant CO_2 emissions; amount of energy used by Sumitomo Chemical and Group companies in Japan non-production sites and the resultant CO_2 emissions; CO_2 emissions from non-energy sources not included in the scope of the Act on Promotion of Global Warming Countermeasures.

*2 Calculations include the following 12 metals: iron, gold, silver, copper, zinc, aluminum, lead, platinum, titanium, palladium, gallium, and lithium.

*3 Calculations include the following seven minor metals: nickel, chromium, tungsten, cobalt, molybdenum, manganese, and vanadium. The supply structure for each of these minor metals is extremely fragile. These minor metals are subject to national stockpiling.

*4 Fluorescent lamps and mercury lamp ballast as well as contaminated substances (wastepaper, etc.), including PCB waste, are not included in unit and volume data.

*5 Certain assumptions were made in calculations due to the difficulty of obtaining weight-based figures for some products.

*6 The amount of coal ash generated at Sumitomo Joint Electric Power, which is included in "Waste emissions" and "Landfill" (Sumitomo Chemical and Group companies in Japan) is calculated on a dry-weight basis.

Sustainable Use of Natural Capital

Examples of Initiatives

<Biodiversity Preservation Initiatives>

Working to preserve biodiversity is one of Sumitomo Chemical's most important pillars as it strives toward building a sustainable society. Since formulating Sumitomo Chemical's Commitment to the Conservation of Biodiversity, Sumitomo Chemical has strengthened its initiatives, including setting ISO 14001 activity goals for biodiversity preservation aligned with the Commitment at All worksites. The Company has been actively participating in a private-sector biodiversity partnership and promoting initiatives through business while giving considerable thought to what we should be mindful of as a chemical company.

生物多様性民間参画パートナーシップ
(Japanese only)

Sumitomo Chemical's Commitment to the Conservation of Biodiversity

1. We position the conservation of biodiversity as one of our most important management issues and strive to help protect the global environment.
2. We work to continuously reduce environmental impact in our production operations and our development and supply of products and services and in cooperation with third parties in the supply chain and thereby contribute to the conservation of biodiversity.
3. By regularly implementing education programs, we ensure that employees fully recognize and understand the importance of biodiversity and promote our commitment to its conservation.
4. We continuously engage in corporate social responsibility activities that contribute to environmental protection and lead to greater trust and confidence from society.
5. We disclose the results of these efforts and maintain effective communication with the general public.

Sumitomo Chemical's Biodiversity Preservation Initiatives

1. Reducing our environmental burden	2. Encouragement of conservation of environments where organisms live	3. Mainstreaming initiatives and alliances with stakeholders	4. Preventing climate change and effectively using resources
Considering the environment in business activities • Surveying benthic river organisms • Monitoring emitted water and gas, installing autonomous measuring equipment, and combatting odors through activated sludge treatment and activated carbon absorption • Undertaking environmental impact assessments at the planning stage for new plant construction and implementing countermeasures • Promoting the 3Rs and managing waste • Undertaking proper management of chemical substances • Complying with internal safety management regulations pertaining to the use of genetically modified organisms	**Improving the scenery and upgrading of environments where organisms live** • Conserving reservoirs and using them to promote biodiversity • Promoting the greening of each worksite's premises and neighboring areas • Taking countermeasures for white smoke (To render invisible the gas emitted after incineration to reduce, recycle, and detoxify waste and wastewater onsite (white smoke), we have installed cooling equipment to condense the vapor.)	**Alliances with stakeholders** • Participating in private partnerships for biodiversity • Incorporating marine plastic waste collection initiatives into management programs based on ISO 14001 • Supporting green curtain businesses • Supporting the Osaka plastic zero declaration • Participating in volunteer cleanup activities	**Saving energy, saving resources, and reducing greenhouse gases** • Conducting energy-saving activities based on ISO 50001 • Reducing CO_2 emissions (switching fuels, installing gas cogeneration systems, etc.)
Promoting "Sumika Sustainable Solutions" • Developing and promoting products with low environmental burden			
Relevant SDG targets: 7. a, 13.3	Relevant SDG targets: 6.3, 6.6, 14.1, 15.1, 9.4, 12.2, 12.4, 12.5, 11.6	Relevant SDG targets: 13.3, 15.1, 15.2	Relevant SDG targets: 11.6, 14.1, 14.2, 15.1, 15.2

Sustainable Use of Natural Capital

Biodiversity Preservation Initiatives

Promoting 30 by 30

30 by 30 is a worldwide goal to effectively conserve 30% of Earth's land and sea areas as healthy ecosystems by 2030 with the aim of stopping the loss of biodiversity and reversing the trend. Sumitomo Chemical participates as an initial member in the 30 by 30 Alliance for Biodiversity, which comprises volunteer companies, municipalities, and organizations. We aim to register the green spaces we manage as nature coexistence areas that contribute to the 30 by 30 goal and will continue further promoting the conservation of biodiversity.

Preserving the Environment of Sakuragaike (Misawa Works)

To prevent damage from heavy rains at Misawa Works, we created a retention pond that can store 50,000 tons of water. The pond (*ike*) was named Sakuragaike because of the cherry trees (*sakura*) planted in the surrounding area. Platanus, Sakhalin fir, double cherry, Sargent's cherry and other trees have been planted along its banks. Many different wild animals live around the pond, such as foxes, tanukis, and serows as well as a wide variety of birds, including ducks and cormorants.

To maintain Sakuragaike, we do not use synthetic chemical insecticides or germicides and instead regularly prune the trees of withered and diseased branches every three years.


Sakuragaike


Double cherry

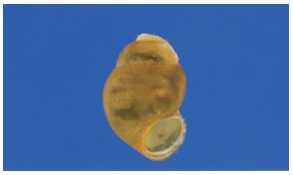

Left: Grey heron Right: Cormorants


Left: Rabbit Right: Bat

Water Area Surveys Conducted around Works (Misawa Works)

To confirm the impact of business activities on water areas, we conduct aquatic wildlife surveys of the Sabishiro River, into which process water from the Works flows.

In the Sabishiro River, we confirmed 10 species of precious aquatic benthic organisms, such as a vulnerable species of Stenothyra and the endangered species Cottus reinii. We determined that we were maintaining ecosystems with extremely good water quality.


Stenothyra


Cottus reinii


Dugesia japonica


A subspecies of *Tubifex tubifex*

Initiatives at Works in Japan (Oita Works, Gifu Plant)

At the Oita Works, as part of greening efforts, we planted Asiatic jasmine along about 250 meters of the wall north of the front gate. At the Gifu Plant, so as not to infringe upon the scenery of the surrounding areas, we are promoting the greening and beautification of the plant's premises and borders.


Oita Works' green belt


The area surrounding the Gifu Plant's fish pond

Sustainable Use of Natural Capital

<Protecting the Atmospheric Environment>

By strengthening our measures for fixed emission sources, we are working on reducing our various environmental impacts, including emissions of soot and dust mainly from boilers and gas turbines, leaks of fluorocarbons from refrigeration equipment, emissions of mercury from industrial waste incinerators, emissions of chemicals and VOCs from manufacturing plants, and air-borne asbestos from the demolition of buildings.

Reining in PM2.5* Emissions

We conduct detailed surveys of boilers, gas turbines, heating furnaces, dry furnaces, cracking furnaces, waste incinerators, and other such equipment, testing for emissions of VOCs and other gaseous atmospheric pollutants, soot, SOx, NOx, and hydrogen chloride, which are also the source of secondary particles and PM2.5. We strive to further reduce emissions for each source by taking measures to switch to alternative fuels.

* Particulate matter of up to 2.5 μm in diameter

P.146 Environmental Activities: Supplementary Data

Managing Fluorocarbon Refrigeration Equipment

In line with the main points of Act on Rational Use and Proper Management of Fluorocarbons, we are strengthening the management of equipment and upgrading to equipment with low global warming potential (GWP) as a way to preserve the ozone layer and prevent global warming.

As part of efforts to protect the ozone layer and combat global warming, we are systematically upgrading fluorocarbon refrigeration equipment (units that use CFCs, HCFCs, HFCs) employed in production processes to equipment that uses HFCs with a low GWP or non-fluorocarbon refrigerants. Our goal is to complete these upgrades within the upgrade deadlines for the equipment.

Fluorocarbon refrigeration equipment

● Upgrade Deadlines for Each Type of Equipment

- CFC equipment: Eliminate use of these units by fiscal 2025 (currently a total of 27 units held by the Group)
- HCFC equipment: Eliminate use of these units by fiscal 2045 (currently a total of 233 units held by the Group)

■ Calculated Leakage for Fluorocarbons

	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
Calculated leakage (tons-CO_2)	17,888	9,135	4,782	7,675	9,354	4,362	5,100

In addition, we regularly examine the fluorocarbons used in industrial refrigeration and air conditioning equipment and devise ways of minimizing leaks identified in equipment designated as needing attention based on leakage history categorized by equipment type.

Furthermore, as a response to the revised Act on Rational Use and Proper Management of Fluorocarbons, we thoroughly conduct management to steadily dispose of residual fluorocarbons inside waste equipment, including the use of check sheets when disposing of equipment.

Emissions of Mercury into the Atmosphere from Waste Incinerators

We measured concentrations of mercury (both gas and particles) emitted into the atmosphere by our waste incinerators, which we own, and completed a study of the impact of these emissions. The results have confirmed that mercury is being effectively removed by emission gas removal equipment, including bag filters and scrapers installed at incinerators, and that the concentration of mercury released into the atmosphere from all of the incinerators we own is within the emission guideline value set under the Air Pollution Control Act.

Sustainable Use of Natural Capital

<Sustainable Use of Water>

To maintain production at worksites and conserve nearby aquatic environments, we strive to appropriately manage wastewater, achieve more sophisticated activated sludge treatment, and promote effective water use based on water risk evaluations at each production base.

Protecting the Aquatic Environment

In addition to our initiatives aimed at reducing overall water use, we have realized thorough purification of wastewater from worksites by operating stable and sophisticated wastewater treatment facilities.

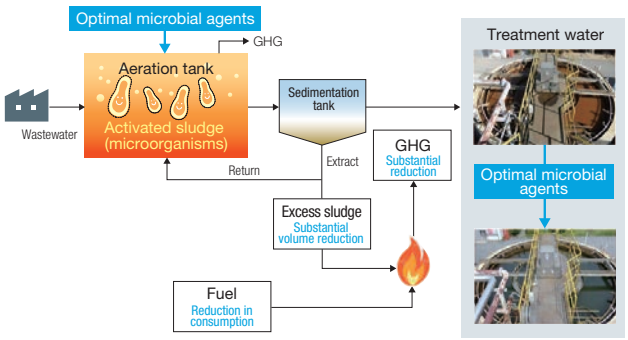
● Responding to Increasing Sophistication of Activated Sludge Treatment

At all Works, we are striving to develop management technologies for water treatment that will further reduce our environmental impact and apply these technologies to realize safe and secure wastewater treatment.

At Works, for process wastewater that is difficult to break down, which was conventionally incinerated for treatment, we have developed an activated sludge treatment utilizing microbial immobilization technology to stabilize the process water and reduce treatment costs. We are still considering applying this treatment to a wider scope of water.

Innovations in Wastewater Treatment Technology

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, but it requires a lot of energy for treatment and generates GHG when excess sludge is incinerated. 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. We will continue to contribute to the sustainable use of water resources through the widespread use of our wastewater treatment technology.



● Responding to Water Quality Standards

We are strengthening our voluntary management to continually reduce the COD, nitrogen, and phosphorus in wastewater emitted into the ocean and waterways from wastewater treatment facilities. In addition, we have realized stable treated water quality by enhancing the management technologies used in water treatment facilities. We are continually working to reduce the impact of water emissions from our plants on Tokyo Bay and other closed coastal waters where systems have been implemented to regulate the total water emissions of COD, nitrogen, and phosphorus.

● Promoting the Effective Use of Water

We investigate water risks related to intake, effluence and physical risk at each worksite and Group companies in Japan and overseas. We uncover various issues related to the use of fresh water on the worksite level and assess and manage the associated risks. In addition, we strive to reduce the amount of water we use by examining more effective ways to use water by application, while continuing to maintain and improve the quality of water released from our business sites into public water resources such as the ocean and waterways.

Sustainable Use of Natural Capital

★: Assured by an independent assurance provider

Water Usage (Sumitomo Chemical Group)

(Million tons)

	FY2019	FY2020	FY2021
Sumitomo Chemical Group	1,030	992	970
(Breakdown 1)			
Sumitomo Chemical	280	261	269★
Group companies in Japan	743	723	693★
Overseas Group companies	7.40	7.99	8.27
(Breakdown 2)			
Seawater	924	884	862
Fresh water	106	109	108

Notes: • Water usage volume includes seawater
• At Sumitomo Chemical Works, we determined that industrial water and seawater intake is not partially included, and we revised the figures for Sumitomo Chemical and the Sumitomo Chemical Group in fiscal 2019 and 2020.

Wastewater Detoxification Initiatives (Misawa Works)

Wastewater from the Misawa Works goes through general activated sludge treatment, then, after finishing tertiary treatment of activated carbon absorption and the removal of floating substances through coagulation and sedimentation, analysis equipment does quality checks and the water is released into public waterways.

Activated sludge treatment facility

Evaluating Water-Related Problems

Regarding maintaining production at production bases in the Sumitomo Chemical Group, we conduct water risk evaluations at each production base from the dual perspectives of physical water risks and water quality susceptibility risks of intake and effluence.

● Evaluating Physical Water Risks

The Group evaluates the baseline water stress in communities where production bases are located as well as underground water stress, the severity of droughts caused by seasonal changes in the water supply, the water storage capacity of the drainage basin, projected changes in water stress, and the percentage of water resources in the drainage basin that are protected.

As a result of the evaluation results, we are taking specific actions to reduce risks going forward for plants evaluated to have high water-related risks.

Measures to Continue Production in High Water-Related Risk Areas (Sumitomo Chemical India)

According to the Aqueduct Water Risk Atlas,India is one of the countries as having a high baseline with regard to water stress (physical risk) .

In the surrounding area where Sumitomo Chemical India's Bhavnagar plant is located, population growth, increased demand for water for agricultural use, and decreased precipitation have made the decrease in water resources a challenge. To address this issue, the plant decided to purchase wastewater from households for partial reuse and to treat it within the plant for use in production. In addition to laying 2km of piping to transport the household wastewater to the plant, the plant uses earthworm farming technology to treat the wastewater, rather than the more common activated sludge method, to suit the characteristics of household wastewater, which contains a relatively high amount of nutrients. This approach has made it possible to secure a stable amount of water needed for production activities while reducing the amount of river water previously purchased from the local government by more than 70%. It has also achieved the economic effect of reducing water purchase costs by about half.

Wastewater being purified through earthworm farming

● Evaluating Water Quality Susceptibility Risks of Intake and Effluence

The Group evaluates susceptibility in terms of access to drinking water, water pollution, protected downstream areas, and the presence of endangered species in bodies of fresh water identified by the International Union for Conservation of Nature (IUCN).

Sustainable Use of Natural Capital

Effective Use and Management of Yoshioka Springs (Ehime Works)

The name of Yoshioka Springs comes from the Yoshioka family's residence and pond. To provide water to the Kawahigashi district, which had been struggling with water shortages, the springs were created in 1917 by the local residents, and a canal was completed in 1921. After passing through the ownership of several companies, Sumitomo Chemical currently manages the springs.

The supply of water from Yoshioka Springs uses height difference and does not require an outside force, and it is not only an important source of water for the Company, it is used in districts throughout the city for irrigation. To preserve the aquatic environment, we remove weeds from and clean the springs and grounds at Ehime Works around three times a week.

Present-day Yoshioka Springs

CDP Water Security A List 2021

Sumitomo Chemical was selected by CDP to receive the highest rating in its Water Security A List 2021 for the second consecutive year as a company taking especially excellent actions for water security. Among the roughly 3,400 companies worldwide that disclosed water security data, such as water-related risks and biodiversity action, the ones that were selected for the A List totaled 119 worldwide and only 37 in Japan.

Sumitomo Chemical Receives CDP's Highest Rating in Corporate Climate Action and Water Security Action

https://www.sumitomo-chem.co.jp/english/news/detail/20211208e.html

Sustainable Use of Natural Capital

<Sustainable Use of Soil>

We recognize that the conservation and restoration of soil is an important initiative to ensure the sustainable use of natural capital. We strive to assess the soil environments of worksites and prevent soil pollution while working to conserve and restore the soil in various regions, utilizing our know-how related to agrochemicals and biotechnology.

Protecting the Soil Environment

We quantify the soil environments of worksites, strictly prevent the diffusion of pollutants, and actively work to prevent contamination.

● Regularly Monitoring Groundwater

We analyze the groundwater at the boundaries of our worksites to confirm that levels of hazardous materials are below those stipulated by standards.

● Preventing Soil Contamination

We have established rules regarding the construction standards and the content of regular inspections for various equipment, including the gutters, floors, plumbing, and bund walls of facilities handling chemical substances. We are working to prevent soil contamination from leaks by thoroughly complying with these rules and to prevent the dispersal of hazardous substances outside of plant premises.

Utilization of Know-how Related to Agrochemicals and Biotechnology

Efforts to conserve and restore the soil environment are important to achieve the promotion of sustainable agriculture. We will contribute to the sustainable use of soil through our business by utilizing our accumulated expertise in agrochemicals and biotechnology.

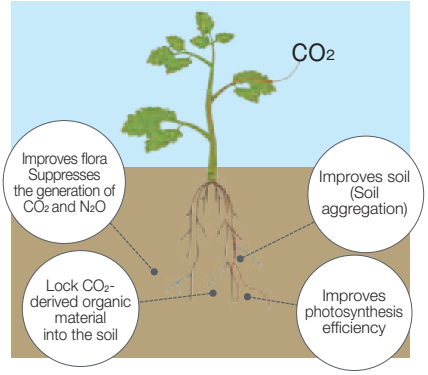
● Contributed to the spread of no-till farming

No-till farming is a method of agriculture in which tillage is not done before sowing the crop. No-till farming has attracted increasing attention worldwide in recent years because of its ability to protect soil from wind and water erosion, conserve soil organic matter, and eliminate mechanical tillage to save fuel and reduce GHG emissions. With herbicides such as Rapidicil® and flumioxazin, we hope to contribute to the realization.

● 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_2 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)



Sustainable Use of Natural Capital

<Appropriate Management of Chemical Substances>

Regarding Class I designated chemical substances (PRTR Act) and VOCs, we conduct environmental risk analyses regardless of the amount emitted into the environment. We are also taking measures to reduce use and emissions.

Meeting Voluntary Environmental Targets

At the boundaries of plant premises and at final drainage exits, we have set voluntary environmental targets for the concentration of pollutants in air and water and work to meet those targets. Utilizing METI-LIS provided by the Ministry of the Economy, Trade and Industry, we simulate the atmospheric dispersion concentration of Class I designated chemical substances (PRTR Act) of plant premises and identify fixed emission sources that would effectively reduce concentrations.

Reducing Atmospheric Emissions (FY2021 results: atmospheric emissions accounted for around 97% of total emissions (air and water))

We are, of course, taking measures to reduce emissions mainly by sealing facilities and improving operation methods. But we are also working to intently and systematically reduce atmospheric emissions primarily by additionally taking such disposal measures as recovering emissions through absorption, purification, and stronger cooling; incinerating emissions; and suppressing emissions through internal floating roofs for tanks.

Operating Company-wide PRTR Calculation Systems

Using the Company's proprietary calculation system, Sumitomo Chemical is striving to increase the accuracy and level of detail of the data on emission amounts and transfer amounts for each substance.

Looking Ahead

The focus of Sumitomo Chemical Group's basic policy on protecting the environment has shifted since the early 2000s from responding to laws and regulations toward strengthening voluntary management. As pressure increases to protect the environment on a global scale and to improve the efficacy of the measures taken at each worksite, we think it is necessary to understand trends (such as international environmental protection and resource recycling, biodiversity preservation, action on water risks) better than ever and take forward-looking action.

From the perspective of continued risk management, we are focusing our efforts on issues that are assessed as being high risk over the medium to long term and take appropriate action that enhances voluntary management while continuing to contribute to the sustainable use of natural capital.