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Environmental Activity Goals and Results

				Goal achieved or steadily progressing: \bigcirc Goal not achieved: $ riangle$			
Items		Boundary	Goals	Fiscal 2020 Results	Evaluation	Page	
Addressing Climate	Greenhouse gas emissions	Sumitomo Chemical Group	Reduce 30% compared to fiscal 2013 levels by fiscal 2030	Reduced 22% relative to fiscal 2013			
Change	Scope 1+2*1	Consolidated	Reduce more than 57% compared to fiscal 2013 levels by fiscal 2050		0		
	Scope 3*2	Sumitomo Chemical's major suppliers* ³	Reduce overall GHG emissions by fiscal 2024 Conduct engagement to set goals	Held Supplier briefing online due to the COVID-19 pandemic	0	Pages 105–116	
	Unit energy consumption* ⁴	Sumitomo Chemical Group Consolidated	Improve more than 3% over the three years of the Corporate Business Plan (fiscal 2019–2021)	Increased 3% relative to fiscal 2018	Δ		
	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 0.9% over five years	Δ		

Note: Further details on goals based on the Act on the Rational Use of Energy and results are provided in the supplementary data (pages 126–127).

*1 Scope 1: Direct emissions from factory operations, such as fuel use in manufacturing 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 Covers suppliers accounting for 90% of procured raw materials and other items based on weight

*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

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Environmental Activity Goals and Results

				Goal achieved or stea		ily progressing: 🔿 🛛 Goal not ac	:hieved: △
lt	ems	Boundary	Fiscal 2020 Goals	Fiscal 2020 Results	Evaluation	Fiscal 2021 Goals	Page
Environmental Protection	Severe environ- mental accidents	Sumitomo Chemical and Group compa- nies in Japan	0	0	0	0	
	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 regula- tions with the National government.	0	Properly respond to more stringent laws and regulations and proactively address trends in new environmental regulations	
	Environmental protection management methods, etc.	Sumitomo Chemical and Group compa- nies in Japan	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.	0	Provide individual support to Group companies for responding to environmental regulations	
	Prevention of air and water pollution	Sumitomo Chemical	Meet voluntary management criteria* ¹	There were three instances of the legal standard limit being exceeded etc. We have investigated the causes and taken countermeasures.	Δ	Meet voluntary management criteria	
	Effective use of water resources	Sumitomo Chemical	Promote effective and efficient use of water resources	Water usage reduced by 6.7% relative to fiscal 2019	0	Promote effective and efficient use of water resources	
		Group companies overseas	Improve unit water consump- tion by at least 1% on average per year	Unit water consumption worsened by 4.9% relative to fiscal 2015	Δ	Improve unit water consump- tion by at least 1% on average per year	
	Response to PRTR	Sumitomo Chemical	Maintain 60% lower total emissions relative to fiscal 2008	Reduced emissions by 90.2% relative to fiscal 2008		Maintain 60% lower total emissions relative to fiscal 2008	
		Sumitomo Chemical and Group compa- nies in Japan	Maintain total emissions of air and water pollutants at below fiscal 2015 levels to fiscal 2020	Reduced emissions by 24.3% relative to fiscal 2015	0	Maintain total emissions of air and water pollutants at below fiscal 2015 levels to fiscal 2021	
	Reduction of VOC emissions	Sumitomo Chemical	Maintain VOC emissions reductions at 30% relative to fiscal 2000	Reduced emissions by 55.8% relative to fiscal 2000	0	Maintain VOC emissions reductions at 30% relative to fiscal 2000	Pages 117–125
	Prevention of soil and groundwater contamination	Sumitomo Chemical and Group compa- nies in Japan	Keep hazardous materials strictly within Company premises ^{*2}	Continued to keep hazardous materials strictly within Company premises	0	Keep hazardous materials strictly within Company premises	
	Prevention of ozone layer depletion	Sumitomo Chemical and Group compa- nies in Japan	Eliminate the use of refriger- ation units that use CFCs as coolants by fiscal 2025 Eliminate the use of refriger- ation units that use HCFCs as coolants by fiscal 2045	Systematically replaced refrigeration units that use CFCs and HCFCs as coolants	0	Eliminate the use of refriger- ation units that use CFCs as coolants by fiscal 2025 Eliminate the use of refriger- ation units that use HCFCs as coolants by fiscal 2045	
	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	0	Ensure compliance with "Sumitomo Chemical's Commitment to the Conservation of Biodiversity"	
	Reduce the amount of	Sumitomo Chemical	Maintain 80% reduction compared to fiscal 2000 levels	Reduced by 93% relative to fiscal 2000	0	Maintain 80% reduction compared to fiscal 2000 levels	
	industrial waste sent to landfills	Sumitomo Chemical and Group compa- nies in Japan	Maintain waste volume at below fiscal 2015 levels to fiscal 2020	Increased by 1.5% relative to fiscal 2015	Δ	Maintain waste volume at below fiscal 2015 levels to fiscal 2021	
	Properly treated PCB waste	Sumitomo Chemical and Group compa- nies in Japan	(High concentrations of PCB*3) Work toward appropriate storage and recovery of waste containing high concentra- tions of PCBs and complete PCB waste treatment at an early stage	(High concentrations of PCB) Sumitomo Chemical: Completed treatment Group companies in Japan: Continuing treatment; continued to promote the storage and recovery of untreated waste		(High concentrations of PCB) Work toward appropriate storage and recovery of waste containing high concentra- tions of PCBs and complete PCB waste treatment at an early stage	
			(Minute amounts of PCB*4) Work toward appropriate storage and recovery of waste containing minute amounts of PCBs and complete PCB waste treatment by March 2025	 (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 	U	(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 128–147).

*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.

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

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

Addressing Climate Change

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. Through the newly established Carbon Neutral Strategy Council and the Carbon Neutral Strategy Crossfunctional Team, our company will formulate and implement a carbon neutrality strategy 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.

Sumitomo Chemical Carbon Neutral Strategy Perspectives

Sumitomo Chemical aims to take a range of multifaceted approaches unique to a diversified chemical company, in our initiatives to achieve carbon neutrality by 2050 from the following four perspectives.

- To minimize greenhouse gas (GHG) emissions associated with the Group's production activities through innovation, and provide and deploy new technologies across the world.
- 2 To drive innovations for GHG emissions reduction regarding materials used in society, and provide products and solutions that contribute to carbon neutrality from a Life Cycle Assessment* perspective.
- 3 To actively engage in the development of technologies for recovery, separation, use and storage of GHGs emitted from other industries and from communities, and help the process by becoming part of a system that implements such technologies in society.
- ④ To take on the long-term challenge of developing carbon negative technologies to reduce the absolute volume of GHG in the atmosphere.

^{*} Life Cycle Assessment (LCA): A method for quantitatively assessing the environmental impact of a certain product or service across its entire life cycle, from the procurement of raw materials to its use and disposal

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Management System

In order to achieve carbon neutrality by 2050 for the Sumitomo Chemical Group, and also to contribute to the achievement of carbon neutrality in society at large, Sumitomo Chemical established the Carbon Neutral Strategy Council (February 2021) to formulate and promote an integrated strategy, with the goal of publishing a strategy during 2021. Previously, the Sustainability Promotion Committee and the Responsible Care Committee, which consisted of members gathered from a wide range of related departments and were both chaired by the company's president, would analyze information and risks relating to climate change, make decisions on important issues, and push forward specific responses, but since the establishment of the Strategy Council, these two committees have also taken on the role of supporting the council in formulating its strategy, and then promote the implementation of that strategy as well.





A wide range of specific issues related to energy and greenhouse gases (GHGs) are taken up for detailed discussion at Companywide 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 informa- tion 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



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Goals and Results

For goals and results for Addressing Climate Change, refer to Environmental Activity Goals and Results.

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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 225 "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 CO2e)		
Sumitomo Chemical and Group Companies in Japan		Overseas Group Companies	Total
Scope 1	5,811	536	6,346
Scope 2	261	815	1,076
Total	6,072	1,350	7,422

Note: Biomass-derived emissions were 55,000 tons of CO2e

Energy Consumption



In Japan Overseas

- 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.

Unit Energy Consumption Index



Greenhouse Gas Emissions



In Japan Overseas

 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: CO2 emissions from energy sold to external parties by the Group (the portion attributable to energy provider subsidiaries was included prior to fiscal 2016); CO2 emissions from energy use attributable to Sumitomo Chemical's non-production sites; CO2 emissions from non-energy sources not included in the scope of the Act on Promotion of Global Warming Countermeasures. CO2 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.

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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)

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Status of Scope 3 GHG Emissions

		(Thousand tor	ns of CO2e/year)		
Catagony		Emissions			
Category	FY2018	FY2019	FY2020		
1. Purchased goods and services	2,132	2,276	2,346★		
2. Capital goods	394	151	164		
3. Fuel- and energy-related activities not included in Scopes 1 and 2	298	581	585★		
4. Upstream transportation and distribution	61	60	53★		
5. Waste generated in operations	30	35	41★		
6. Business travel	7	10	2		
7. Employee commuting	9	11	11		
8. Upstream leased assets	<1	<1	<1		
9. Downstream transportation and distribution	<1	<1	<1		
10. Processing of sold products	—	—	—		
11. Use of sold products	44	40	42★		
12. End-of-life treatment of sold products	780	879	806		
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 Dainippon 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 N2O converted into CO2



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Examples of Initiatives

Addressing Risks and Seizing Opportunities

We identify risks and opportunities related to climate change problems and analyze their magnitude and the scope of their impact on the Group. As for risks, we are mainly taking measures to achieve our Science Based Targets (SBTs), while as for opportunities, we are primarily focusing on the development and promotion of our Sumika Sustainable Solutions (SSS)-designated products and technologies.



Scenario Analysis

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

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Summary of the Scenario Analysis

			In blue: positive impact		
Scenario	Risks 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 	 Enhance information disclosure Promote life cycle assessment evaluations of our products Respond to trends in regulations and movements by related institutions 	
1.5°C Scenario (Reduced GHG Emissions)	Opportunities 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 commu- nication, 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 the circular economy, with the aim of reducing CO2 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 CO2 recovery, on the back of the expansion of CCUS Carbon negative technologies Recycling-related products and technologies Recycling-related products and technologies such as heat storage materials 	 Enhance development and production systems for products such as light-weight materials, battery materials, and materials for optical products and electronic components Enhance development and production systems for product such as materials for power devices and high-efficiency communication components Promote licensing of technologies that contribute to reducing GHG emissions Develop technologies relating to CO2 recovery Develop products that contribute to carbon neutrality (agricultural materials utilizing fungi, etc.) Develop technology for and expand sales of heat storage material products 	
	Risks Increased Regulation on GHG Emissions	 Higher carbon prices (in developed countries, USD 135/ton for 2030, USD 245/ton for 2050)** 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 	 Increased operation costs due to higher energy taxes including carbon prices (Assuming a volume of GHG emissions that will have an impact on the Group's operating costs in fiscal 2050 is about 7.4 million tons/year (Scope 1+2), the same level as in fiscal 2020, and a carbon price is between 13,500–24,500 yen per ton of CO₂, our expense burden will increase by about 100–180 billion yen per year.) Lower utilization of high-energy consumption production facilities Increase in utility expenses due to an increased proportion of renewable energy 	 Switch to highly efficient equipment by actively utilizing government subsidies Switch to renewable energy Rationalization research for manufacturing processes Develop technologies to capture, separate, and utilize GHG, and deploy them in society Promote the deployment of GHG emission removal equipment Promote the utilization of CO2-free hydrogen and ammonia 	
	Risks 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)	Opportunities Increased Demand for Products and Technologies Contributing to the Mitigation of 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 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 	
	Risks 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"

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Initiatives Toward Achieving Science Based Targets (SBTs)

Sumitomo Chemical has identified major risks of climate change problems impacting the Group's businesses. These include a cost increase in the event that countries around the world introduce carbon pricing or raise the price for carbon, as well as damage to its production facilities due to intensified climate disasters caused by a rise in temperature. To address these risks, we are taking various group-wide measures to help mitigate climate change. For example, in October 2018, we at the Sumitomo Chemical Group were certified by the Science Based Targets (SBT) initiative for our targets for the reduction of greenhouse gas (GHG) emissions, becoming the first diversified chemical company to receive this certification. Toward the achievement of these targets, we have included the Group's Scope 1+2 GHG emissions in our KPIs. We are also working on various initiatives, such as switching to LNG fuel for our plants, employing the latest highly efficient equipment, and cutting back on energy consumption across the board. In addition, in order to reduce Scope 3 emissions, from 2019 we began engaging with our major suppliers to ask them to set their own reduction targets.

Furthermore, in recent years, various countries, including Japan, have declared that they will achieve carbon neutrality by 2050, and as the Japanese government announced to reduce GHG emissions by 46% by fiscal 2030* this April, we are considering setting challenging goals in line with this target, and having them once again certified by the SBT initiative. * Compared to fiscal 2013

GHG Emission Reduction Targets Certified under the Science Based Targets initiative (SBTi)



Contributing to Reducing GHG Emissions by Switching Fuel for Thermal Power Generation

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 considering switching from using conventional high CO₂ emission intensity fuels like coal, petroleum coke, and heavy oil to using low CO₂ emission intensity fuels like liquefied natural gas (LNG).

Currently, at Ehime Works, Niihama LNG Co., Ltd.* is constructing the Niihama North Gas-Fired Power Plant, which uses LNG instead of the conventional coal or heavy oil. Plans call for this LNGfired power plant to start operations in July 2022 through the Group company Sumitomo Joint



One of Japan's Largest LNG Tanks under Construction (At the Ehime Works Site)

Electric Power Co., Ltd., and the switchover to this power source is expected to result in a 650,000-ton annual reduction in CO2 emissions. 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 CO2 emissions by over 240,000 tons (equivalent to around 20% of the CO2 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

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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 Companywide 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

In fiscal 2020, over 50% of the lighting at all Sumitomo Chemical worksites was 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 increasing the percentage of LEDs with the aim of achieving the government target of 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 2020, energy consumption (crude oil equivalent) and carbon dioxide emissions decreased compared with fiscal 2019 due to a decrease in the volume of cargo transported. Unit energy consumption fell 2.5%, for an average 0.9% improvement over the past five years, because we no longer needed long-distance shipping by chemical tankers in response to the scheduled maintenance and repair of Works, which had contributed to an increase in fiscal 2019. 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 (left axis) -- Unit energy consumption (right axis)

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

Supplier Engagement—Briefing Session

In February 2021, we held an online briefing session for 15 major suppliers of ours in Japan to present our initiatives toward achieving our SBTs, and to ask our suppliers to set their own GHG emission reduction targets. Going forward, we will organize follow-up meetings and briefing sessions with our suppliers individually, with the aim of having their reduction targets set by fiscal 2024.



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Promoting Sumika Sustainable Solutions

Through the initiative of Sumika Sustainable Solutions, which began in 2016, the Group has been working to develop and promote its products and technologies that help mitigate climate change^{*1} and facilitate adaptation to climate change.^{*2}

*1 Reducing and absorbing GHGs

*2 Working to stem or lessen the current effects of climate change as well as harnessing the new climatic conditions

Sumika Sustainable Solutions

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

Measures for Adaptation

Understanding that climate change must be addressed, people are paying more attention to the development of products and technologies that can facilitate adaptation to the changes. Under the banner of Sumika Sustainable Solutions, the Sumitomo Chemical Group has certified many of its products and technologies that promote adaptation. These include vector control products (to ward off infectious disease-carrying pests whose spread correlates with climate change), mycorrhizal fungi for use as a soil amendment product (to extend growing periods during droughts by 30% and improve crop yields), and clear acrylic windows for seawalls that protect against high tides and tsunami.

Of these products, the Company's malaria prevention mosquito net Olyset[™] Net was introduced as a tool for helping prevent a rise in malarial infections due to climate change on the side event of COP22, which was held in Morocco in November 2016, and on the side event of COP23, which was held in Germany in November 2017. It was also introduced at Japan's National Institute for Environmental Studies' Climate Change Adaptation Information Platform, Japan's Ministry of Economy, Trade and Industry's Climate Change Adaptation Good Practices by Japanese Private Sector, and other venues.

Japan's National Institute for Environmental Studies' Climate Change Adaptation Information Platform

🜔 http://www.adaptation-platform.nies.go.jp/en/index.html 🛛 🔗

Japan's Ministry of Economy, Trade and Industry's Climate Change Adaptation Good Practices by Japanese Private Sector (PP.51-52)

🜔 https://www.meti.go.jp/policy/energy_environment/global_warming/adaptation_goodpractice_FY2020ENG.pdf 🛛 🗗

R&D Initiatives for Addressing Climate Change

One of the basic policies established by Sumitomo Chemical under the Corporate Business Plan (FY2019–2021) is accelerating the development of next-generation businesses. One priority area of that policy is reducing environmental impact. Sumitomo Chemical has identified energy storage, energy conservation, and carbon recycling as areas of strength that are indispensable to helping solve climate change problems and for which the Company can use the technologies it has cultivated to date.

In the field of energy storage, we are developing next-generation batteries and fully solid state battery materials that help reduce GHG emissions. In the field of energy conservation, we strive to develop water treatment processes with low environmental impact and CO2 separation membranes to enhance energy efficiency. In the field of carbon recycling, we are currently working to develop bioprocesses that use synthetic biology and chemical production processes that use carbon capture and utilization (CCU).

In addition, as an initiative to ensure next-generation energy, we are conducting a survey related to CO₂-free hydrogen manufacturing technologies that do not emit CO₂ during the manufacturing stage and their effective implementation.

In these fields, we are promoting research and development while actively installing external technologies in collaboration with academia and startup companies.

Addressing Climate Change



Addressing Climate Change

Moreover, Sumitomo Chemical newly established a Research and Development (R&D) Group, named "Technological Development Group of Environmental Initiatives" in the Petrochemicals Research Laboratory (Sodegaura City, Chiba) on April 1, 2020. The new R&D group's mission is to develop a process to reduce the environmental impact related to the carbon cycle and GHG emission reduction by making the best use of core technologies, including catalyst design and chemical processing design, which the company has cultivated in the Petrochemical & Plastic business. By concentrating research projects currently dispersed across several research laboratories into the Petrochemicals Research Laboratory and by beefing up the number of researchers to about 30, Sumitomo Chemical will accelerate its development exponentially while also focusing on new projects. In addition, the new R&D group will actively collaborate with academia and companies that have advanced technologies, and promote activities to make environmental impact reduction technology into a new business in the Petrochemicals & Plastics Sector.

Sumitomo Chemical has identified environmental impact mitigation as one of the material issues to be addressed by its management. The company will continue to create solutions for social issues, such as carbon cycling technology and GHG emission reduction technology.

Examples of development projects at the R&D group (Technological Development Group of Environmental Initiatives)

- Polyolefin manufacturing technology using waste-derived ethanol as a raw material
- Chemical recycling technology for waste plastics
- Chemicals manufacturing technology using CO2
- Innovative energy-saving technology for chemical manufacturing processes
- Development of energy-saving wastewater processing systems

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Addressing Climate Change

Technology Development Aimed at Generating Innovation

Achieving carbon neutrality by 2050 will not only require the maximal use of the best available technology, such as fuel conversion and current energy-saving technologies, but also the generation of innovation going forward. Sumitomo Chemical aims to develop a wide range of technologies aimed at achieving carbon neutrality for society as a whole, and then deploy them in society.





Addressing Climate Change

The BioCarbon Fund*

Sumitomo Chemical finances afforestation projects in developing countries and poverty-stricken countries through the World Bank's BioCarbon Fund. These projects are geared to contribute to the restoration of abandoned land, the conservation of water resources, biodiversity conservation, and the reduction of GHGs. Since participating for the first time in 2005, Sumitomo Chemical has been involved in multiple afforestation projects, which have led to a combined total of 239 thousand tons in reductions in CO₂ emissions.

* BioCarbon Fund:

This fund was established by the World Bank to finance projects to plant trees and preserve forests with the objective of acquiring CO₂ credits (emissions rights issued based on the volume of CO₂ reduced or absorbed as a result of projects designed to reduce GHGs).

CDP Climate Change A List 2020

Sumitomo Chemical has been included in CDP's "Climate A List 2020," its highest rating, for the third consecutive year as a company recognized for undertaking particularly excellent activities to address climate change. Of 9,500 companies that disclosed their climate change information to CDP, 270 global companies and 66 Japanese companies were named on the A List.

Sumitomo Chemical received the highest evaluation in the CDP's climate change action and water security survey.

Nttps://www.sumitomo-chem.co.jp/english/sustainability/news/detail/?key=8076

JCIA Responsible Care Award

The Japan Chemical Industry Association awarded the Sumitomo Chemical Group the Examiner's Special Award at the <u>13th JCIA</u> <u>Responsible Care Awards (Japanese only)</u> for the Group's initiatives aimed at realizing a low-carbon society (June 2019) and the Excellence Award at the <u>14th JCIA Responsible Care Awards (Japanese only)</u> for the Group's initiatives to promote sustainability, with the Misawa Works RC activities used as a case study (May 2020).

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 non-conformity or problem points and we were approved for maintaining certification.

* Conducted online due to the COVID-19 pandemic

Looking Ahead

The Sumitomo Chemical Group will continue actively working to solve climate change problems using the technological capabilities it has cultivated as a diversified chemical company.

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Environmental Protection

Basic Stance

The Sumitomo Chemical Group is working in unison to reduce its environmental impact. Specifically, we have set out goals in each field, including protecting the atmosphere and aquatic environments, conserving resources and managing waste, properly managing chemical substances, protecting biodiversity, and protecting soil environments. Each worksite and Group company is striving to enhance its initiatives aimed at achieving these goals.

Over the course of the Corporate Business Plan (FY2019–2021) we aim to continue strengthening and enhancing our initiatives based on voluntary control and further enhance the level of activity undertaken by the consolidated Group. We also strive to more accurately and quickly disclose environmental performance indicators.

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

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.90 Organization of Responsible Care

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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.104 Environmental Protection

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.128–130 FY2018–2020 Environmental Performance

Industrial water 63.4 60.1 Drinking water, etc. 0.8 0.5 Seawater 878.1 161.9 Groundwater 26.8 23.6 Other water 2.6 2.6
Industrial water 63.4 60.1 Drinking water, etc. 0.8 0.5 Seawater 878.1 161.9 Groundwater 26.8 23.6 Other water 2.6 2.6
Drinking water, etc. 0.8 0.5 Seawater 878.1 161.9 Groundwater 26.8 23.6 Other water 2.6 2.6
Seawater 878.1 161.9 Groundwater 26.8 23.6 Water ★ Other water 2.6 2.6
Groundwater 26.8 23.6 Water ★ Other water 2.6 2.6
Water ★ Other water 2.6 2.6
(Thousand
Fuel, heat, and electricity*1 1,767 1,033
alculated as kl of crude oil
(Thousand tor
Hydrocarbon compounds 1,704 1,449
(excluding minor metals)*2 90.2 80.3

Figures in green: Sumitomo Chemical **OUTPUT** Product Manufacturing and Environmental Impact (Thousand tons) (Calculated on the basis of 2,526 1,353 ethylene production)* roducts (Tons) Coastal waters/waterways 874 805 COD Sewer systems 89.0 168 Coastal waters/waterways 31.3 34.7 Phosphorus Sewer systems 4.9 4.5 Coastal waters/waterways 1,281 1,204 Water Nitrogen Pollutant Sewer systems 48.1 26.4 Emissions ★ Substances subject to the PRTR Act 11.7 9.6 (Thousand tons) 248 53.5 Waste emissions* Landfill*6 25.1 (Breakdown) On-site landfill 0 0 Waste External landfill 25.1 1.8 Materials 🖌 (Thousand tons of CO2e) Greenhouse gases (seven gases)*1 6,072 3,474 Emissions from energy use (CO2) 5,312 2.830 CO2 emissions from other than energy use 661 620 94 20 N2O HFC 4 4

Figures in black: Sumitomo Chemical and Group companies in Japan

Atmospheric

CH4, PFC

SE6, NE3

Emissions ★

		(Tons)
Others		
NOx	4,359	1,761
SOx	4,584	1,145
Soot and dust	211	105
Substances subject to the PRTR Act	419	230

*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 225 "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 CO2 emissions; amount of energy used by Sumitomo Chemical and Group companies in Japan non-production sites and the resultant CO2 emissions; CO2 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.

*7 In reference to the Act on Promotion of Global Warming Countermeasures, companies that emit less than 3,000 tons of CO2-equivalent per year for each type of greenhouse gas are outside the scope of calculation.

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Environmental Protection

Examples of Initiatives

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 airborne asbestos from the demolition of buildings.

1. 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.133 Environmental Activities: Supplementary Data

2. Managing Fluorocarbon Refrigeration Equipment

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 global warming potential (GWP) or non-fluorocarbon refrigerants. Our goal is to complete these upgrades within the upgrade deadlines for the equipment.



Fluorocarbon cooling equipment

P.136 Environmental Activities: Supplementary Data

<Upgrade Deadlines for Each Type of Equipment>

• CFC equipment: Eliminate use of these units by fiscal 2025 (currently a total of 37 units held by the Group)

• HCFC equipment: Eliminate use of these units by fiscal 2045 (currently a total of 255 units held by the Group)

We aim to dutifully adhere to this plan, which, following the revision of the Act for Rationalized Use and Proper Management of Fluorocarbons, includes regularly examining the fluorocarbons used in industrial refrigeration and air conditioning equipment, devising ways of minimizing leaks identified in equipment designated as needing attention based on leakage history categorized by equipment type, as well as thoroughly conduct management to steadily dispose of residual fluorocarbons inside waste equipment.

3. 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.

For a Sustainable Future

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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.

1. 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.

2. 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.

3. Promoting the Effective Use of Water

We investigate water risks related to intake and effluence 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.

Water Usage (Sumitomo Chemical Group)

			(Million tons)
	FY2018	FY2019	FY2020
Sumitomo Chemical Group	950	1,017	980
(Breakdown 1)			
Sumitomo Chemical	255	267	249★
Group companies in Japan	688	743	723★
Overseas Group companies	7.34	7.40	7.99
(Breakdown 2)			
Seawater	848	918	878
Fresh water	102	99.4	102

Notes: • Water usage volume includes seawater

• At Sumitomo Chemical Works, we determined that industrial water and groundwater intake is not partially included, and we revised the figures for Sumitomo Chemical and the Sumitomo Chemical Group in fiscal 2018 and 2019.

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

Environmental Protection



Environmental Protection

Evaluating Water-Related Problems

The Sumitomo Chemical Group is evaluating water-related risks at each production base from the perspective of water supply and demand risks and water pollution susceptibility risks.

Evaluating Water Supply and Demand Risks

The Group evaluates the baseline water stress in communities where a plant is 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.

Evaluating Water Pollution Susceptibility Risks

The Group evaluates water supply and demand and its fragility 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).

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)

The Sumitomo Chemical Group conducts business activities in many places around the world, and some of its Group companies engage in production activities in countries and regions designated as having a high baseline with regard to water stress (physical risk) according to the Aqueduct Water Risk Atlas. Sumitomo Chemical India's Bhavnagar plant is one example.

To secure water for its production operation needs, the Bhavnagar plant purchases river water from the local municipality. Recently, however, there has been an increase in the surrounding population and demand for water for farms. This, coupled with a decrease in annual rainfall, has made it difficult for the plant to secure the water needed for production operations.

The Bhavnagar plant then decided to purchase a portion of the household wastewater that the surrounding municipalities are responsible for treating, and treating the wastewater itself to use in its production operations. First, the plant laid down two kilometers of pipe to transport the household wastewater to the plant. A unique aspect of this plan is that to treat the wastewater, the plant does not use the general activated sludge method but rather uses the pollutants contained in the wastewater as nutrients to farm worms (vermiculture).

Through this initiative, the plant was able to reduce its purchasing of river water by more than 70% while solving the plant's long-standing issue of securing a stable water supply for production activities. As an added bonus, its water purchase costs were cut to around half.



Wastewater being purified through earthworm farming

CDP Water Security A List 2020

Sumitomo Chemical was selected by CDP to receive the highest rating in its Water Security A List 2020 for the first time as a company taking especially excellent actions for water security. Among the roughly 3,000 companies that disclosed water security data, such as water-related risks and biodiversity action, the ones that were selected for the A List totaled 106 worldwide and only 30 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/20201209.html 🛛 🗇

Environmental Protection



Environmental Protection

Resource Saving and Waste Reduction

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.

1. 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)
	FY2018		FY2019		FY2020	
	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	1,676	1,383	1,829	1,545	1,704	1,449
Metals (excluding minor metals)	121	117	109	105	90.2	86.3
Minor metals	13.54	0.07	11.20	0.02	12.5	0.1

Note: Economic effects are detailed in the supplementary data (page 132)

2. 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).

3. 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.

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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 each worksite. 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.



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.





Environmental Protection

Biodiversity Preservation Initiatives

<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

Left: Grey heron Right: Cormorants

Left: Rabbit Right: Bat

<Water Area Surveys Conducted around Works (Misawa Works)>

Double cherry

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.









A subspecies of Tubifex tubifex

Stenothyra

Cottus reinii

Dugesia japonica

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

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. 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.

<Greening and Environmental Conservation in Thailand (Sumitomo Chemical Forest)>

From 2008, we had partnered with OISCA to conduct mangrove planting activities in Ranong Province in southern Thailand. The initiative ended in March 2019, but the local residents currently continue to manage the area supported by the activities in the area, which has been dubbed the Sumitomo Chemical Forest.

The Sumitomo Chemical Forest helps create jobs in the area and improve the lives of the local residents.





The area surrounding the Gifu Plant's fish pond

Oita Works' green belt



Sumitomo Chemical Forest

P.209 Matching Gift Program

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Environmental Protection

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.

1. 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.

2. Reducing Atmospheric Emissions (FY2020 results: atmospheric emissions accounted for around 96% 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.

3. 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.

Protecting the Soil Environment

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

1. 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.

2. 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.

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.