Responsible Care Activities

Responsible Care (RC) activities refer to the voluntary initiatives undertaken by business operators in the chemical industry, with the goals of ensuring safety, the environment, and health throughout the life cycles of chemical products—from development through manufacture, sales, use, and disposal after final consumption—maintaining and improving the quality of those products. Through these activities, we also strive to gain the further trust of society through continuous dialogue. Based on the core principle of "Making safety our first priority," the Sumitomo Chemical Group engages in RC activities from a variety of perspectives.

Contents

Contributing to the SDGs through Responsible Care Activities

Responsible Care Activity Goals and Results

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

Items		Boundary	Fiscal 2017 Goals	Fiscal 2017 Results	Evaluation	Fiscal 2018 Goals	Page
Responsible Care (RC) Audits	Responsible Care (RC) Audits		Expand RC audit scope	Enhanced auditing methods related to data reliability	○	Expand RC audit scope	pp. 22–27
	Review from the viewpoint of a third party		Review accidents from the viewpoint of a third party	Enhanced management's monitoring functions	○	Review accidents from the viewpoint of a third party	
	RC Global Management		Promote RC Global Management	Verified the Group's adaptability to globalization	○	Promote RC Global Management	
Occupational Safety and Health / Industrial Safety and Disaster Prevention	Lost-workday injuries	Sumitomo Chemical	0	1	△	0	pp. 28–33
		Partner companies*1	0	3	△	0	
	Frequency rate of lost-workday injuries*2	Group*3	Less than 0.1	0.26	△	Less than 0.1	
	Severe accidents*4	Group	0	2	△	0	
	Severe industrial accidents*5	Group	0	0	○	0	
	Lost-workday injuries in logistics*6	Logistics	0	0	○	0	
Environmental Protection / Climate Change Action	Promotion of Environmental Management						
	Severe environmental accidents	Sumitomo Chemical and consolidated subsidiaries in Japan and overseas	0	0	○	0	pp. 34–44
	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 Soil Contamination Countermeasures Act and the Air Pollution Control Act. Thoroughly discussed legislation to ease or tighten regulations with the Diet.	○	Properly respond to more stringent laws and regulations and proactively address trends in new environmental regulations	
	Environmental protection management methods, etc.	Sumitomo Chemical	Promote labor-saving and streamlining	Continued to collect environmental performance data for major Group companies in Japan and overseas using a cloud system and continued taking action toward common goals	○	Provide individual support to Group companies for responding to environmental regulations	

Note: Further details are provided in the supplementary data (pp. 50–74).

*1 A partner company injury is defined as one suffered within a Sumitomo Chemical worksite by an employee of a company affiliated with a logistics or construction subcontractor.

*2 The Responsible Care Department determines if accidents that occur at overseas consolidated subsidiaries are considered to be lost-workday injuries or non lost-workday injuries based on how the accidents are handled in Japan.

*3 For the purposes of occupational safety and health/industrial safety and disaster prevention, the Group is defined as Sumitomo Chemical (including its partner companies and others) and consolidated subsidiaries in Japan and overseas.

*4 Severe accidents are defined as those that result in a fatality or those that result in severe lost-workday injuries, including blindness and loss of a limb.

*5 Severe industrial accidents are defined as industrial accidents resulting in any of the below conditions.
- The local residents suffer injuries requiring at least regular hospital visits or treatment.
- Employees at the facility suffer injuries that at least require a lost workday.
- The damage to the facilities totals more than ¥10 million.

*6 In 2017, this goal was changed to lost-workday injuries in logistics.

Responsible Care Activity Goals and Results

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

Items	Boundary	Fiscal 2017 Goals	Fiscal 2017 Results	Evaluation	Fiscal 2018 Goals	Page
Environmental Protection / Climate Change Action						
Climate Change Action						
Improve unit CO_2 emissions from energy use	Sumitomo Chemical	Improve 15% by 2020 compared to 2005 levels	Improved by 20.4% relative to fiscal 2005	○	Improve 15% by 2020 compared to 2005 levels	pp. 34–44
	Sumitomo Chemical and Group companies in Japan	Improve over 1% per year on average	Improved by 2.8% relative to fiscal 2015		Improve over 1% per year on average	
	Group companies overseas	Improve over 1% per year on average	Improved by 2.1% relative to fiscal 2015		Improve over 1% per year on average	
Improve unit energy consumption	Sumitomo Chemical	Improve unit energy consumption 15% by fiscal 2020 compared to 2005 levels	Improved by 21.3% relative to fiscal 2005	○	Improve 15% by 2020 compared to 2005 levels	
	Sumitomo Chemical and Group companies in Japan	Improve over 1% per year on average	Improved by 2.1% relative to fiscal 2015		Improve over 1% per year on average	
	Group companies overseas	Improve over 1% per year on average	Improved by 2.4% relative to fiscal 2015		Improve over 1% per year on average	
Improve unit energy consumption in the logistics division	Sumitomo Chemical[*1]	Improve over 1% per year on average	Improved by an annual average of 0.2% relative to the fiscal 2006 standard	△	Improve over 1% per year on average	
Waste Reduction Initiatives						
Reduce the amount of industrial waste sent to landfills	Sumitomo Chemical	Maintain 80% reduction compared to fiscal 2000 levels	Reduced by 94.3% relative to fiscal 2000	○	Maintain 80% reduction compared to fiscal 2000 levels	pp. 34–44
	Sumitomo Chemical and Group companies in Japan	Maintain waste volume at below fiscal 2015 levels to fiscal 2020	Reduced by 13.1% relative to fiscal 2015	○	Maintain waste volume at below fiscal 2015 levels to fiscal 2020	
Properly treated PCB waste	Sumitomo Chemical and Group companies in Japan	• (High concentrations of PCB[*2]) 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[*3]) 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) Largely completed the treatment of waste containing high concentrations of PCBs (excluding certain factories and equipment); continued to promote the storage and recovery of untreated waste • (Minute amounts of PCB) Implemented the treatment of waste containing minute amounts of PCBs at certain factories; continued 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 (pp. 50–74).

*1 Within the scope of specified shippers according to the definition stipulated under the Act on the Rational Use of Energy
*2 High concentrations of PCB: Polychlorinated biphenyl (PCB) intentionally used as insulation oil in such items as electric appliances
*3 Minute amounts of PCB: PCB unintentionally mixed in as insulation oil in such items as electric appliances (over 0.5mg/kg)

Responsible Care Activity Goals and Results

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

Items		Boundary	Fiscal 2017 Goals	Fiscal 2017 Results	Evaluation	Fiscal 2018 Goals	Page
Environmental Protection / Climate Change Action	**Protecting the Atmosphere, Water, and Soil**						
	Prevention of air and water pollution	Sumitomo Chemical	Meet voluntary management criteria*1	There was one instance of the legal limit being exceeded and another instance where a limit agreed upon with a municipality was exceeded. We have investigated the causes and taken countermeasures.	△	Meet voluntary management criteria	pp. 34–44
	Effective use of water resources	Sumitomo Chemical	Promote effective and efficient use of water resources	Unit water usage increased by 4.1% relative to fiscal 2016	△	Promote effective and efficient use of water resources	
		Group companies overseas	Improve unit water consumption by at least 1% on average per year	Unit water usage worsened by 4.4% relative to fiscal 2015		Improve unit water consumption by at least 1% on average per year	
	Response to PRTR	Sumitomo Chemical	Maintain 60% lower total emissions of air and water pollutants relative to fiscal 2008	Reduced emissions by 89.0% 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 2015 levels to fiscal 2020	Reduced emissions by 10.6% relative to fiscal 2015		Maintain total emissions of air and water pollutants at below fiscal 2015 levels to fiscal 2020	
	Reduction of VOC emissions	Sumitomo Chemical	Maintain VOC emissions reductions at 30% relative to fiscal 2000	Reduced emissions by 49.3% relative to fiscal 2000	○	Maintain VOC emissions reductions at 30% relative to fiscal 2000	
	Prevention of soil and groundwater contamination	Sumitomo Chemical and Group companies in Japan	Keep hazardous materials strictly within Company premises*2	Kept hazardous materials strictly within Company premises	○	Keep hazardous materials strictly within Company premises	
	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	
	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	○	Ensure compliance with "Sumitomo Chemical's Commitment to the Conservation of Biodiversity"	
Product Stewardship / Product Safety / Quality Assurance	Laws and regulations	Sumitomo Chemical	Continue to act precisely in accordance with domestic and overseas laws and regulations	Acted precisely in accordance with relevant laws and regulations	○	Continue to act precisely in accordance with domestic and overseas laws and regulations	pp. 45–49
	Chemicals management and information disclosure	Sumitomo Chemical	Continue to promote risk-based chemicals management and information disclosure	Systematically put in place risk assessment methods	○	Continue to promote risk-based chemicals management and information disclosure	
	Chemical management system	Sumitomo Chemical	Continue to promote utilization of the comprehensive chemical management system (SuCCESS) and develop concrete plans for expansion to Group companies	As part of our efforts to promote utilization of SuCCESS, we introduced a substance volume tracking (SVT) system	○	Continue to promote utilization of the comprehensive chemical management system (SuCCESS) and develop concrete plans for expansion to Group companies	
	Risk assessment	Sumitomo Chemical	Promotion of product safety risk assessments focused on high-risk products*3	Completed reassessments of all high-risk products and performed 134 risk assessments, including for high-risk products	○	Steadfastly perform product safety risk reassessments	
	Logistics quality-related incidents	Sumitomo Chemical*4	No Rank A or Rank B incidents, two or fewer Rank C Incidents	No Rank A or Rank B incidents, one Rank C incident	○	No Rank A or Rank B incidents, two or fewer Rank C Incidents	

Note: Further details are provided in the supplementary data (pp. 50–74).

*1 Voluntary management targets that are stricter than the 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-risk products: Products likely to have relatively high risks in terms of the nature of the chemical substances in the product and their application.
*4 Includes some Group companies in Japan that have Works within a Sumitomo Chemical worksite.

Responsible Care Management

Basic Stance

Responsible Care (RC) activities refer to the voluntary initiatives undertaken by business operators in the chemical industry, with the goals of ensuring safety, the environment, and health throughout the life cycle of chemical products, from development through to the manufacture, sales, use, and disposal after final consumption, maintaining and improving the quality of those products. These activities also strive to gain the further trust of society through continuous dialogue.

The Sumitomo Chemical Group has positioned Responsible Care activities as one of its most important management pillars. Based on the core principle of "Making safety our first priority," the Group has set goals for each of the following fields: occupational safety and health; industrial safety and disaster prevention; environmental protection and climate change; product stewardship, product safety, and quality assurance; Responsible Care audits; and logistics. The entire Group is working in unison to achieve the goals it has set.

Corporate Policy on Safety, the Environment and Product Quality

Sumitomo Chemical has set forth safety, the environment, and product quality as top priorities for all phases of its business activities in its Corporate Policy on Safety, the Environment and Product Quality. This policy has been communicated to all employees of Sumitomo Chemical and its Group companies to ensure that each and every employee is fully aware of it.

In conformity with Sumitomo's Business philosophy, our Company fulfills its responsibility to develop, manufacture, and supply a variety of products that satisfy the fundamental necessities of human life and contribute to the growth of society. Under the concept of "Making safety our first priority," which is fundamental to all the Company's operations, Sumitomo Chemical has based management of its activities on the principles of (i) maintaining zero-accident and zero-injury operations, (ii) ensuring customer satisfaction, and (iii) promoting mutual prosperity with society.

Paying due respect to these principles, our Company is determined to conduct all activities, including production, R&D, marketing & sales, and logistics, in accordance with the following policy related to safety, the environment, and product quality.

1. Maintain zero-accident and zero-injury operations and the safety of neighboring communities and our employees.
2. Ascertain the safety of raw materials, intermediates, and products and prevent our employees, distributors, customers, and consumers from being exposed to any possible hazard.
3. Supply high-quality products and services that satisfy customers' needs and ensure safety in their use.
4. Assess and reduce our environmental impact at all operational stages, from product development to disposal, and undertake all practical environmental protection measures.

All sections and employees of our Company shall be made fully aware of the significance of this policy and shall constantly strive to improve operational performance, while at the same time abiding by all relevant laws, regulations, and standards.

Revised: November 1, 2005 (Established: April 1, 1994)

Responsible Care Management

Policy on Responsible Care Activities

Sumitomo Chemical has summarized its key Responsible Care initiatives in its Policy on Responsible Care Activities, which is incorporated into the specific activity targets and plans formulated annually by each Sumitomo Chemical workplace and Group company.

In accordance with the Sumitomo Chemical Charter for Business Conduct and the Corporate Policy on Safety, the Environment and Product Quality, the Sumitomo Chemical Group as a whole will strive to promote Responsible Care Activities, thereby earning the trust of society, promoting business activities, and contributing to the sustainable development of society.

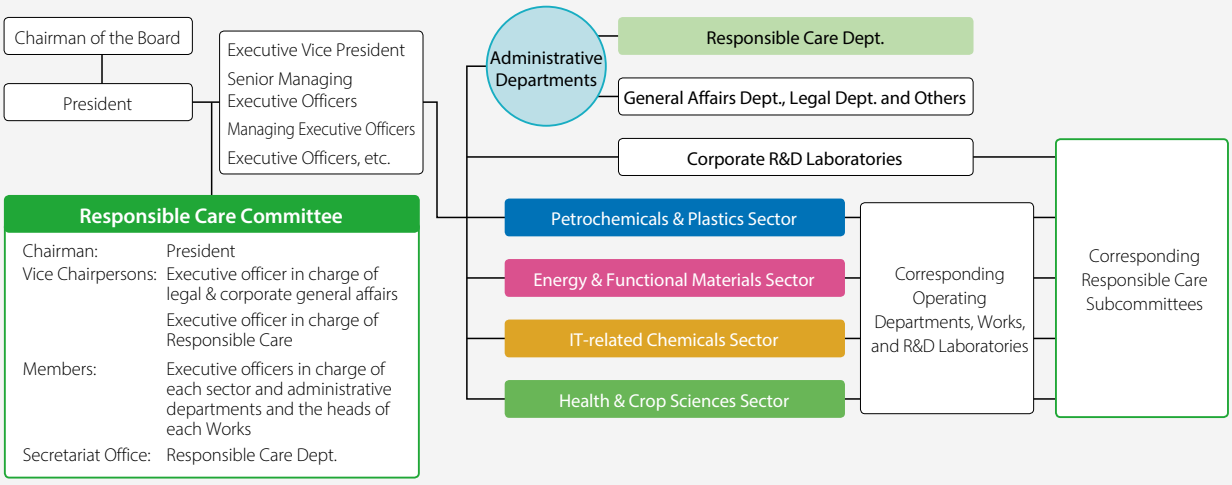
1. We will achieve zero-accident, zero-disaster targets to ensure safe and stable operations.
2. We will conduct risk management throughout the life cycle of our products, from the stages of development to manufacturing, logistics, use, and disposal and strive to ensure the safety of our employees, those involved in logistics, customers, and general consumers as well as the local community while also preserving the environment.
3. We will strive to develop safe and environmentally friendly products and manufacturing processes.
4. We will promote energy and resource conservation and waste reduction, thereby easing the environmental burden.
5. We will comply with all domestic and international laws, regulations, and ordinances related to safety, the environment, and product quality, and further enhance our related voluntary initiatives.
6. We will implement the requisite education and training related to safety, the environment, and product quality.
7. We will disclose information on Responsible Care Activities and engage in dialogue with society to ensure we meet society's expectations, respond to its interests, and remain accountable to the same.
8. We will continuously improve Responsible Care Activities based on Responsible Care auditing and third-party verification.
9. We will support the Responsible Care Activities of Group companies, contractors, and other business partners and help them carry out initiatives to enhance the same both at home and abroad.

Revised: July 15, 2013 (Established: January 1995)

Organization of Responsible Care Activities

Sumitomo Chemical's RC activities are classified into the fields of occupational safety and health, industrial safety and disaster prevention, environmental protection and climate change, product responsibility and product stewardship, Responsible Care audits, and logistics. As the highest body for deliberating and approving RC activities, the Responsible Care Committee is chaired by the president and comprises executive officers supervising the administrative departments and the four business sectors of the Company, and the General Manager of each Works. The Committee puts in place annual policies on activities, medium-term plans, and specific measures as they relate to Responsible Care. The Committee also analyzes and assesses the results of Responsible Care activities.

Organization of Responsible Care Activities



Responsible Care Management

Implementing Sumitomo Chemical's Medium-term Plan for Responsible Care Activities

	Medium-term Plan (for Fiscal 2016 to 2018)
Occupational Safety and Health	Improve the Group's culture of safety by strictly following safety requirements
Industrial Safety and Disaster Prevention	Bolster safety assurance capabilities by improving process risk assessment and promoting safety measures
Environmental Protection	Properly respond to more stringent laws and regulations and proactively address trends in new environmental regulations
Addressing Climate Change	Work to improve unit CO_2 emissions and energy consumption Establish an internal certification system for products that help address climate change and promote the development and adoption of said products
Product Stewardship, Product Safety, and Quality Assurance	Further promote voluntary product quality control by actively using the comprehensive chemical management system (SuCCESS) and encourage the use of product safety risk assessments, including at Group companies
RC Audits	Reduce risks by expanding the scope of RC audits
Logistics	Reduce the number of logistics safety- and quality-related incidents

Note: More details on the key activities for each field can be found in the following sections.

Promoting Responsible Care Activities as a Unified Group

Sumitomo Chemical shares policies and targets regarding RC across the entire Group. We are working to maintain safe and stable operations, which is one of the basic policies outlined in the Corporate Business Plan. We are also striving to ensure safety, environmental friendliness, and health throughout the life cycle of products as well as to improve the quality of chemical products the Company manufactures.

At present, we have stationed Responsible Care specialists at regional headquarters in Europe and the Americas as well as China and the wider Asia Pacific region. This has enabled us to develop RC activities rooted in each area. We established the Sumitomo Chemical Group's Safety Ground Rules in 2016 as a measure to further secure safety at all Group locations. We have since been working to promote awareness of the rules among all Group employees while further raising the level of Group-wide safety activities and eliminating work-related accidents. Moreover, we strive to ensure the safety of community residents and protect their environment while promoting mutual understanding by providing residents with information concerning our initiatives and engaging in dialogue.

Also, we continually work to develop human resources that are capable of implementing Responsible Care, for example, through training and practice at each production site as well as global meetings attended by the Responsible Care managers of Group companies in Japan and overseas. In addition, we formed a team to support the RC activities of Group companies. The team holds regular face-to-face meetings and publishes a newsletter that covers various topics and information on accidents and disasters that have occurred within the Group in the hope of preventing similar occurrences. The team also promotes various kinds of RC activities through RC awards for excellent RC activities of Group companies.

Responsible Care Management

Progress in Fulfilling Eco-First Commitments

Sumitomo Chemical has participated in the Eco-First Program of Japan's Ministry of the Environment since November 2008. As a leading company in the chemical industry, Sumitomo Chemical is committed to fulfilling its Eco-First commitments to the Japanese Minister of the Environment while ensuring legal compliance and enhancing RC activities.

Results ◉ Very favorable/ ◐ Generally favorable

Management of Chemical Substances and the Promotion of Risk Communication

◉

Reviewing Safety Information on Chemicals and Conducting Risk Assessments
- Completed hazard assessments for all substances included in the initial plan, performed risk assessments for 537 products, and publicly released 41 safety summaries (http://icca.cefic.org/)

LRI*1 Initiatives
- Promoted research by actively participating in the LRI program implemented by the Japan Chemical Industry Association as a member of the steering committee, planning and management task force, and research promotion panel*2

Enhancing Information Disclosure and Risk Communication
- Published the *Annual Report*, *Sustainability Data Book*, the *Report on the Environment and Safety* (at all worksites), local PR newsletters, etc., made information publicly available on the official website, made school visits, accepted student interns, and engaged in dialogue with local residents

Realizing Safe and Secure Water Treatment by Developing and Applying Management Technology that Helps Reduce Environmental Impact

◉

Considering Appropriate Water Treatment Methods and Standardizing Methods for Assessing Various Process Waste Water Expelled from Works
- In light of current operating conditions, we considered the necessary standardization and optimization of each Works' methods for assessing and treating effluent from new manufacturing processes

Using Microbiota Analysis, Microbial Immobilization, and Other Proprietary Technology to Increase the Sophistication of Activated Sludge Treatment
- We use the latest genetic analysis methods to assess the biota comprising the activated sludge, which is processed at each Works independently. We are considering tying the operating requirements for activated sludge treatment to the biota that comprises the sludge. In addition, in the area of process wastewater, which has long been used on an industrial scale, we are working on determining the relevant issues and responses with regard to activated sludge treatment using microbial immobilization technology.

Helping Create a Sustainable Society

◉

Starting Sumika Sustainable Solutions
- We launched initiatives to internally designate products and technologies that contribute to global warming countermeasures and environmental impact reduction. A total of 44 products and technologies have been designated, with combined sales of ¥335.7 billion in fiscal 2017 (consolidated). They are projected to contribute to a collective 53 million tonne CO_2 equivalent reduction in greenhouse gases throughout their life cycles in fiscal 2020.*3

Improving Energy Efficiency
- As a result of working to improve energy efficiency, the Company-wide unit energy consumption in fiscal 2017 improved 4.0% year on year, and unit CO_2 emissions from energy improved around 20.4% compared with fiscal 2005.

Holding Dialogues with Internal and External Stakeholders
- Explained to internal and external stakeholders the importance of the Company helping to create a sustainable society and the Company's related measures, thereby deepening mutual understanding through dialogue.

*1 Long-range Research Initiative:
Long-term support for research into the effects of chemical substances on human health and the environment
*2 Research Promotion Panel:
Commissioned expert research into the development of new risk methods, assessments, and related activities; held a meeting to report on the results of the research
*3 This value represents the amount contributed to the reduction of greenhouse gases over the life cycles of designated products expected to be sold in fiscal 2020, based on the guidelines of the Japan Chemical Industry Association and the ICCA.

Responsible Care Management

The Role of Responsible Care (RC) Audits

The RC audit is a management system to verify that the RC activities such as ensuring safety and the environment, and maintaining and improving the quality of chemical products are properly implemented. It also promotes process enhancement if areas for improvements are found in those activities.

To promote the Sumitomo Chemical Group's RC global management, RC audit activities fulfill the functions of improving management and building, maintaining, and improving the internal control system through the following four-step approaches.

Step 1: Sharing Sumitomo's Business Principles and Philosophy
Step 2: Promoting an understanding of and sharing in the Corporate Policy on Safety, the Environment and Product Quality; Policy on Responsible Care Activities; RC management systems; and Group Responsible Care Standards
Step 3: Establishing and developing RC management systems at each Group company
Step 4: Carrying out modifications to the direction and adjusting levels of RC activities by undergoing RC audits

Through face-to-face communication through each of the aforementioned steps, we have successfully provided assistance so that the RC management system is set in place by taking the scale, type of business, and attributes of each Group company into consideration. Relationships with Group companies that have been nurtured through these RC audits are utilized in various initiatives including individual support and the lively exchange of opinions aimed at resolving a wide range of issues at the Group companies.

Responsible Care Management

Responsible Care Auditing Framework

Sumitomo Chemical has an independent RC audit team. The RC auditors, who have a wealth of knowledge, experience, and technical expertise, take the lead in directly visiting internal Works as well as Group companies and conducting audits. In addition, RC audits of internal Works and research labs are conducted from a management perspective by Sumitomo Chemical's executive officers in charge of RC.

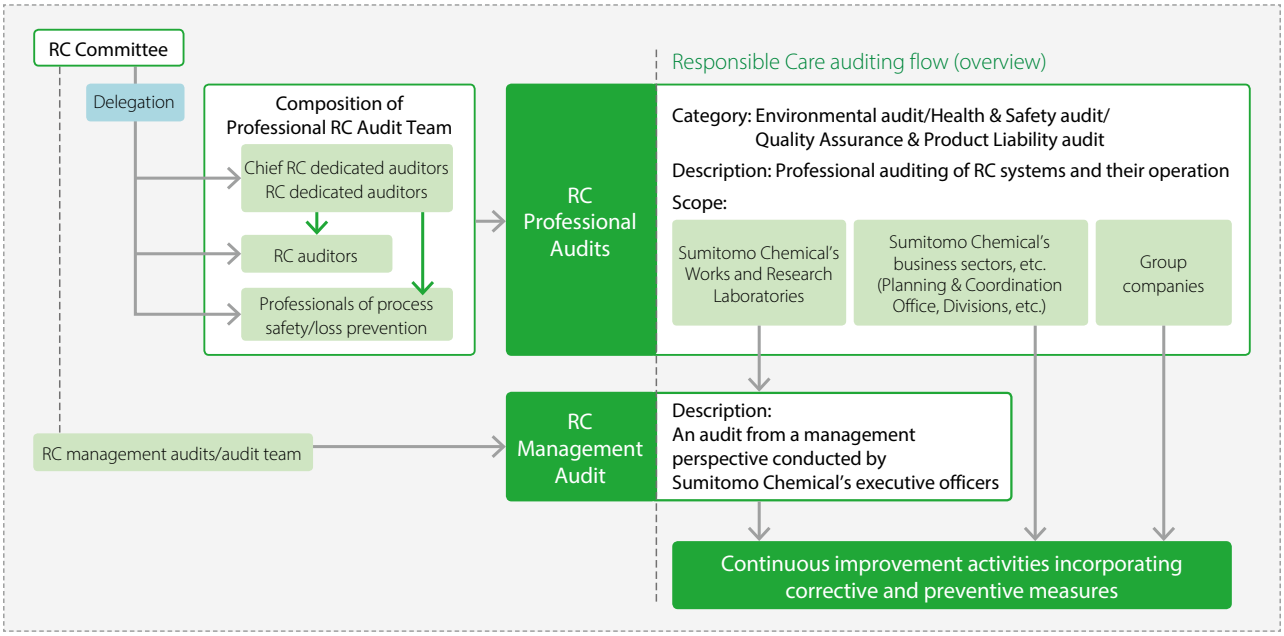
Features of Sumitomo Chemical's RC audits:

- Support is provided in the form of advice and proposals to ensure improvement at Group companies.
- Throughout RC audits, human resource development programs are incorporated to train Manufacturing Section Heads of Sumitomo Chemical and RC staff of Group companies.
- Local consultants are engaged to ensure the thoroughgoing and comprehensive check of compliance at overseas Group companies.

The Scope and Cycle

In principle, RC audits are conducted every one or two years at Sumitomo Chemical's Works and business sectors, and every three years at Group companies.

■ Responsible Care Auditing Framework



Looking Ahead

We continually work to prevent compliance violations, corruption, and errors as well as to improve the management of both Sumitomo Chemical and Group companies while building, maintaining, and improving their internal control systems as needed.

Occupational Safety and Health / Industrial Safety and Disaster Prevention

★: Assured by an independent assurance provider

Basic Stance on Occupational Safety and Health

Reflecting the principle of "Making safety our first priority," Sumitomo Chemical has formulated five fundamental and personal safety principles that each employee is expected to follow as well as guidelines based on the core principle. All Sumitomo Chemical employees and all involved parties, including partner companies, are thus united in promoting safety activities with the goal of eliminating all accidents.

Sumitomo Chemical has acquired OSHMS* certification at its worksites. In addition, the Company implements PDCA cycles that support a host of measures on the path to realizing improvements based on risk assessments. These safety-related measures and their results are reviewed at the end of each fiscal year by the Responsible Care Committee, which is headed by the President. The reviews ensure a continuous connection between past and future fiscal years' cycles, thereby strengthening safety and health activities that prevent accidents.

* By introducing and deploying JISHA (Japan Industrial Safety and Health Association) OSHMS (Occupational Health and Safety Assessment Series) Standards equivalent to OHSAS 18001, the Company conducts sound corporate management and risk management from the perspective of occupational safety and health.

Core Principle: Making Safety Our First Priority

Raison D'être for the Core Principle

1. Line management is fundamental to Safety and Health.
2. Each person is responsible for Safety and Health.
3. Sumitomo Chemical is united with partner companies on Safety and Health.

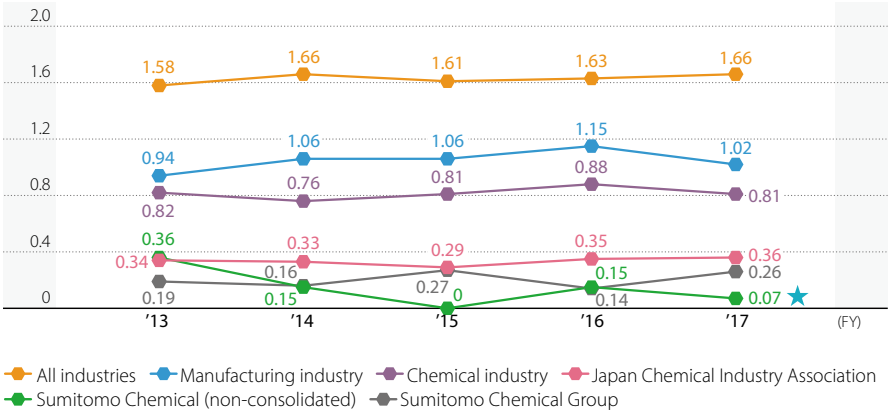
Five Fundamental and Personal Safety Principles that Each Employee is Expected to Follow.

- I will give safety and health the top priority in every aspect of business.
- I will identify and resolve safety and health issues at the source.
- I will comply with rules and instructions.
- I will act with safety in mind 24 hours a day, not just during working hours.
- I will cooperate with all involved parties, including partner companies, to ensure safety and health.

Fiscal 2017 Occupational Accidents

The Sumitomo Chemical Group targets a frequency rate of lost-workday injuries of under 0.1, but its rate was 0.26 in fiscal 2017. Although this was a favorable result compared to Japan's chemical industry as a whole (0.81), it still fell short of our goal and was 0.12 higher than in the previous fiscal year. Moreover, while the Group has set a goal of zero major accidents, it recorded two, up two from the previous fiscal year. In fiscal 2017, the number of lost-workday injuries increased by eight year on year.

■ Frequency Rate of Lost-workday Injuries (Sumitomo Chemical)



Occupational Safety and Health / Industrial Safety and Disaster Prevention

■ Lost-workday Injuries (Sumitomo Chemical Group*)

	FY2013	FY2014	FY2015	FY2016	FY2017
Number of lost-workday injuries	12	10	17	9	17

Note: Data for previous fiscal years has been retroactively adjusted to enhance accuracy.
* Employees of Sumitomo Chemical, its partner companies, and its Group companies in Japan and overseas

Initiatives to Prevent Occupational Accidents

Sumitomo Chemical thoroughly investigates the causes of each accident and works to prevent accidents by taking such measures as ensuring strict adherence to safety rules, providing hazard prediction training, also known as Kiken Yochi Training (KYT), and sharing accident information. In addition, we are working to raise safety awareness among construction partner companies that enter our Works by distributing pocket-size booklets and entrance certificates that feature the ground rules and core principles of safety as we promote our initiative of "Making safety our first priority."

Ensuring Thorough Compliance with the Sumitomo Chemical Group's Basic Safety Rules (Ground Rules)

In light of trends in the causes of accidents, the Group has established the following ground rules and is working to ingrain safe behavior.

1. Think Before You Act!
2. Help each other to be more aware of unsafe actions
3. Do not place hands in or around areas of working machinery/equipment

Improving Hazard Prediction Abilities

We are working to improve employees' hazard prevention ability—their ability to perceive and avoid danger—through, for example, behavior-based safety training and workplace discussions using illustrations.

Sharing and Using Accident Data

The Group shares information about all accidents mainly for use in safety education and comprehensive on-site investigations. When an accident occurs, we conduct a thorough examination of the causes and organize studies on how to prevent recurrences through on-site inspections with the top management of the affected workplace and safety managers.

Awards for Safety

Safety awards are given to workplaces that achieve zero lost-workday injuries. The President's Award for workplace safety is presented to workplaces with both a solid safety track record and good practices for safety and health, which could be an example to other workplaces. The President's Award was given to seven workplaces in fiscal 2017.

Safety Promotion through In-house Magazine, Slogan and Poster

In our in-house magazine, we have introduced examples of accidents that tend to happen at work and their preventive measures in a series of articles on enhancing safety since fiscal 2013. We also collect ideas each year for a slogan and a poster for safety and health, and make a poster using the best ideas and display it at each workplace to raise safety awareness.

Occupational Safety and Health / Industrial Safety and Disaster Prevention

Basic Stance on Industrial Safety and Disaster Prevention Management

The foremost mission of industrial safety and disaster prevention management is to prevent unforeseen industrial accidents, including fires, explosions, and the leakage of hazardous substances. At the same time, every effort must be made to minimize damage in the event of a natural disaster such as a major earthquake. Through these means, the Company is committed to securing the safety and peace of mind of employees and local communities. With this in mind, Sumitomo Chemical takes voluntary steps to put in place a safety management structure, undertakes stringent risk assessments of manufacturing plants and R&D projects, and works tirelessly to strengthen safety measures based on its evaluation of risks.

Fiscal 2017 Industrial Accidents

The Sumitomo Chemical Group achieved the target of "no severe industrial accidents"* in fiscal 2017.

However, there were three industrial accidents, which are minor accidents whose scale does not reach that of a severe industrial accident, in fiscal 2017. We will work to enhance safety management and quickly share the causes of the industrial accidents and the lessons learned across the entire Sumitomo Chemical Group.

* "Severe industrial accidents" refers to any of the following workplace incidents:
  - Accidents that cause injuries to local residents requiring outpatient/hospital treatment
  - Accidents that result in lost-workday injuries to workers on the site
  - Accidents that result in equipment and facility damage exceeding ¥10 million

Safety Education

Sumitomo Chemical has a variety of industrial safety educational programs that reflect the operational roles of employees throughout the Company. The programs are aimed at bolstering the ability of employees to acquire knowledge and skills in order to ensure process safety. In addition, we provide safety education to Group companies in Japan suited to each company's needs.

Examples of Safety Education

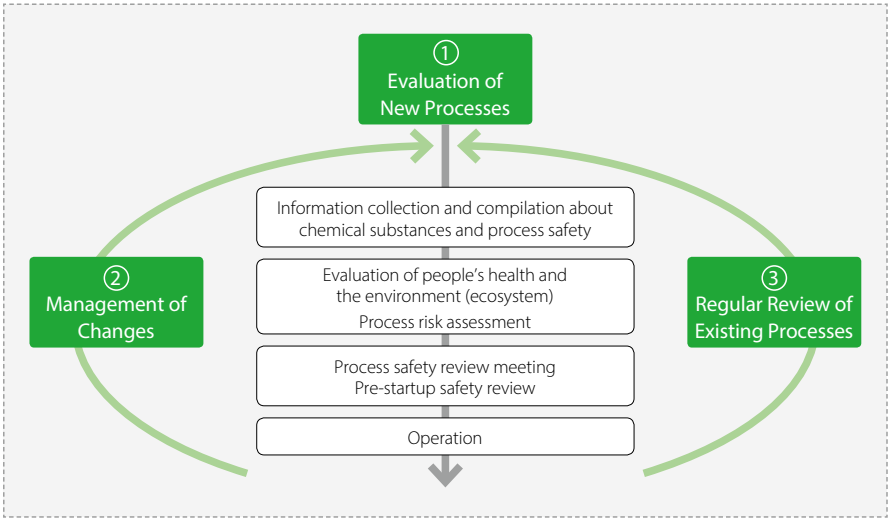
Name	Type	Purpose
In-house Safety Management System Education	e-learning	Fostering a deep understanding of the basic rules of safety management (the "Safety Management Guidelines") (FY2017 participants: 2,498 from Sumitomo Chemical)
Disaster Prevention Theory	Group training	Promoting the acquisition of basic knowledge regarding safety and disaster prevention for fires, explosions, reaction hazards, static electricity, etc. (FY2017 participants: 112 from Sumitomo Chemical and 12 from Group companies)
Fire and Explosion Training	Group training and self-study	Promoting the acquisition of knowledge to prevent accidents and perceive hidden dangers in the workplace through hands-on training related to fires and explosions (FY2017 participants: 166 from Sumitomo Chemical and 60 from Group companies)
Company-wide Safety Education	Group training	Training that covers the latest topics each fiscal year (The training in fiscal 2017 involved case studies of explosive accidents in the United States.) (FY2017 participants: 623 from Sumitomo Chemical and 75 from Group companies and partner companies)

Occupational Safety and Health / Industrial Safety and Disaster Prevention

Safety Management

Based on the Corporate Policy on Safety, the Environment and Product Quality, Sumitomo Chemical performs safety and environmental risk assessments at each stage from new chemical process R&D through the commercialization process to plant design, construction, operation, maintenance, and even demolition. The items and procedures essential to risk assessment are specifically outlined in the Development and Commercialization Regulations, the Chemical Safety Management Regulations, the Safety Management Guidelines, and other similar documents that provide the standards for the Company.

■ Process Risk Management (Three Routes)



① Evaluation of New Processes

The Process Safety Review Meeting (levels 1 to 5) convenes at every step, from R&D through to industrial-scale production. These meetings are held to review process safety assessment results and the lineup of chemical substances handled by the Company as well as to determine whether safety countermeasures are appropriate. This mechanism ensures that processes do not proceed to the next step unless adequate safety has been confirmed.

② Management of Changes

When certain changes are made to, for example, improve plant facilities or modify operating conditions, the Company conducts all necessary safety assessments before such changes are made to ensure process safety levels are maintained after each change has been completed. As this system is utilized within the Company, it is well-known among Group companies and ensures risk management throughout the organization.

③ Regular Review of Existing Processes

Even when there is no change in the process, Sumitomo Chemical conducts regular reviews to catch up with the latest information on industrial safety technologies and to check whether there will be a significant impact from the long-term use of a plant.

Furthermore, Sumitomo Chemical does not just identify potential risks in regular operations, it also shines a light on irregular operations, such as emergency shutdowns of plant operations and subsequent restarts. Since 2012, we have been working to strengthen our capabilities to comprehensively identify process risks. These efforts are not focused on achieving short-term goals. We incorporate lessons learned through our activities and achievements into the "Safety Management Guidelines" (revised in March 2017) to strengthen our capabilities of process safety assessment.

Occupational Safety and Health / Industrial Safety and Disaster Prevention

Earthquake Countermeasures

Sumitomo Chemical drew up a basic plan on earthquake countermeasures in 2004 taking the initiative to improve the earthquake resistance features of equipment and structures that were especially susceptible to the risk of damage. Furthermore, in accordance with recent directives by government authorities to improve the seismic adequacy of existing facilities, we made a plan to obtain required earthquake-resistant features of critical high-pressure gas equipment and are carrying out reinforcements and reconstruction in line with the plan. Before carrying out this work, we took measures to reduce risk and ensure safety, such as reducing the volume of gas held in equipment in order to decrease its weight and meet the earthquake resistance criteria.

Initiatives for Ensuring Safety in Logistics Operations

The Sumitomo Chemical Logistics Partnership Council was formed by Sumitomo Chemical and the logistics subcontractors (84 companies at 114 locations) for Sumitomo Chemical Group companies in Japan. The Council maintains committees for Works in each area as well as for logistical centers (transport and storage) and marine transport-related operations nationwide. The Council is expanding the Logistics Department's Responsible Care activities. With regard to the transport of hazardous substances in tanker trucks and other vehicles, the Council annually holds a nationwide competition for tanker truck drivers as well as nationwide training workshops for instructing drivers on the basics of unloading trucks and on what to do when problems arise. In fiscal 2017, we were able to achieve zero lost-workday injuries for the second year in a row. Going forward, we will continue taking various measures to improve the situation toward our goal of zero accidents.

Lost-workday Injuries in Logistics (in Japan)

	FY2013	FY2014	FY2015	FY2016	FY2017
Number of cases	1	1	3	0	0

Note: Lost-workday accidents caused by logistics subcontractors on the premises of Sumitomo Chemical workplaces and lost-workday accidents caused by major logistics subcontractors outside the premises of Sumitomo Chemical workplaces.

Occupational Safety and Health / Industrial Safety and Disaster Prevention

Industrial Safety Action Plan

Industry organizations came together with the Japan Petrochemical Industry Association and drew up an industrial safety action plan in July 2013 in a bid to step up efforts aimed at promoting industrial safety. Here we introduce the Company's initiatives based on the action plan.

(1) Commitment by Top Management to Industrial Safety

- Sumitomo Chemical has identified efforts to ensure full and strict compliance and maintain safe and stable operations as one of the Group's priority management issues under its Corporate Business Plan.
- The president issues a safety week message to all employees and Group companies in Japan and overseas to coincide with National Safety Week, which begins on July 1 each year.
- We have held the President's Awards for workplace safety on a continuous basis since fiscal 2012.

(2) Setting Industrial Safety Targets

- Each year, Sumitomo Chemical sets targets for a variety of key parameters, including the elimination of all accidents resulting in lost workdays as well as all severe industrial accidents. The Company engages in a broad spectrum of activities aimed at achieving these targets.

(3) Drawing Up an Action Plan to Secure Industrial Safety

- Sumitomo Chemical pursues activities aimed at thoroughly identifying industrial safety risks that encompass regular and irregular operations.

(4) Checking and Evaluating Progress toward Achieving Targets and Implementing Measures

- The Responsible Care Committee (see page 23 "Organization for Responsible Care Activities") reviews progress toward the achievement of targets and the implementation of measures. Findings under this review are reflected in the plan for the next fiscal year.

(5) Initiatives Aimed at Promoting Voluntary Safety Activities

- The Sumitomo Chemical Group established the ground rules related to safety and strives to foster a culture of safety.
- Sumitomo Chemical designates one day each month as a "safety day" in an effort to continuously focus the attention of the entire Group on the importance of industrial safety.
- Academic experts conduct seminars and undertake an evaluation of safety assurance capabilities by the Process Safety Competency Center of Japan Society for Safety Engineering.

Looking Ahead

Based on the core principle of "Making safety our first priority," all of the Sumitomo Chemical Group's employees will continue working hard to proactively and effectively carry out safety activities. In addition, Sumitomo Chemical will enhance measures to improve existing risk assessment methods and provide guidance and support to Group companies regarding risk assessment methods. We will continue working to further raise the level of safety management and promote greater awareness across the Group of the following matters: "managers of each level check the real situation to see whether instructions and countermeasures are firmly in place," "strengthen workers' thorough checking capability," "when on a team, being aware of each other's unsafe actions," and "building up basic knowledge and experience and honing skills."

Environmental Protection / Climate Change Action

Basic Stance

Everyone in the Sumitomo Chemical Group works together to realize environmental management, which helps the Company and society develop in a sustainable manner with due considerations to the environment. Our aim has always been to realize environmental management through our business operations. Thus, we constantly think about how to use the power of chemistry to help resolve global issues, including those related to energy and the environment.

Under the medium-term plan for climate change and environmental protection, which commenced in fiscal 2016, we are working to strengthen key initiatives concerning our production activities with the aim of further enhancing environmental management.

Priority Initiatives of the Medium-term Plan for Addressing Climate Change and Protecting the Environment (Fiscal 2016–Fiscal 2018)

(1) Addressing Climate Change

- Achieve the world's highest energy efficiency standards
- Develop processes and products that help build a low-carbon society
- Effectively implement the management of energy, CO_2, and fluorocarbons
- Respond to government policies on energy and global warming in Japan and overseas

(2) Protecting the Environment

- Properly respond to more stringent laws and regulations and proactively address trends in new environmental regulations
- Promote voluntary activities related to environmental protection
- Provide individual support to Group companies for responding to environmental regulations
- Provide guidance and support to formulate consolidated Group targets and to achieve said targets

Environmental Protection / Climate Change Action

Key Initiatives and Results in Fiscal 2017

Promote an Optimum Mix of Appropriate Legal and Regulatory Compliance Measures and Voluntary Activities

We respond to revisions of laws and regulations in a systematic and timely manner. We revise environmental risks in various fields and take measures to reduce risks while weighing the costs and benefits.

Standardize Environmental Protection Management Methods and Reduce Environmental Treatment Expenses

Sumitomo Chemical completed the introduction of a data management system that uses a cloud system in order to ensure the accurate and prompt collection of a wide range of performance data related to energy and the environment for each Works of the Company and all Group companies in Japan. Going forward, we will roll the system out to Group companies overseas. Meanwhile, we are continuing to carry out the trial evaluation of a waste management system designed to strengthen compliance and increase efficiency by providing the visualization of waste management data from major plants. The entire Group regularly works to efficiently reduce its environmental processing costs for gas emissions, water emissions, and waste materials.

Strive to Achieve the New Common Energy and Environmental Protection Targets

In fiscal 2016, we recalculated the base value of net sales for each Sumitomo Chemical Group company and selected major consolidated subsidiaries possessing manufacturing plants for inclusion in the scope of calculation. We decided that we would take on the targets outlined below. Going forward, we will assemble the results of every fiscal year, then follow up on the results of each company and continue striving to improve the performance of the entire Group.

■ Common Goals for Group Companies in Japan and Overseas

	Group Companies in Japan	Group Companies Overseas
Improve unit energy consumption	●	●
Improve unit CO_2 emissions from energy use	●	●
Maintain overall emission levels into the air and water	●	
Maintain industrial waste landfill levels	●	
Improve unit water consumption		●

Note: We used fiscal 2015 (in Japan: fiscal-year basis; overseas: calendar-year basis) as the base fiscal year.

Environmental Protection / Climate Change Action

Addressing Climate Change

The extreme weather events and other adverse effects of climate change will have a major impact on people's lives around the world. Addressing these changes will require a two-pronged effort focusing on mitigation (reducing and absorbing greenhouse gases) and adaptation (working to stem or lessen the current effects of climate change as well as harnessing the new climatic conditions). One of the most important issues will be carrying out these efforts and simultaneously realizing a sustainable society that supports economic development. The Sumitomo Chemical Group is working hard from various perspectives on Goal 13 of the SDGs—climate action.

To this end, in June 2017, Sumitomo Chemical joined over 100 other global business leaders in supporting the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), which was founded by the Financial Stability Board (FSB).* Through our support of these recommendations, we will reassess the impact of climate change on the Group and continue to promote disclosures, beginning with those related to our action on climate change, as we work to develop a sustainable society and spur the shift toward a low-carbon economy.

* FSB:
An international organization whose members include central banks, financial regulatory authorities, and ministries of finance from 25 major countries.

President Tokura's statement support of the TCFD recommendation

Management System

Sumitomo Chemical is addressing climate change as one of its Responsible Care activities (see page 23 "Organization of Responsible Care Activities"). Although final decisions on key matters are the purview of the Responsible Care Committee, information on pertinent issues is also shared at the Board of Directors meetings, Management Meetings, Works GM Meetings, Group Company President Meetings, and other venues, bringing more depth to the discussions.

A wide range of specific issues related to energy and greenhouse gases are taken up for detailed discussion at Department GM Meetings, 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 greenhouse gases for Works, research laboratories, and business sectors. Information is also shared via Liaison Meetings of Corporate Departments, which hold discussions related to the ESG issue of climate change action.

Measures to Reduce Greenhouse Gas Emissions

Each Sumitomo Chemical worksite helps reduce greenhouse gas 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 where finding ways to save energy is difficult and requires a high level of expertise, we have launched initiatives in cooperation with experts. Information on the state of these activities is exchanged at Energy Manager Meetings, at which representatives from each worksite gather in one location to work on reducing the greenhouse gas emissions of the Company as a whole. In fiscal 2017, we made steady progress toward our targets for the unit energy consumption index and unit CO_2 emission index through a reduction in the amount of steam used and introduction of cogeneration facilities as well as other efforts.

Environmental Protection / Climate Change Action

★: Assured by an independent assurance provider

Energy Consumption and Greenhouse Gas Emissions

The Group's greenhouse gas emissions for fiscal 2017 onward are calculated in accordance with the GHG Protocol.

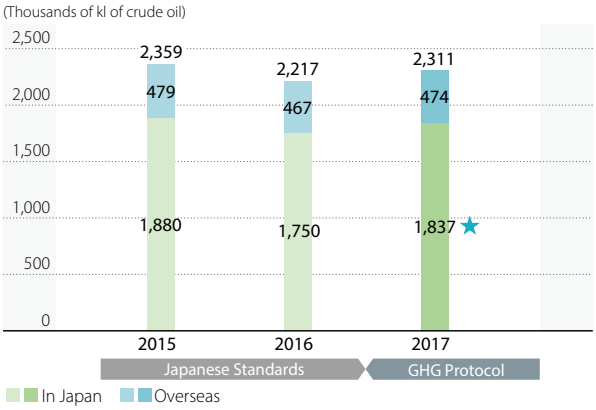
Greenhouse Gas Emissions

(Thousands of tonnes of CO_2e)

	Sumitomo Chemical and Group Companies in Japan★	Overseas Group Companies	Total
Scope 1	6,107	571	6,678
Scope 2	326	755	1,080
Total	6,432	1,326	7,758

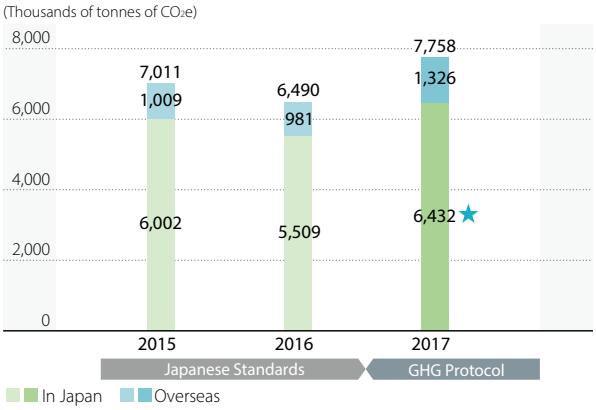
Note: When adding the results of one overseas Group company to the results of Sumitomo Chemical and Group companies in Japan, Scope 1 emissions total 6,232 thousand tonnes of CO_2e★ and Scope 2 emissions total 638 thousand tonnes of CO_2e.★
Going forward, we will continue to expand the scope of overseas Group companies assured by an independent assurance provider.

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 used to produce 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). In addition, the amount of energy used by Sumitomo Chemical's non-production sites is included from fiscal 2017. In addition, the amount of energy used by Sumitomo Chemical's non-production sites is included from fiscal 2017.

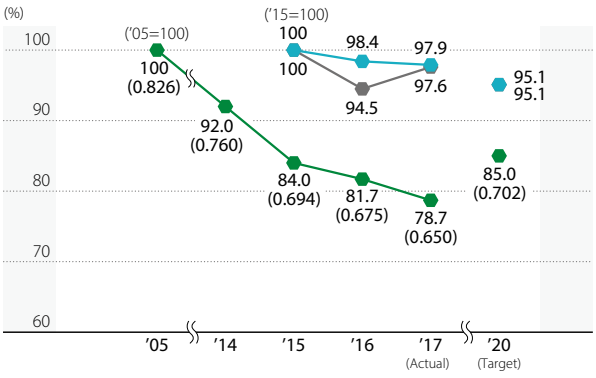
Greenhouse Gas Emissions



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.

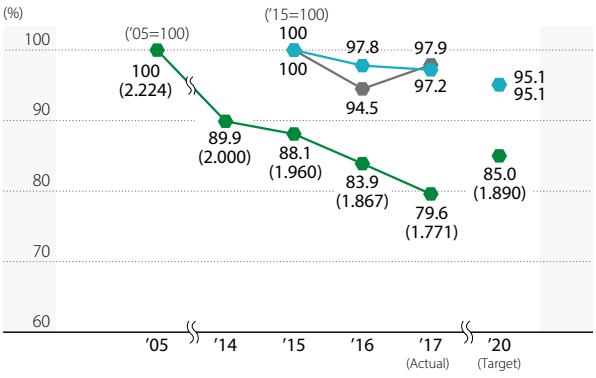
Unit Energy Consumption and Unit CO_2 Emissions (Production Bases)

Unit Energy Consumption Index



Notes:
- The figures are indexed to energy consumption (kl) at production bases per production volume (tonnes).
- Values in parentheses are unit figures based on Sumitomo Chemical's results.
- Calculated based on the Act on Rational Use of Energy in order to show the Common Energy and Environmental Protection Targets of Sumitomo Chemical Group.

Unit CO_2 Emissions Index



Notes:
- The figures are indexed to CO_2 emissions from energy use (tonnes) at production bases per production volume (tonnes).
- Values in parentheses are unit figures based on Sumitomo Chemical's results.
- Calculated based on the Act on Promotion of Global Warming Countermeasures in order to show the Common Energy and Environmental Protection Targets of Sumitomo Chemical Group.

Environmental Protection / Climate Change Action

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Status of Scope 3 GHG Emissions

Category	Emissions (Thousands of Tonnes of CO_2e)
1. Purchased goods and services ★	1,985
2. Capital goods	111
3. Fuel- and energy-related activities not included in Scopes 1 and 2 ★	290
4. Upstream transportation and distribution ★	57
5. Waste generated in operations ★	28
6. Business travel	7
7. Employee commuting	8
8. Upstream leased assets	<1
9. Downstream transportation and distribution	<1
10. Processing of sold products	—
11. Use of sold products ★	44
12. End-of-life treatment of sold products	945
13. Downstream leased assets	—
14. Franchises	—
15. Investments	—
Total	3,475

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.; and Taoka Chemical Co., Ltd.).
• Category 4 does not include Taoka Chemical Co., Ltd.

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 greenhouse gases. 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 175,000 tonnes in reductions in CO_2 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 CO_2 credits (emissions rights issued based on the volume of CO_2 reduced or absorbed as a result of projects designed to reduce greenhouse gases).

Environmental Protection / Climate Change Action

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.

Sumika Sustainable Solutions
https://www.sumitomo-chem.co.jp/english/csr/process_product/

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 at COP22, which was held in Morocco in November 2016, and COP23, which was held in Germany in November 2017. It was also introduced at Japan's Ministry of the Environment's Climate Change Adaptation Platform, Japan's Ministry of Economy, Trade and Industry's Climate Change Adaptation Good Practices by Japanese Private Sector, and other venues.

The website for Japan's Ministry of the Environment's Climate Change Adaptation Platform (Sumitomo Chemical's page)
http://www.adaptation-platform.nies.go.jp/en/lets/adaptationbiz/sumitomokagaku.html

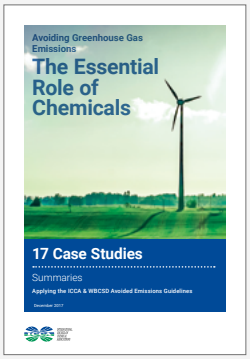
The website for Japan's Ministry of Economy, Trade and Industry's Climate Change Adaptation Good Practices by Japanese Private Sector (Sumitomo Chemical is featured in Area 13, Health & Sanitation)
http://www.sc.mufg.jp/english/company/news/000014701.pdf

Measures for the Risks and Opportunities of Climate Change

By analyzing the physical impacts of climate change and the risks associated with adjusting social systems, we are studying the possible effects climate change could have on our businesses. We are also looking to determine promising new business opportunities based on the analysis of various scenarios. Looking ahead, we plan to publicly release our findings on our website, in the *Annual Report*, and via other media.

Working with Global Chemical Companies

Sumitomo Chemical served as the chair of the Global Working Group on Energy and Climate Change of the International Council of Chemical Associations (ICCA) between June 2016 and June 2018. During this time, we led joint international research surveys related to helping reduce GHG emissions through chemical products and technologies. We also worked to promote the spread of the results of the research surveys.



Environmental Protection / Climate Change Action

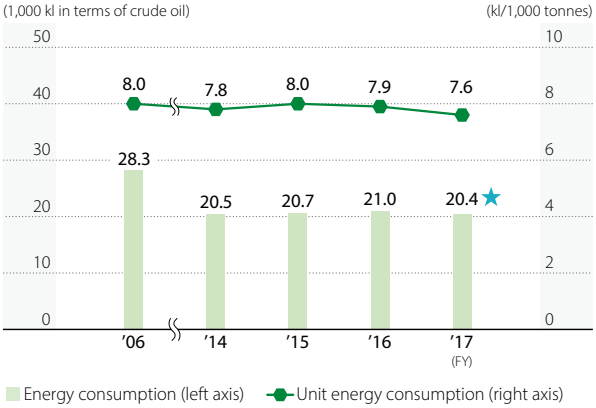
★: Assured by an independent assurance provider

Logistics Initiatives

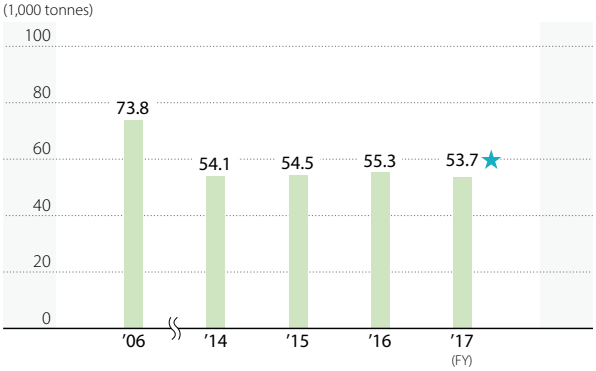
Sumitomo Chemical continues to promote modal shift, or transportation by more efficient and environmentally friendly modes, such as rail and ship instead of trucks. In fiscal 2017, unit energy consumption fell (improved) by 3.4% compared with fiscal 2016. We will continue to improve unit energy consumption by our target of 1% or more.

Reduction of Environmental Impact in Logistics Operations (Sumitomo Chemical)

Energy Consumption



CO_2 Emissions



Note: Data (energy consumption, CO_2 emissions) for previous fiscal years has been retroactively adjusted to enhance accuracy.

Promoting the Effective Use of Water

The Sumitomo Chemical Group recognizes that the importance of water as a limited natural resource is a global issue. 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)

(Millions of tonnes)

	FY2015	FY2016	FY2017
Sumitomo Chemical★	282	243	253
Sumitomo Chemical and Group companies in Japan★	1,043	975	1,017
Overseas Group companies	6.48	7.09	7.19

Notes: • Including seawater
• Data for previous fiscal years has been retroactively adjusted to enhance accuracy.

Environmental Protection / Climate Change Action

★: Assured by an independent assurance provider

Effective Procurement of Raw Materials

To maximize production efficiency for such chemical raw materials as ethylene and propylene, Sumitomo Chemical suspended operations at its ethylene plant in 2015 and consolidated production at Keiyo Ethylene Co., Ltd., which is a joint venture between Maruzen Petrochemical Co., Ltd. and Sumitomo Chemical.

Raw Material Use (Group, Sumitomo Chemical)

(Thousand tonnes)

	2015		2016		2017	
	Group	Sumitomo Chemical	Group	Sumitomo Chemical	Group	Sumitomo Chemical
Hydrocarbon compounds	1,940	1,553	1,779	1,525	1,835	1,593
Metals (excluding minor metals)	123	117	116	111	120	115
Minor metals	0.08	0.02	0.17	0.05	10.17	0.02

Note: Tanaka Chemical Corporation and SCIOCS COMPANY LIMITED are included in Group companies from 2017.

Thorough Waste Management and the Reduction of Landfill Waste ★

Sumitomo Chemical and Group companies in Japan work in unison to make industrial waste treatment more transparent and to properly manage it. We have worked to help achieve the goals of the Japan Business Federation's voluntary environmental action plan, a major industry initiative. Among these goals was to reduce the amount of industrial waste sent to landfills to 70% below the fiscal 2000 level by fiscal 2020. In addition, we set in-house reduction targets and work to reduce the amount of waste generated and promote recycling. In fiscal 2017, landfill waste was 1 thousand tonnes on a non-consolidated basis and 21 thousand tonnes for Sumitomo Chemical and Group companies in Japan, representing reductions well beyond the targets of the above-mentioned action plans. From fiscal 2017 onwards, we will continue to properly manage waste and reduce landfill waste with the target of reducing landfill waste 80% compared with fiscal 2000.

Processing PCB Waste

As for both high- and low-concentration PCB-containing waste, the entire Group is stepping up its equipment surveys, seeking to identify PCB-containing devices currently in use, including condensers, transformers, and stabilizers. In addition, we are disposing of waste in line with the regulations stipulated in the Act on Special Measures against PCB Wastes.

Environmental Protection / Climate Change Action

Protecting the Atmosphere, Water, and Soil

Sumitomo Chemical and Group companies in Japan work to identify major environmental risks in each field in line with the latest laws and regulations, including the Air Pollution Control Act, Water Pollution Control Act, and Soil Contamination Countermeasures Act. We take measures to systematically reduce risks related to highly important and urgent matters.

Protecting the Atmosphere

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.

* Particulate matter of up to 2.5 μm in diameter

Enhancing Fluorocarbon Management

We are executing a plan with a definitive deadline to completely phase out refrigeration equipment that uses CFCs and HCFCs as refrigerants. With regard to refrigeration equipment that uses HFCs as well, we have begun considering systematically switching over to equipment that uses HFCs with a low global warming potential or to non-CFC equipment. We aim to dutifully adhere to this plan, which, in line with the Act for Rationalized Use and Proper Management of Fluorocarbons, includes devising ways of minimizing leaks when industrial refrigeration and air conditioning equipment is in use as well as taking thorough, swift action once problems related to equipment installation are uncovered.

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 as assets, 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 any of our incinerators does not exceed the emission guidelines set under the Air Pollution Control Act.

Protecting Aquatic Environments

Regulations for Reducing Total Water Emissions

We are continually working to reduce the impact of water emissions from our plants on Tokyo Bay and other closed coastal waters where regulations are in place for reducing the total water emissions of COD, nitrogen, and phosphorus. To help achieve the goals of the eighth basic policy on reducing total water emissions, which has a target fiscal year of 2020 and covers all prefectures in Japan, we will continue to work to treat water emitted by our Works.

Promoting Safer and More Reliable Water Treatment

We have developed water treatment management technology that helps reduce our impact on the environment and are employing this technology to realize safe and reliable water treatment at all our plants.

Protecting the Soil Environment

Based on soil management conditions at Sumitomo Chemical business sites, we have established targets to prevent harmful substances (oil, heavy metals) from spreading beyond the boundaries of these sites. To this end, we have continued surveys and evaluations of soil contamination as well as remediation work on Group-owned land. We have also monitored groundwater close to our boundaries on a regular basis to confirm that levels of hazardous materials, including heavy metals and oils, are below those stipulated by environmental standards.

Environmental Protection / Climate Change Action

Biodiversity Preservation Initiatives

Taking biodiversity into consideration is one of Sumitomo Chemical's most important pillars as it strives toward building a sustainable society. We actively participate in a private-sector biodiversity partnership while giving considerable thought to what we should be mindful of as a chemical company. We are also expanding individual activities at Group companies.

Example Activities

- Promoting "Sumika Sustainable Solutions"
- Improving energy efficiency, recycling resources, promoting the 3Rs, encouraging CSR procurement
- Undertaking environmental impact assessments at the planning stage for new plant construction and implementing countermeasures
- Implementing environmental protection projects jointly with NGOs
- Complying with internal safety management regulations pertaining to the use of genetically modified organisms
- Undertaking proper management of chemical substances

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.

Looking Ahead

To effectively use the earth's limited resources and shift to a sustainable society, we must fulfill our ever expanding role in the field of environmental conservation. The Sumitomo Chemical Group aims to further reduce environmental risks through measures intended to address environmental conservation issues. These measures are centered on ongoing strict risk management, adherence to domestic and overseas regulations, careful monitoring of environmental trends, and promoting proactive and effective voluntary activities.

Environmental Protection / Climate Change Action

★: Assured by an independent assurance provider

Environmental Performance

Sumitomo Chemical collates 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).

Primary Environmental Performance (Fiscal 2017)

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

INPUT Energy and Resources

Water ★

	(Millions of tonnes)	
Industrial water	68.8	63.3
Drinking water, etc.	0.9	0.4
Seawater	926.9	171.8
Groundwater	17.6	15.0
Other water	2.5	2.5

Energy ★
Calculated as kl of crude oil

	(Thousands of kl)	
Fuel, heat, and electricity*1	1,837	979

Exhaustible Resources

	(Thousands of tonnes)	
Hydrocarbon compounds	1,835	1,593
Metals (excluding minor metals)*2	120	115
Minor metals*3	10.17	0.02

OUTPUT Product Manufacturing and Environmental Impact

Products ★

	(Thousands of tonnes)	
(Calculated on the basis of ethylene production)*5	2,602	1,371

Water Pollutant Emissions ★

		(Tonnes)	
COD	Coastal waters/waterways	998	918
	Sewer systems	234	115
Phosphorus	Coastal waters/waterways	32	29
	Sewer systems	6	6
Nitrogen	Coastal waters/waterways	1,442	1,347
	Sewer systems	72	42
Substances subject to the PRTR Act*6		45	44

Waste Materials ★

	(Thousands of tonnes)	
Waste emissions*7	261	50
Landfill*7	21	1.4
(Breakdown)		
On-site landfill	0	0
External landfill	21*7	1.4

Atmospheric Emissions ★

	(Thousands of tonnes of CO_2)	
Greenhouse gases (seven gases)*1	6,432	3,279
Emissions from energy use (CO_2)	5,611	2,621
CO_2 emissions from other than energy use	711	623
N_2O	110	35
HFC, PFC CH_4, SF_6 NF_3 *8	—	—

	(Tonnes)	
Others		
NOx	4,703	1,778
SOx	5,023	1,189
Soot and dust	247	88
Substances subject to the PRTR Act*6	438	225

PCB/CFCs under Secure Storage

No. of electrical devices containing high concentrations of PCBs*4	58 units	18 units
PCB volume*4	1.0 kl	0.1 kl
No. of refrigeration units using specified CFCs as a coolant	48 units	12 units
No. of refrigeration units using HCFCs as a coolant	262 units	102 units

*1 From fiscal 2017, the energy (calculated as kl of crude oil) and greenhouse gases (all seven gases) indices were calculated in accordance with the GHG Protocol.
- Having adopted the GHG Protocol standards for our GHG emmission 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's 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 rare metals: nickel, chromium, tungsten, cobalt, molybdenum, manganese, and vanadium. The supply structure for each of these rare metals is extremely fragile. These rare 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 Calculated based on the amount released into water/the air of each substance subject to the Order for Enforcement of the PRTR Act (promulgated on November 21, 2008).

*7 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.
In addition, although the amount of waste generated at Group companies in Japan and reduced at Sumitomo Chemical's facilities is included in "Waste emissions" (Sumitomo Chemical and Group companies in Japan), the amount is insignificant.

*8 In reference to the Act on Promotion of Global Warming Countermeasures, companies that emit less than 3,000 tonnes of CO_2-equivalent per year for each type of greenhouse gas are outside the scope of calculation.

Product Stewardship / Product Safety / Quality Assurance

Basic Stance

Product Stewardship at Sumitomo Chemical

Under its Corporate Policy on the Environment, Health, Safety, and Product Quality Assurance, Sumitomo Chemical promotes product stewardship*1 and works to provide products and services that satisfy customers and can be used with peace of mind.

To achieve the 2020 goal*2 proposed at the World Summit on Sustainable Development (WSSD) in 2002, it is now time for chemical management to be risk-based in regard to laws and regulations as well as company efforts to promote product stewardship on a global basis.

To achieve the 2020 goal, Sumitomo Chemical promotes voluntary initiatives to enhance product stewardship, including the Global Product Strategy (GPS)/Japan Initiative of Product Stewardship (JIPS)*3 put forward by chemical industry associations, including the International Council of Chemical Associations (ICCA) and the Japan Chemical Industry Association. We actively participate in capacity-building activities, conduct risk assessments of our products, and perform risk-based management.

*1 Product stewardship: The assessment of risks and protecting people's health and the environment from those risks throughout the product life cycle, which encompasses the entire supply chain from the development of chemical products to manufacture as well as sale, use/consumption, and disposal.
*2 2020 goal: Ensure that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment.
*3 GPS/JIPS: Initiatives that call on companies to conduct risk assessments of their products and to engage in appropriate chemical management based on risk in order to minimize risks throughout the supply chain. Under GPS/JIPS, toxicological information on chemical products is disclosed to the general public, including customers.

Ensuring thorough Compliance

Sumitomo Chemical Group conscientiously adheres to various laws and regulations related to the manufacture, import, export, and sale of goods. We are working to ensure thorough compliance throughout our entire globally expanding group of companies.

Quality Assurance

To supply products and services of stable quality to our customers, the Group maintains its commitment to further improving product quality and is continually enhancing its global quality assurance system, which is tailored to each product.

Product Stewardship / Product Safety / Quality Assurance

Overview of Initiatives and Fiscal 2017 Results

Risk Assessment and Management throughout the Entire Product Life Cycle

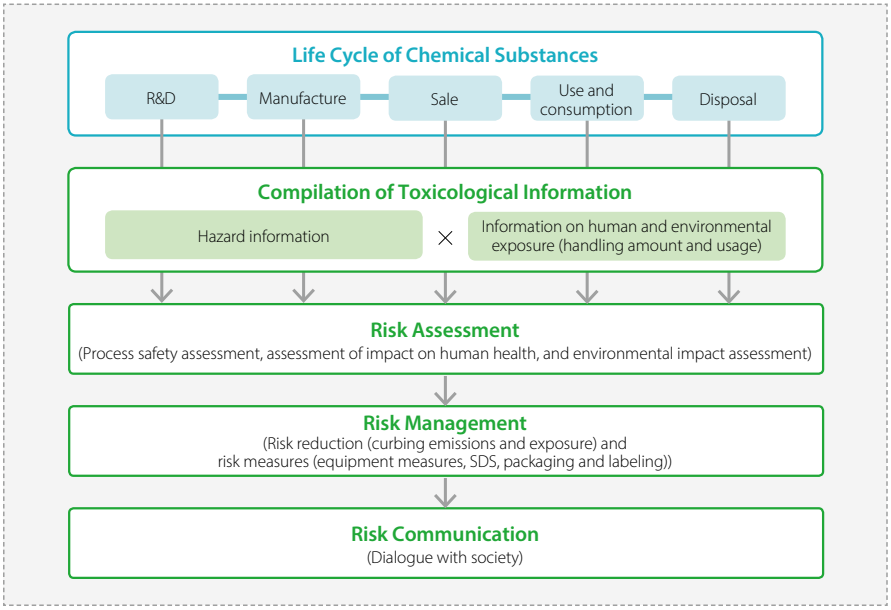
With regard to the chemicals (products) that it uses and sells, Sumitomo Chemical conducts risk assessments that span the entire product life cycle and all that could be affected, including internal operators, neighboring residents, the surrounding environment, customers, and consumers. The Company supports the Ministry of the Environment's Eco-First program, having pledged to systematically conduct appropriate risk assessments for its products manufactured or sold in annual amounts of one tonne or more by fiscal 2020 in line with the voluntary initiatives (GPS/JIPS) adopted by chemical industry associations. The results of the assessment are compiled into a safety summary and made publicly available online, including on the International Council of Chemical Associations (ICCA)'s portal website http://icca.cefic.org/. In fiscal 2017, 20 new summaries were released, bringing the total publicly available safety summaries to date up to 41.

In conducting chemical risk assessments, it is necessary to collect information regarding the hazards associated with each product and the levels of human and environmental exposure when products are handled. Based on the information needed for these risk assessments, we work to ensure that customers and employees handle chemical substances safely. To this end, we have created a collaborative framework centering on the Responsible Care Department and encompassing the frontlines of production and our internal research laboratories, which possess specialized technologies in risk assessment and safety engineering. To estimate exposure levels, the Company draws on projection models and expert insights in Japan and overseas and has developed its own simulation program. We also use the latest technology to efficiently conduct highly precise risk assessments. In line with our internal rules, during the development of new products, we collect data regarding risks and hazards for all handled substances before entering the production stage and survey and respond to all relevant laws and regulations.

As for risk assessments of product safety, it is necessary to assess the risks of chemical substances in products as well as the risks associated with product applications and uses. Taking into consideration not only their use by our direct customers but also the use and disposal of such products by their end-users as well, we conduct risk assessments of applications and uses using failure mode and effects analysis (FMEA)*1 and other methods in addition to the above-mentioned chemical substance risk assessments. Sumitomo Chemical conducts rigorous risk assessments of new products and reassesses items already on the market. In fiscal 2017, we performed 134 risk assessments and completed reassessments of all high-risk products.*2 Going forward, we will continue to conduct rigorous risk assessments of new products and steadily proceed with reassessments of products already on the market. By fiscal 2020, we plan to complete risk reassessments of all our products. In addition, we are supporting Group companies in conducting similar product risk assessments and countermeasures.

*1 FMEA: A systematic method of analysis for detecting potential malfunctions and defects with the objective of their prevention.
*2 High-risk products: Products likely to have relatively high risks due to the nature of the chemical substances the product contains and the product's application.

■ Risk-Based Chemical Management throughout the Entire Life Cycle



Product Stewardship / Product Safety / Quality Assurance

The Information Sharing System and Ensuring thorough Compliance

The governments of Europe, the Americas, China, and the Asia Pacific region hold considerable sway over trends in global laws and regulations. To ensure thorough compliance, we post product stewardship specialists at our regional headquarters in these areas and are constructing a system to swiftly collect information related to regulatory trends. As for China, South Korea, Taiwan, Southeast Asia, and India, all of which have recently seen rapid and major changes in the legislative environment, together with Group companies we have been responding appropriately to the chemical regulations of each country.

As a response to the REACH regulation in Europe, which is a world leader in terms of laws and regulations, we are moving forward with appropriate legal registration, managing our supply chain, and properly transferring data. In addition, our local Group company Sumitomo Chemical Europe is drawing up letters about its registration status in response to its customers' wishes as well as a declaration of conformity, which states the status of compliance and certificate acquisition with regard to various regulations.

In fiscal 2017, there were no reports of violations of regulations or self-imposed restrictions for Sumitomo Chemical products and services at any stage of their life cycles. There were no reports of violations of regulations or self-imposed restrictions regarding information or labeling for products or services.

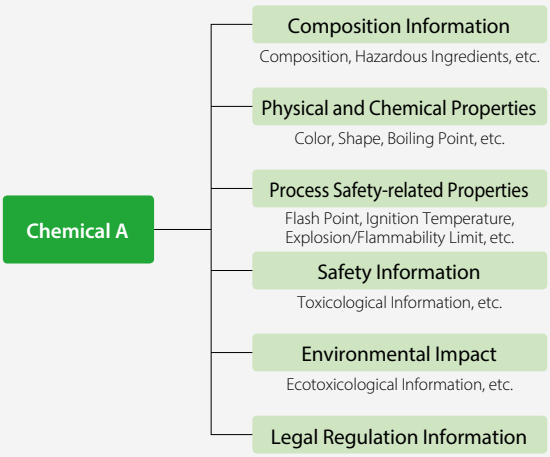
Effective Use of SuCCESS

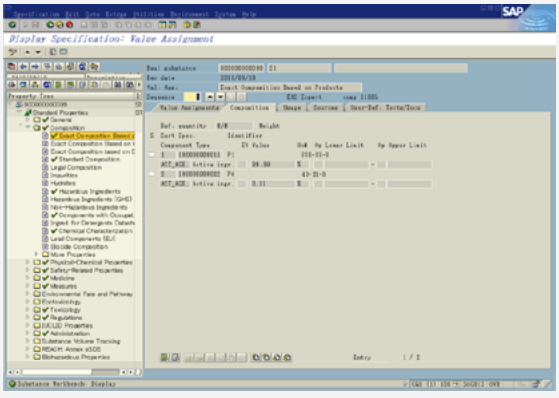
In order to appropriately manage and effectively use information on chemicals handled by the Company, such as their composition, toxicological information (risks and hazards), and regulatory requirements, Sumitomo Chemical has developed the comprehensive chemical management system (SuCCESS).*1 This system is used in order to respond to inquiries from customers concerning substances contained in our products and precisely comply with laws and regulations in Japan and around the world. We also use this system to create SDS*3 in around 40 languages to comply with GHS*2 and accurately and efficiently communicate hazard information throughout the supply chain. This system is also being proactively rolled out to Group companies. We had installed the system at 10 Group companies in Japan and overseas as of fiscal 2017.

*1 Sumitomo Chemical Comprehensive Environmental, Health & Safety Management System (SuCCESS)
*2 Globally Harmonized System of Classification and Labeling of Chemicals (GHS): In 2003, the United Nations established these global rules for how to convey information about the classification and degree of hazards for chemical substances.
*3 Safety Data Sheets (SDS): SDSs include information on the safe handling of chemical products (properties, handling methods, safety measures, etc.) and should be created in compliance with the Japanese Industrial Standards (JIS) and the standards set by the International Organization for Standardization (ISO).

SuCCESS Comprehensive Chemical Management System

Management of chemical composition, toxicological, and regulatory information based on a tree-shaped structure





Product Stewardship / Product Safety / Quality Assurance

Providing Toxicological Information

To ensure its products are handled safely, Sumitomo Chemical uses SDSs and labels to provide customers with toxicological and regulatory information about the chemical substances they contain and the hazard data consolidated in SuCCESS. Furthermore, especially regarding products requiring warnings about their handling, we create yellow cards that are a simplified version of their SDSs. This provides logistics operators with the information they need to ensure they can respond appropriately to an emergency situation during transportation.

Providing Products and Services of Stable Quality

The Sumitomo Chemical Group is proud to provide its customers with products and services from a variety of fields centered on chemicals. In order to continue to supply its customers stable quality for all our products and services, we have established quality assurance systems based on quality management systems and manufacturing and quality management guidelines, such as ISO 9001*1 and GMP,*2 appropriate for each product and service. In addition to maintaining thorough day-to-day product quality control, we are committed to further improving product quality.

Unfortunately in fiscal 2017, there were three major product quality problems recorded by Sumitomo Chemical and three by consolidated Group companies. Working to determine the causes of each of these problems, we are promoting strict preventive measures.

In order to continue supplying products and services of stable quality worldwide while addressing growing supply chain diversification accompanying its business expansion and the increasingly sophisticated needs of customers, the Group is enhancing its global quality assurance system through measures that include strengthening management of overseas suppliers and contractors. We are also improving quality assurance at all Group companies by developing countermeasures to quality problems based on relevant information about incidents occurring within the Group and sharing information on the state of product quality and safety at Group companies.

*1 ISO 9001: The international standards on quality management systems issued by the International Organization for Standardization (ISO).
*2 Good Manufacturing Practice (GMP): Guidelines relating to manufacturing and quality management of pharmaceuticals.

Laboratory Animal Welfare

In the process of developing useful chemical substances, a large variety of safety assessments are required. With this in mind, Sumitomo Chemical is actively developing new assessment methods, including structure-activity relationship approaches, and minimizing the use of laboratory animals for safety assessments. However, assessments of impact on humans, animals, and the environment cannot be completed without conducting experiments using laboratory animals. Sumitomo Chemical therefore advocates the humane treatment of laboratory animals and applies the 3Rs* of replacement, reduction, and refinement to conduct animal studies appropriately with due consideration for animal welfare.

* The 3Rs: From the Law for the Humane Treatment and Management of Animals
Replacement: To the greatest extent possible, replace methods that involve animals with those that do not.
Reduction: To the greatest extent possible, reduce the number of animals used.
Refinement: To the greatest extent possible, refine methods to minimize the suffering of animals.

Latest Emergency Issue

Microplastics and marine plastic pollution have become a global problem in recent years. Recognizing the importance of this issue, Sumitomo Chemical quickly agreed to the measures of the Japan Plastics Industry Federation and bolstered its internal education system. We also participate in the International Council of Chemical Associations (ICCA) and Japan Chemical Industry Association's task force and are working to keep abreast of the latest information.

Product Stewardship / Product Safety / Quality Assurance

Looking Ahead

Sumitomo Chemical promotes appropriate risk-based chemical management and is working to achieve its goal of completing product safety risk assessments of all Group products and confirming the effectiveness of related strategies and measures by fiscal 2020.

In response to strong social demand for the proper management of chemicals, the pace of establishment and revision of laws and regulations relating to chemical management is expected to pick up in even more countries and regions in the near future. Closely collaborating with Group companies in Japan and overseas, Sumitomo Chemical consistently undertakes thorough compliance initiatives that involve carefully studying information on the regulatory trends as well as enhancing the functions of its comprehensive chemical management system (SuCCESS).

In addition, to improve customer satisfaction, the entire Group will continue to work to sustain its product and service quality improvements and to achieve an optimal product quality assurance system amid changing business conditions.