Occupational Safety and Health / Industrial Safety and Disaster Prevention

Examples of Initiatives

Occupational Safety and Health

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 all partner companies that enter our Works and research laboratories by distributing pocket-size cards 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 (Works and research laboratories) 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 eight workplaces in fiscal 2022.

Safety Promotion through In-house Magazine, Slogan and Poster

Since fiscal 2013, in our in-house magazine entitled "Raising the Level of Safety!" (renamed "Learn through Manga! Promoting a culture of safety" since fiscal 2019), we have introduced examples of accidents that tend to happen at work and their preventive measures in a series of articles on enhancing safety.

Preventing Severe Accidents in Subcontracted Operations and Construction Operations

Sumitomo Chemical is taking action across the Company to ensure the safety and health of all involved parties, including partner companies. For example, one of the key initiatives outlined in the "Fiscal 2022 to Fiscal 2024 Medium-Term Plan for Responsible Care Activities" and "Fiscal 2023 Annual Responsible Care Policy" is responding to changes in employment structure, working to establish a foundation to ensure work safety and health, and promoting measures to prevent severe accidents in subcontracted operations and construction operations. We also conduct thorough risk assessments.

Risk Assessment of Chemical Substances

Sumitomo Chemical and all Group companies in Japan* that handle chemical substances conduct risk assessments of chemicals based on the Industrial Safety and Health Act and strive to reduce the risk of crises caused by chemicals.

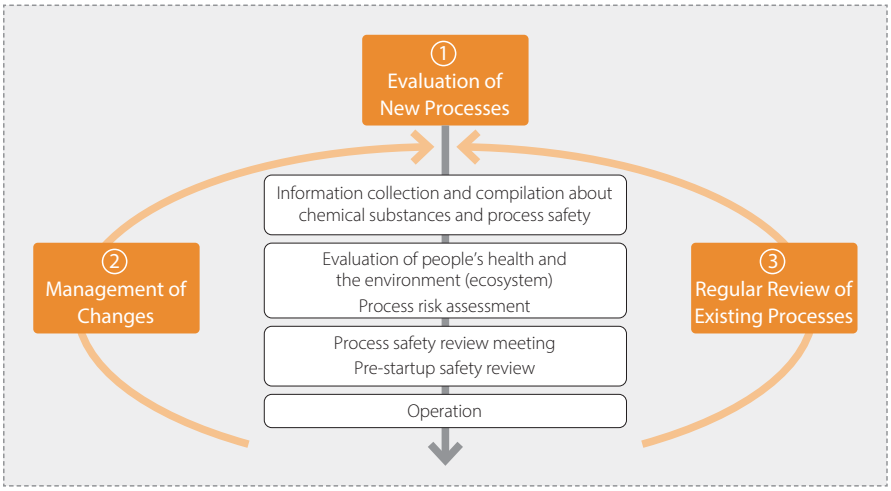
* The percentage of worksites that conducted assessments at Sumitomo Chemical and Group companies in Japan is 100%.

Industrial Safety and Disaster Prevention

Risk Management Initiatives

Sumitomo Chemical manages risks related mainly to process safety, chemical (raw materials, products) safety, and occupational safety and health 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 management are specifically outlined in the Development and Commercialization Regulations, the Safety Management Rules, the Chemical Safety Management Regulations, and other similar documents that provide the standards for the Company. In addition, we introduced this system to major consolidated subsidiaries as part of efforts to enhance safety management across the entire Group.

■ 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 identify risks related mainly to process safety and chemical safety, to review risk assessment results 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. Furthermore, before starting operations, the meeting conducts safety reviews to assess responses to risks related to occupational safety and health. For example, the meeting confirms the absence of problems in the operational environment (including temperature, noise, vibration, etc.), if safety signs are appropriately displayed, if necessary personal protective equipment and ample equipment and materials for emergency have been secured, and whether there is sufficient preparation of and education regarding instruction manuals.

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 confirm whether there are new risks related mainly to process safety, chemical safety, and occupational safety and health following the changes and to, as needed, consider additional safety measures.

③ Regular Review of Existing Processes

Even when there is no change in the process, Sumitomo Chemical conducts regular process hazard reviews (no more than every five years, as a general rule) 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. In addition, in our internal audits conducted every year for each workplace, we check whether or not safety management systems are functioning appropriately.

Preparation for Large-Scale Natural Disasters

Sumitomo Chemical drew up a basic plan on earthquake countermeasures in 2004, taking the initiative to improve the earthquake resistance features of equipment that was 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.

In addition, as natural disasters continue to grow more extreme, including the typhoons and torrential rains seen in recent years, we continually review the current status of our safety measures to ensure they are adequate and take measures aimed at securing facilities and personnel as necessary. Furthermore, we confirmed that even in the event of flooding inside a plant due to a typhoon or torrential rain, the risk of the following is low: a loss of power to the plant's cooling facilities or water-reactive substances inside the warehouse coming into contact with water causing large-scale fires and explosions that could cause trouble for neighboring residents.

Safety Education and Drills

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.

■ FY2022 Main Safety Education Programs (Company-wide Education)

Name	Type	Purpose	Boundary	Participants
Disaster Prevention Theory	Group training	Promoting the acquisition of basic knowledge regarding industrial safety and disaster prevention for fires, explosions, reaction hazards, static electricity, etc.	Sumitomo Chemical (Works, research laboratories)	76
			Group companies in Japan	11
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	Sumitomo Chemical (Works, research laboratories)	197
			Group companies in Japan	65
HAZOP* Training	Group training	Training personnel to learn the basics of HAZOP and to be able to conduct HAZOP	Sumitomo Chemical (Works, research laboratories)	62
			Group companies in Japan	3
Safety Engineer Training Course	Group training and self-study	Training personnel who have central roles in uncovering process hazard sources, carrying out appropriate risk assessments, crafting safety measures, and effectively reducing risks	Sumitomo Chemical (Works)	21
			Group companies in Japan	2

* HAZOP:
A method of assessing process hazards that was developed with the aim of uncovering all latent hazards in chemical processes, assessing those impacts and results, and considering necessary safety measures.

At each of their worksites, Sumitomo Chemical and Group companies conduct education when necessary regarding operational details, substances handled, and the setup of protective equipment for operators who need to consider occupational health and safety in situations such as operations in high places, operations in hazardous places with poor oxygen, operations in high or low temperature environments, operations in high-noise environments, and operations handling specified chemical substances and organic solvents. In addition, special health assessments are made, operational environments are monitored, and workplace patrols are regularly conducted by occupational physicians and health inspectors as we strive to upgrade and maintain operational environments.

■ Examples of Safety Education and Drills at Sumitomo Chemical Worksites

Safety Education Examples	Safety and health training for new employees, newly appointed supervisors, and newly appointed managers; briefings on laws and regulations (Industrial Safety and Health Act, High Pressure Gas Safety Act, Fire Service Act, etc.), health management system education, safety and health seminars (protective equipment, etc.), hazard experience training (exposure to liquids, squeezing, falling, etc., includes VR training materials.), hazard prediction training, also known as Kiken Yochi Training (KYT), training in accident analysis methods (the five whys, etc.) safety and health education in officers, traffic safety education, etc.
Safety Drill Examples	Petrochemical complex integrated emergency response drills (municipalities, companies in petrochemical complex districts), earthquake and tsunami evacuation drills, joint firefighting drills with specialized firefighting teams and workplace firefighting teams, drills using fire extinguishers and fire hydrants, drills on lifesaving procedures (AEDs, etc.), drills on emergency contacts at night and on holidays, etc.

In addition, for everyone at partner companies conducting operations within our worksites (works, research laboratories), we provide safety education for entering worksites (basic policy on safety, basic rules inside worksites, etc.), construction supervisor training (supervisor obligations, risk assessments, etc.), hazard experience training, and more.

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 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.

Logistics Initiatives

The Sumitomo Chemical Logistics Partnership Council was formed by Sumitomo Chemical and the logistics subcontractors (113 companies) for Sumitomo Chemical and its Group companies in Japan with the core principle of "Making Logistics Safety the First Priority." The Council maintains committees for Works in each area as well as for stock points (transport and storage) and marine transport-related operations nationwide. The Council is expanding the Logistics Department's responsible care activities. In fiscal 2022, we conducted discussions, such as exchanges of opinions, to further strengthen our partnerships with logistics subcontractors, and focused on further promoting the activities of this council.

In terms of health and safety, there were no accidents resulting in lost workday injuries. We will continue to review operational risks and further improve the level of safety and health management.

In addition, as for industrial safety and disaster prevention, we present our logistics subcontractors with transport standards to ensure safety, such as safety management rules related to the land and marine transport of hazardous substances, and strictly ensure the rules are followed. We built a system under which we cooperate with logistics subcontractors even during critical times when an accident occurs to quickly arrive at the crisis site and address the situation as well as a system that enables rapid response to accidents, to this end joining the Hazardous Materials Emergency Response Service of the Maritime Disaster Prevention Center.

■ Lost-workday Injuries in Logistics

	FY2018	FY2019	FY2020	FY2021	FY2022
Number of cases	1	5	1	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.

Looking Ahead

Although activities to enhance a culture of safety have taken root, we currently have not entirely eliminated severe accidents, including those resulting in fatalities. To bring these accidents down to zero, we measure the level of the safety culture of each workplace and constantly strive to make improvements as we strive to foster a culture where safety is a given. In addition, we promote safety and health activities based on international standards (occupational safety and health management systems, machinery safety, etc.) and will continue adapting as we work toward realizing a society where people can choose from a diverse range of flexible working styles.

In addition, we will further strengthen our safety infrastructure by carefully managing our facilities and construction projects, providing advanced training for safety-related personnel, and introducing sophisticated risk assessment methods and cutting-edge technologies, including IoT, to bolster our employee safety and industrial safety management technologies. We will also reinforce our responses to new threats, such as intensifying natural disasters and terrorism.

■ Illustration of How We Ensure Safety through Safety Infrastructure and Safety Culture