

Process Safety and Disaster Prevention

GRI 403-1

We implement process safety and disaster prevention activities with the aim of ensuring the safety of employees and the maintenance of safe, stable operations, stipulating matters relating to prevention of accidents, emergency response and strengthened security.

Through these activities, we aim to have zero accidents.

Social issues

As we have several large-scale chemical plants, their process safety and disaster prevention needs are increasingly heightened in the context of the recent increase in the number and severity of accidents at chemical plants and natural disasters.

As such, we will undertake to enhance our safety capabilities, and strengthen our disaster prevention measures on a daily basis.

Strategy

Risks and opportunities

Risks

We regard outages of stable operations from major accidents impacting regions in the vicinities of plants, natural disasters or other factors, and the accompanying loss of societal trust in the company from these things as risks.

Opportunities

We think that implementing thorough process safety and disaster prevention initiatives ensures the safety of communities and employees, which leads to trust in the company and enhancement of its brand image, and regard this as an opportunity.

Strategy

We promote activities related to process safety and disaster prevention as part of Responsible Care (RC) activities and plan and implement them according to Kao Group RC targets.

 Responsible Care Activities
https://www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/our_foudations2025-e-02.pdf

Social impact

Kao, as a company with large-scale chemical plants, will provide local communities in which local residents can live in peace of mind and employees at worksites can operate in safety without fear of accidents. Safe operations at all worksites enable sound business activities and ensure a stable supply of products.

Business impact

Safe operations at all worksites enable sound business activities, which mitigate unnecessary expenses, reduce overall costs, minimize lost opportunities, and contribute to revenue growth.

Governance

Framework

Our daily activities for process safety and disaster prevention are conducted as part of the RC promotion system. In particular, we have built a framework to keep track of accidents or disasters when they occur, through our global emergency reporting network. The organizational framework used in an emergency situation is separate from the Board of Directors, etc.; an Emergency Response Team Organization is established, headed by the President & CEO, and takes action under the direct supervision of the President. In addition, when an accident or disaster occurs that we anticipate will have a major impact on our business activities, we will establish an Emergency Response Team Organization headed by the President & CEO immediately. Together as a group, our initial response places top priority on safeguarding human life as we implement measures that include our Business Continuity Plans (BCP)*1.

*1 Business Continuity Plan: A plan for continuing key corporate activities through procedures to decide in advance which operations and functions should be continued, and which methods should be applied to continue activities, assuming various situations that cause the interruption and/or shutdown of business activities due to various events and the factors behind their occurrence.



- Our ESG Vision and Strategy > Governance
<https://www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/sustainability2025-e-11.pdf>
- Our ESG Vision and Strategy > Risk and Opportunity Management
<https://www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/sustainability2025-e-12.pdf>

Education and promotion

To prevent the occurrence and escalation of work-related accidents, through education planning using past cases, the latest technologies and knowledge, as well as response drills on process safety and disaster prevention, we are able to communicate skills and strengthen security. Along with this, we strive to raise employees’ disaster prevention awareness by planning and conducting drills for natural disasters and fires.

Collaboration with stakeholders

By conducting events related to safety and disaster prevention in cooperation with partner companies, we aim to further raise disaster prevention awareness and become a safer, more secure company.

In addition, by conducting information exchange meetings on a regular basis with everyone in the regions that surround our plants, we are deepening communication with local communities.

Risk management

Policies

Activities to ensure process safety and disaster prevention are clearly stipulated in the Kao Group Responsible Care (RC) Policy, which states that Kao will “strive to prevent accidents by improving on-site safety competency” and that furthermore, “Top management will exercise leadership to continuously improve our safety culture and safety infrastructure by putting safety first. We will also maintain safe and stable operations by systematically implementing equipment-related and administrative measures. We shall strive to prevent fires, explosions and chemical spills, place maximum priority on safeguarding human life when responding to natural disasters, and prepare for emergencies by conducting periodical training that takes into consideration the need to strengthen security related to facilities, processes and technology.” We are endeavoring to prevent accidents and disasters in accordance with this policy.

 Kao Group Responsible Care Policy
<https://www.kao.com/global/en/sustainability/klp/policy/responsible-care-policy/>

We promote activities related to process safety and disaster prevention as part of Responsible Care (RC) activities, and manage and assess risks according to Kao Group RC targets.

-  • Our ESG Vision and Strategy > Risk and Opportunity Management
<https://www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/sustainability2025-e-12.pdf>
- Responsible Care Activities
https://www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/our_foudations2025-e-02.pdf

Metrics and targets

Mid- to long-term targets and 2025 results

Mid- to long-term targets

We actively strive to realize our goal of completely eliminating on-site fires, explosions, leakages and logistics-related leakage*2 accidents.

2025 results

In 2025, to maintain safe and stable operations, we continued as in 2024 to conduct and periodically review safety assessments at our chemical facilities in order to eliminate safety-related accidents. This included enacting policies to prevent runaway reactions such as abnormal thermal reactions during polymerization or other reactions, and implementing policies to respond to natural disasters such as earthquakes and flood damage, which have become increasingly frequent in recent years. In addition, we have proactively adopted AI and IoT technologies to reduce the labor required for facilities and improve process reliability, while operating a system that analyzes big data and applies it to the system for detecting signs of process errors.

In addition, detailed implementation specs and plans were drafted for respective divisions with the targets of enriching emergency drills and enhancing security. Furthermore, to boost levels of safety and disaster prevention, we conducted annual disaster prevention audits at our plants outside Japan. In 2025, these audits were carried out at Fatty Chemical (Malaysia) and Kao Corporation (Spain).

Moreover, in 2021 we formulated the Kao Grand Design for Process Safety to be achieved by 2030, and shared the design’s 13 action plans, which aim to reinforce our safety culture and fundamentals and enhance safety, with related divisions and plants, and we are promoting activities by incorporating the action plans into each workplace. Small-scale fires, explosions and leakages occurred in 2025, but there were no accidents involving logistics-related leakages. For every safety accident, we conduct an accident cause analysis using the 4M5E method*3 and have implemented measures to prevent similar accidents. In 2026, we will continue activities directed toward our targets of completely eliminating on-site fires and accidents related to explosion, leakage and logistics-related leakage accidents.

*2 Logistics-related leakages: Leaks during the transport of products, etc.
*3 4M5E method: A method for conducting causal analysis from the standpoint of four M-factors: Man (people), Machine (machine and facility), Media (material and information) and Management (management and education), followed by response policies from the standpoint of five E-factors: Education (education and training), Engineering (technology and engineering), Enforcement (strengthening and strict adherence), Example (model and example) and Environment (environment, background)

Overview of accidents (2025)

Type of accident	Small-scale fires: 8 Explosions: 2 Leakages: 3
Overview of accident	• Fire around the rear wheel of a delivery truck caused by a tire bursting • Spontaneous combustion in an IBC container • Fire caused when a charge lance was inserted into a metal barrel • Spontaneous combustion of a filter cake after disposal • Spontaneous combustion caused by a leakage from a flange • Fire due to an overflow of resin during resin synthesis • Fire originating from electrical equipment in a diaper processing machine • Fire originating from a component inside an electrical room • Leakage caused by an exit valve at the bottom of a truck being left open erroneously • Leakage of fluid from an aeration tank during processing at a wastewater processing facility • Leakage of diesel oil from a hole accidentally punctured in a fuel tank during unloading with a forklift • Explosion in a flexible joint caused by a rise in pressure within a incinerator • Explosion that occurred when filling a truck with products
Countermeasures being taken	• Performance of analysis using the 4M5E method to determine the causes of the accidents, and thorough implementation of countermeasures • Promotion of equipment replacement, and strengthening of monitoring device provision

Targets and performance

Item	Scope	Indicator	2023	2024		2025		2026
			Results	Target	Results	Target	Results	Target
Accidents	Kao Group	Fires, explosions, leakages, etc. (no. of accidents)	4	0	8	0	13	0
		Logistics-related leakage (no. of accidents)	0	0	0	0	0	0

Reviews of 2025 results

We strived to completely eliminate safety accidents such as on-site fires, explosions and leakages but did not meet this goal. Many of the accidents were caused by the spontaneous combustion of self-heating materials causing fires, or human error leading to leakages and fires. Regarding the two cases of explosions, one involved a rise in pressure as the main factor leading to an explosion in a flexible joint and the dispersal of its contents, and the other involved bumping caused by a strong neutralization reaction as the main factor. We are conducting measures to promote the systematic renewal of facilities and bolster our monitoring activity to prevent accidents. Additionally, for every safety accident, we conduct an accident cause analysis using the 4M5E method and have implemented measures to prevent similar accidents.

Initiatives

Emergency response drills to prepare for large-scale disasters

Besides implementing fire response training and evacuation drills at the level of individual worksites, we also conduct training on a company-wide basis to prepare for large-scale disasters.

Training in the use of the system for reporting the safety of Kao employees

To prepare for natural disasters, the Kao Group in Japan has adopted a web-based Employee Safety Confirmation System. Twice yearly, in April and November, all employees undertake personal input drills. In April 2025, we conducted a drill based on a scenario in which a large-scale earthquake with a seismic intensity of 6-lower or above occurs, assuming the employees were at home on a public holiday. In November, we conducted another drill simulating a large-scale earthquake occurring on a holiday or at night, where employees were required to input their safety status. In each drill, the response rate within 24 hours was at least 99%. We will continue to hold drills on the premise of actual disasters as they occur, with the aim of achieving a 100% response rate.

Emergency response training assuming an earthquake

We are maintaining separate response organizations in Eastern Japan and Western Japan premised on damage to the Kao Head Office from an earthquake in the Greater Tokyo Metropolitan area. In 2025, we conducted drills in May and October, which were joined by the President & CEO as the head of the Emergency Countermeasure Headquarters, that simulated an earthquake occurring directly under Tokyo.

During these drills, the activities of the Eastern Japan Emergency Countermeasure Headquarters were transferred to the Western Japan Emergency Countermeasure Headquarters using IP radio. In the period before the Eastern Japan Emergency Countermeasure Headquarters was able to resume activities, the Western Japan Emergency Countermeasure Headquarters used an internal social media service for disasters and an information management portal system to practice collecting information about the state of damage and sending out information externally. The training also included rapidly sending information to the Eastern Japan Emergency Countermeasure Headquarters once this unit was ready to resume activities.

The content of drills is being reviewed on an ongoing basis in light of the lessons learned from past training drills and remain prepared for any eventuality.



Training at the Eastern Japan Emergency Countermeasure Headquarters (President & CEO and top management joined the drill)



Training at the Western Japan Emergency Countermeasure Headquarters

Evacuation drills based on the scenario that a plant tour is taking place when the disaster occurs

The nine Kao plants in Japan that provide plant tours have prepared protective hoods for use by plant visitors in the event that an earthquake occurs while a plant tour is underway. These plants also implement evacuation drills, with employees taking on the role of plant visitors, to ensure that, in the event of emergency, visitors can be taken swiftly to a safe place. In the future, we will continue to incorporate drills based on a variety of different scenarios during a plant tour into our annual training plan.



Implementing an evacuation drill with employees taking on the role of plant visitors



Strengthening process safety and disaster prevention

The SCM Division is actively introducing DX technologies including AI and IoT, and continues to strengthen risk management at chemical facilities through latent risks, earthquake and natural disaster response readiness.

In 2025, we had almost completed the quantitative risk assessment for fire and explosion hazards caused by runaway reactions in chemical equipment, a project initiated in 2020. Following this, we conducted periodic reviews based on risk levels.

We also strive to minimize damage due to earthquakes. In addition to promoting ongoing diagnosis and reinforcing equipment racks in our facilities as earthquake countermeasures, we plan to consider measures that may be necessary to prevent structural damage due to earthquakes in sites outside Japan.

Our activities to minimize damage include incorporating flood risk countermeasures into our basic policy. Given the increasing frequency of floods and windstorms, we are also evaluating measures for non-structural components such as roofs and exterior walls to further mitigate potential damage.

Additionally, to maintain and improve global safety standards, we audited safety, maintenance, and other technologies across our international facilities. In 2025, these audits were carried out at Pilipinas Kao, Kao Indonesia Chemicals, Kao Indonesia, Kao Specialties Americas, and Quimi-Kao.



Emergency drill at Kao Chemicals GmbH



Emergency drill at Kao Taiwan



High-pressure gas safety

High-pressure gas safety inspection, auditing and verification

The Wakayama Plant has been designated as an Accredited Safety Inspection Executor*1 pursuant to the High Pressure Gas Safety Act. In 2025, a renewal audit, which takes place once every five years, was conducted. In July, the High Pressure Gas Safety Institute of Japan and experts implemented a field audit, and in December, we renewed our certification from the Minister of Economy, Trade and Industry. In addition, a safety audit of the Wakayama Plant was implemented by Safety Management in October, and a safety inspection under the direction of the President & CEO, who also serves as head of Safety Management, was carried out in November. We were able to confirm that there were no problems with regard to safety activity processes.

The high-pressure gas equipment at other Kao worksites also has safety inspections performed by such as prefectural authorities and other external inspection bodies. Safety audits and safety inspections for these facilities are also carried out in-house, and a serious effort is being made to ensure safe equipment operation.

*1 Accredited Safety Inspection Executor: It is a company or organization authorized by the Minister of Economy, Trade and Industry to perform self-inspection, either while equipment is in operation or while it is out of operation, to verify whether the safety of specified items of equipment conforms to the relevant technical standards pursuant to the High Pressure Gas Safety Act.



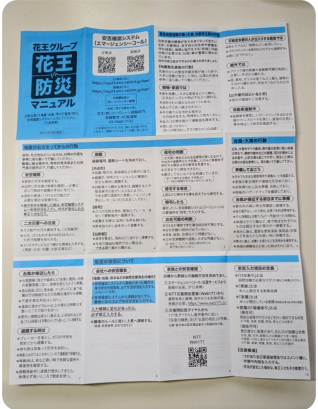
High-pressure gas safety inspection at the Wakayama Plant

Process safety and disaster prevention educational programs

We create various educational programs for process safety and disaster prevention. For example, promising leaders of the next generation within and outside Japan receive eight months of training from the SCM Division to learn about process engineering and the spirit of *Yoki-Monozukuri* at Kao's Global Techno School located in the Wakayama Plant. There are a variety of training programs that cover topics such as safety and disaster preparedness. Every year on Disaster Prevention and Volunteers Day, a disaster prevention message is posted to all employees in Japan to raise their disaster awareness. In addition, days on which accidents have occurred are designated as Safety Days to help ensure that lessons learned from past accidents are not forgotten over time. Moreover, the Kao Group Disaster Prevention Manual is distributed to all employees in Japan.

As lecture-style education is offered to all affiliated company employees in Japan, we have enhanced our e-learning programs to be accessible from anywhere in response to the increasingly flexible work arrangements. For education related to disaster prevention in 2025, we created a video that explains the roles and actions undertaken by staff in charge of disaster prevention so that each site can establish a disaster prevention system for when not all employees come to work, as we did in 2024. The relevant materials were also shared on the intranet, which can be accessed by all employees in Japan. As in 2024, process safety education in 2025 covered dangerous substances as defined by the Fire Service Act, which is a necessary area of knowledge for employees of companies that handle chemical products and a fundamental element of regulation for companies. This training was provided to divisions that handle these dangerous substances.

Going forward, we will use e-learning actively to carry out process safety and disaster prevention education.



Kao Group Disaster Prevention Manual