

Process Safety and Disaster Prevention

102-11, 102-12, 102-15,
102-43, 103-1, 103-2, 404-2

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

Kao's creating value to address social issues

Social issues we are aware of

As we have several large-scale plants, its process safety and disaster prevention needs are increasingly heightened in the context of accidents at chemical plants and the many natural disasters that have occurred recently.

Kao's creating value

Kao, as a company with large-scale chemicals plants, will provide regional communities in which local residents can live in peace of mind and employees at worksites can operate in safety without fear of accidents.

Risks related to realization of our vision by 2030

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 related to realization of our vision by 2030

Implementation of thorough safety processes and disaster prevention initiatives ensure the safety of communities and employees which leads to trust in the company and enhancement of its brand image.

Contributions to the SDGs



Policies

Activities to ensure process safety and disaster prevention are clearly stipulated in the Kao Responsible Care Policy. This is a policy to "prevent fires, explosions and chemical spills while maintaining safe and stable operations, and the appropriate facilities and periodical training to prepare for emergency situations such as natural disaster and security issues." We are endeavoring to prevent accidents and disasters in accordance with this policy.



→ Kao Responsible Care Policy

www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/responsible-care-policy.pdf

Education and Promotion

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 and engagement 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.

Framework

Our daily activities for process safety and disaster prevention are conducted as part of the Responsible Care 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. In addition, when a large-scale disaster such as a major earthquake occurs, we will establish an Emergency Response Team Organization headed by the President. Together as a Group, our initial response places top priority on the safeguarding of human life as we implement measures including our Business Continuity Plan (BCP)*.

* Business Continuity Plan (BCP)

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.



→ Responsible care activities/Framework
www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/sus-db-2020-e-all.pdf#page=18

Mid- to long-term targets and performance

Mid- to long-term targets

We actively strive to realize our goal of complete elimination of on-site fires, explosions, leakages and logistics-related leakage accidents.

Expectations from achieving our mid- to long-term targets

Business impacts

Mitigation of unnecessary expenses and reductions in

overall costs, leading to higher revenues with sound implementation of business activities from safe operations at all worksites.

Social impacts

Ensuring the stable provision of products with sound implementation of business activities from safe operations at all worksites. Moreover, this can facilitate the stabilization of product prices.

Performance in 2019

In 2019, we implemented thorough Change Management*, risk assessments of chemical facilities, regular inspections and enhanced patrols, for maintenance of safe, stable operations, to eradicate process safety accidents. In addition, detailed implementation specs and plans were also drafted for respective divisions with the targets of enriching disaster prevention drills and enhancing security. In 2019 there were minor leakages

(on-site) and a minor fire, but no explosions or logistics-related leakages. In 2020, 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.

* Change Management: Management activities anticipating and accommodating risks before changes are implemented, along with preventive measures for issues such as failure, defects and accidents.

Targets and performance

Item	Scope	Indicator	2018	2019		2020
			Results	Target	Results	Target
Accidents	Kao Group	Fires, explosions, leakages, etc. (no. of accidents)	6	0	5	0
		Logistics-related leakage* (no. of accidents)	0	0	0	0

* Logistics-related leakage Accidents involving leakage while products, etc. are being transported.

Overview of accidents in 2019

Type of accident	Leakages (on-site): 4 cases, small-scale fires: 1 case	
Overview of accident	Leakage	<ul style="list-style-type: none"> While transferring product (lubricant oil) by tanks, due to a deteriorated gasket, there was leakage from the flange at the top of the filter. Old clamps (fasteners) were damaged and product (dishwashing detergent) leaked from the seal at the top of the filter. During a typhoon checkered steel steps were blown off and broke a 400V transformer, leading to an insulating oil leak. Because work procedure was not followed and bolts on the strainer top lid were loosened, there was an intermediate product leak.
	Fires	<ul style="list-style-type: none"> Due to work performed on a control panel without turning off the power beforehand, a short circuit and overcurrent occurred and the wiring caught on fire.
Countermeasures being taken	Parts replacement cycle review, reinforcing parts, and construction work re-education.	

Our initiatives

Emergency response drills to prepare for large-scale disasters

Besides implementing fire response training and emergency evacuation training at the level of individual workplaces, Kao also conducts 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

In 2019, the Kao Group in Japan introduced a web Employee Safety Confirmation System in case of natural disasters, and inputting drills targeting all employees were conducted twice in March and September. For one day (24 hours) we held a personal input drills, and during following days, held a drill for the person in charge for tracing and confirming the whereabouts of employees not accounted for during the data inputting drill premised on an actual earthquake. We will continue to hold drills on the premise on actual earthquakes as they occurred.

Below is an overview of uses of the Employee Safety Confirmation System in natural disasters in 2019. Active deployment of the Employee Safety Confirmation System allowed confirmation of employee safety with no critical human casualties.

Usage of the Employee Safety Confirmation System in 2019

Date	Disaster	Result
Jan. 2019	Kumamoto Earthquake	Safety confirmation completed for 100% on the same day
Feb. 2019	Hokkaido Eastern Iburu Earthquake	Safety confirmation completed for 100% on the same day
June 2019	2019 Yamagata earthquake	Safety confirmation completed for 100% on the same day
Oct. 2019	Typhoon No. 19 (Hagibis)	Safety confirmation completed for 100% within two days

Company-wide earthquake scenario reporting and communication training

We are consolidating organizational units for disaster response in Eastern Japan and Western Japan premised on damage to the Kao Head Office from an earthquake in the Greater Tokyo Metropolitan area. In May 2019, we implemented disaster response drills for organizational units for Eastern Japan with the units on the Hokuriku, Kinki, Chugoku and Kyushu regions premised on a massive earthquake on the coastal area of the Sea of Japan, while in September we repeated these drills for units on site and for Western Japan premised on a major earthquake with its epicenter directly under the Tokyo Metropolitan Area.

During these drills, based on locations during the daytime on weekdays, statuses were confirmed by IP radio within major disaster response organizational units, and promptly transmitted to Emergency Countermeasure Headquarters, alongside information on personnel safety and property damage statuses at disasters sites through a meeting system using satellite phones and our internal disaster bulletin board and website, along with a newly introduced information management portal system. Necessary response drills were implemented by the organizational units responsible for disaster response based on the relevant data.

In addition, at the September drills premised on a disaster in the Greater Tokyo Metropolitan area, the Emergency Countermeasure Headquarters, with the Kao President serving as its head, completed training on the entire flow process for disaster response, including transfer drills to a base camp for safe activities, with the participation of

the BCP Response Team for production.

The content of drills is being reviewed on an ongoing basis in light of the lessons learned from past training drills.

Emergency 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 emergency 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 emergency evacuation drill with employees taking on the role of plant visitors.

Disaster prevention audits

In 2019, a first disaster prevention audit was conducted at Kao (Taiwan) Corporation and the PT Kao Indonesia's Karawang Plant, and a fourth disaster prevention audit was conducted at the PT Kao Indonesia Chemicals' Plant.

Audit details included confirming the status of implementation of disaster prevention operations, countermeasure activities such as construction of the Local Response Headquarters, fire fighter, and rescue teams during real training inspections, in addition to the evacuation status of employees including those from these partner companies and media training. At PT Kao Indonesia Chemicals, we confirmed that improvements in the safety and disaster prevention levels have been achieved when compared with previous audits.

During audits, findings at each plant were also submitted. Going forward, we will proceed with developing countermeasures.

Initiatives including the implementation of audits by dispatching auditors from other plants have continued so that we can improve the levels of safety and disaster prevention at each plant through these audits.



Evacuation Training at Kao (Taiwan) Corporation



Rescue and First Aid Training at PT Kao Indonesia



Fire Fighting Training at PT Kao Indonesia Chemical

Strengthening process safety and disaster prevention

The SCM Division is working to strengthen chemical equipment risk management by implementing suitable measures in response, as well as continuing to promote earthquake response measures. In 2019, we implemented cone discharges at domestic plants to prevent dust explosions which were identified as latent risks during a safety assessment of our chemical facilities. We also communicated with overseas plants and took measures to prevent low-flashpoint substance fires as a countermeasure against naturally occurring fires. We continuously communicated thermal risk assessment methods for polymerization and exothermic reaction equipment outside of Japan and re-evaluated equipment, working to ensure operational safety.

As part of earthquake countermeasures, we are working to minimize damage from natural disasters through the reinforcement of our buildings and equipment, such as safety evaluations of outdoor storage tanks for dangerous substances at Sakata Plant, and diagnosis of equipment racks at Kawasaki Plant.

Process Safety and Disaster Prevention

102-43, 403-2 (Occupational health and safety 2018),
403-5 (Occupational health and safety 2018)

High-pressure gas safety inspection, auditing, and verification

The Wakayama Plant has been designated an Accredited Safety Inspection Executor* pursuant to the High Pressure Gas Safety Act. In 2019, a safety audit was implemented by the Safety Management Division in September and a safety inspection under the direction of the President, who also serves as head of safety management, was implemented in November. We were able to confirm that there were no issues with regards to process safety activities. 2020 is the year of our five-year audit renewal for Accredited Safety Inspection Executor by Ministry of Economy, Trade and Industry. We will continue to further enforce high-pressure gas security management.

The high-pressure gas equipment at other Kao sites has safety inspection performed by external inspection bodies. Safety audit and safety verification are carried out in-house, and a serious effort is being made to ensure safe equipment operation.



High-pressure gas safety inspection at the Wakayama Plant.

* 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.

Process Safety and Disaster Prevention Educational Programs

Kao creates various educational programs for process safety and disaster prevention. For example, at our Monozukuri Training Center, by recreating incidents such as technical glitches and hazardous situations we are endeavoring to ensure that the necessary knowledge and skills are passed on to younger technicians who will be responsible for production sites.

Promising leaders of the next generation within and outside Japan receive eight months of training to learn about production technology and the spirit of *Yoki-Monozukuri* at Kao's Global Techno School in the Wakayama Plant. This training includes process safety and disaster prevention.

In addition, an annual disaster prevention message is posted, and an earthquake and disaster prevention manual is published to improve disaster awareness. We are also endeavoring to ensure that the efficacy of past drills is not weakened by the passage of time, by designating a Safety Day on days when accidents occurred in the past.

National Disaster Coordination Forum Ideas

Kao was a panelist at a subcommittee of the fourth

National Disaster Coordination Forum, organized by the non-profit Japan Voluntary Organizations Active in Disaster (JVOAD). This forum, gathering organizations and institutions that support victims of disaster, aims to promote cooperation and collaboration and sharing specialized knowledge and know-how.

As part of a subcommittee, in addition to introducing our support for disaster-stricken areas and regional cooperation and collaborations with JVOAD, information was shared amongst committee participants.



Participating Kao employee.



Panel discussions