

Process safety and disaster prevention 102-11, 102-12, 102-15, 103-1, 103-2, 403-5, 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.

ESG Keyword

Business Continuity Plan

Emergency response drills to prepare for large-scale disasters

Kao Grand Design for Process Safety (mid- to long-term targets)

High-pressure gas safety

Process safety and disaster prevention education

Kao's creating value to address social issues

Social issues we are aware of

As we have several large-scale chemical 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.

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

Kao's creating value

Kao, as a company with large-scale chemical 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 What Kao Aims to Be 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 What Kao Aims to Be 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.

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.

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 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. 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*.

* 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.



→ Risk and crisis management

www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/sus-db-2021-e-all.pdf#page=19

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.

Anticipated benefits from achieving 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 2020

Performance

In 2020, to maintain safe, stable operations and work toward eradicating process safety accidents, we conducted thermal risk assessment of our polymerization and exothermic reaction equipment as well as safety assessment at chemical facilities, and implemented policies to respond to natural disasters. In addition, detailed implementation specs and plans were drafted for respective divisions with the targets of enriching disaster prevention drills and enhancing security. Also during 2020, the disaster prevention audits we normally carry out each year at our plants outside Japan, to enhance their level of safety and disaster prevention, were postponed to prevent the spread of COVID-19.

Moreover, we formulated the Kao Grand Design for Process Safety to be achieved by 2030, and shared the design's 13 Action Plans with related divisions and plants. The Action Plans aim to reinforce our safety culture and fundamentals and enhance frontline safety capabilities.

Small-scale fires occurred in 2020, but there were no accidents involving explosions, leakages or logistics-related leakages*. In 2021, 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.

* Logistics-related leakage

Accidents involving leakage while products, etc. are being transported.

Targets and performance

Item	Scope	Indicator	2019	2020		2021
			Results	Target	Results	Target
Accidents	Kao Group	Fires, explosions, leakages, etc. (no. of accidents)	7	0	2	0
		Logistics-related leakage (no. of accidents)	0	0	0	0

Overview of accidents in 2020

Type of accident	Small-scale fire: 2 cases
Overview of accident	<ul style="list-style-type: none"> Raw material (fatty acids) leaked from a deteriorating tank and was absorbed by insulating material, causing spontaneous combustion On equipment restart, a clogged fan overheated, catching fire
Countermeasures being taken	Equipment renewal will be encouraged and monitoring equipment strengthened.

Reviews of performance

There were fewer safety accidents in 2020 than in 2019, however, the goal of complete elimination was not achieved. Going forward, we will enhance frontline safety capabilities, and strive to enhance a culture of safety and safety fundamentals.

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 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 March and September, all employees undertake personal input drills. The March 2020 drill was planned to include drilling in personal input by employees for the first day (24 hours), and tracing and confirming the whereabouts of employees not accounted for during the data inputting drill by the person in charge on the second day, but the drills were cancelled due to the influence of COVID-19. The September drill was premised on an actual earthquake, and a variety of activities was assumed, including emergency evacuations. On the first and second days, input drills were carried out from different locations. 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 2020. Confirmation of employee safety through deployment of the Employee Safety Confirmation System during these natural disasters resulted in no critical human casualties.

In addition, we are using the Employee Safety Confirmation System on a weekly basis to confirm the health of our employees during the COVID-19 pandemic.

Usage of the Employee Safety Confirmation System in 2020

Date	Disaster	Result
Jul. 2020	Torrential rain on July 2020	Safety confirmation completed for 100% on the same day
Sep. 2020	Typhoon No. 10 (Haishen)	Safety confirmation completed for 100% on the same day

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 2020, we implemented disaster response drills premised on an earthquake in the Hokkaido/Tohoku area, involving local organizational units and those in Eastern Japan, while in November we repeated these drills for organizational units in the Kanto Area and Western Japan, premised on an 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 through our internal disaster bulletin board and website and information management portal system. Necessary response drills were implemented by the organizational units responsible for disaster response based on the relevant data. Moreover, during the November drill, which was premised on an earthquake in the Greater Tokyo Metropolitan area, the President participated as head of the Emergency Countermeasure

Headquarters, and implemented transfer training to a base camp for safe activities. In consideration of the influence of COVID-19, the members of Emergency Countermeasures Headquarters carried out this year's drill from home for the first time, using online conferencing tools.

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

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Strengthening process safety and disaster prevention

The SCM Division is working to strengthen chemical equipment risk management by continuing to promote hidden danger response, earthquake response and response to natural disasters.

In 2020, we established thermal risk assessment methods to prevent fires and explosions originating in abnormal reactions and other events in our chemical facilities. In addition, as a measure to prevent spontaneous combustion, we also established spontaneous combustion prevention measures for tank residues. We then promulgated these thermal risk assessment methods for our polymerization and exothermic reaction equipment within and outside Japan, to promote process safety.

We also strive to minimize damage due to natural disasters. In addition to promoting ongoing diagnosis and strengthening equipment racks in our facilities as earthquake countermeasures, we continuously consider measures that may be necessary to prevent structural losses at the Wakayama and Toyohashi plants due to ground liquefaction caused by earthquakes.

Our activities to minimize damage include incorporating flood risk countermeasures into our basic policy, and in recent years we have been considering wind risk countermeasures to prevent damage to non-structural members such as roofs and external walls.



Fire extinguishing and first aid training at Pilipinas Kao (Philippines)



Fire extinguishing and first aid training at Kao Chemical Corporation Shanghai (China)

Formulating the Kao Grand Design for Process Safety

We formulated the Kao Grand Design for Process Safety to be achieved by 2030, and created Action Plans to raise frontline safety capabilities to the highest level.

The Grand Design consists of 13 Action Plans: 6 to enhance a culture of safety at the individual and organizational levels, and 7 to enhance safety fundamentals for operating and maintenance practices for hardware and software. Each Action Plan embodies subordinate targets.

Plants and related divisions are incorporating the respective Action Plans into their operations and steadily implementing them while confirming progress.

High-pressure gas safety

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 2020, a safety audit was implemented by the Safety Management 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 regard to process safety activities.

The high-pressure gas equipment at other Kao worksites also have safety inspection performed by prefectural and external inspection bodies. Safety audit and safety verification for these facilities are also 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.

Certification renewal inspection of high-pressure gas equipment (Wakayama Plant)

To enhance its safety capabilities, the Wakayama Plant has safety inspection equipment certified by the High Pressure Gas Safety Act. In 2020, we underwent the inspection for re-certification as an Accredited Safety Inspection Executor, which is carried out every five years by the Ministry of Economy, Trade and Industry. In August, we underwent the on-site inspection by the High Pressure Gas Safety Institute of Japan, and in November, after a hearing held by the Ministry of Economy, Trade and Industry, we maintained our authorization by the Minister.

Going forward, we will promote activities aimed at achieving the level of safety capability required to become a high-level specified certification (Super-certified facilities system) operator*.

*** Specified certification (Super-certified facilities system) operator**

A certified business operator, authorized by the Minister of Economy, Trade and Industry, which is engaged in advanced safety efforts, including the utilization of IoT and big data, advanced risk assessments and utilization of third-party safety capability audits.

Process safety and disaster prevention educational programs

We create various educational programs for process safety and disaster prevention. For example, the Monozukuri Training Center of the SCM Division is endeavoring to pass on the necessary knowledge and skills to younger technicians, who will be responsible for production sites, by exposing them to simulated technical glitches and hazardous situations.

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. However, in 2020 our global Techno School activities were suspended because of COVID-19.

Every year on Disaster Prevention and Volunteers Day, a disaster prevention message is posted to all employees in Japan to enhance their disaster awareness. In addition, days when accidents occurred are designated as Safety Days, to help ensure that the efficacy of past drills is not weakened by the passage of time. Moreover, the Kao Group Disaster Prevention Manual is distributed annually to all employees in Japan.



Kao Group Disaster Prevention Manual

In 2020, in response to the increased number of employees working from home due to the influence of COVID-19, we enhanced our offerings of e-learning that can be implemented at home, and implemented them for all employees of affiliated companies in Japan.

Disaster prevention education in 2020 emphasized the basic knowledge necessary when typhoons and torrential rains occur. Instruction was launched in June, at a time of the year before such weather events become prevalent, and was titled "Typhoon and Torrential Rain Basics." Employees studied actual disaster cases and the proper timing for evacuation, and were encouraged to consider their own personal disaster risk. In July, the next stage of the education was implemented, titled "Typhoon and Torrential Rain Hazard Maps." Topics included how to check and use hazard maps and how to identify nearby disaster shelters. Employees also learned to estimate their potential risk of residential water damage by using a hazard map.

Process safety education in 2020 covered dangerous substances as defined by the Fire Service Act, which is a fundamental element of regulation for companies and a necessary area of knowledge for employees of companies that handle chemical products. In August, the basic learning unit was implemented for all employees of affiliated companies in Japan, and in November, practical topics relevant to individual divisions were covered.

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