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Occupational Health and Safety

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Occupational Safety

Initiatives to Prevent Occupational Accidents and Protect the Safety and Health of All Plant Workers

We emphasize communication between worksite managers and workers to enhance worksite capabilities while implementing measures to prevent infections with COVID-19, with the goal of creating safe, stable production systems. We focus on 5S safety inspections^{*1}, hazard detection^{*2} activities, and identifying near-miss incidents^{*3}, as well as hands-on safety training.

*1 5S safety inspections

Inspections that evaluate operations where safety is an integral part of maintaining the SSs (Sort, Straighten, Scrub, Systematize, Sustain), and that are designed to enhance visualization of safety-related issues at worksites and address hazards.

*2 Hazard detection ("Kiken Yochi" [KY] activities)

Actions taken by workers to analyze and understand unsafe conditions with the aim of recognizing activities that would place them in danger. *3 Near-miss incidents

Events or phenomena that have the potential to result in an accident.

Record of Occupational Accidents

Lost Work Time Accident Rate* (Zeon Corporation)



^{*}Lost work time accident rate

experienced a lost work time accidents = Number of workers who hours × 1,000,000

5S Safety Inspections

5S safety inspections assess operations where safety is critical to maintaining the 5Ss (Sort, Straighten, Scrub, Systematize, Sustain).

The Environmental and Safety Affairs Department General Manager at the Head Office and Managers at Environmental and Safety Affairs Offices at each worksite conduct patrols of worksites where the Environmental and Safety Affairs Committee is held, to identify areas of excellence and areas where improvements are required (put on hold in FY 2021 due to the COVID-19 pandemic).

Hazard Detection (Kiken Yochi) Activities

4R-KY (four-round kiken yochi) activities

4R-KY is a hazard detection method where employees analyze and understand their work tasks before starting them, to avoid placing themselves in danger. The process is carried out in four separate rounds.

KY trainers assigned to each workplace lead these activities.

Identifying Near-miss Incidents

Near-miss incidents are events that have the potential to result in a major accident, injury or loss. The concept of near-miss incidents comes from Heinrich's Law: In a workplace, for every accident that causes a major injury, there are 29 accidents that cause minor injuries and 300 accidents that cause no injuries (near misses). By collecting and sharing data on potentially serious nearmiss incidents, we will strive to prevent the occurrence of major accidents.

A safety indicator of the frequency of occupational accidents, calculated using the following formula. Frequency of lost work time accidents = Number of workers who

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Safety and Accident Prevention

Dialog between Management and Plants

To monitor progress on priority issues, senior managers at Zeon visit plants on a regular basis to conduct inspections, hold informational meetings with workers, and brief workers on annual policies. Visits are also made to plants on other occasions to communicate directly with plant workers, who are on the front-line of the company's operations. While in-person visits were few in FY 2021 due to the impact of the COVID-19 pandemic, senior managers continued to actively engage in dialogues with worksites, with visits, including online meetings, conducted on 32 days of the year.

Safety Management Efforts Led by Top Management

Each year, top management develops the Annual Safety Management Improvement Master Plan and leads initiatives to improve our Safety Management System based on the belief that ensuring safety is the highest priority.

We are carrying out the priority initiatives on an ongoing basis using the following simple guidelines.

- 1. Reliable operation of equipment and systems to prevent errors ("Never rely on 'maybe' or 'should'")
- 2. Plant degradation countermeasures and fail-safe measures* ("Good judgement saves money")
- 3. Review of past accidents and recurrence prevention ("Never rely on 'maybe' or 'should'")
- 4. Review of standards ("Always follow the rules. Change rules that cannot be followed.")

*Fail-safe measures

Modifications to equipment or processes and other measures to prevent accidents that would otherwise result from human error, such as mistakes made by new employees and others lacking in knowledge or experience, or careless mistakes made by experienced employees.

Safety Inspector Certification at All Sites

Certified Safety Inspector*1

Obtained by all plants (Takaoka Plant, Kawasaki Plant, Tokuyama Plant, and Mizushima Plant)

Certified Completion and Process Safety Inspector*²

Obtained by Kawasaki Plant, Mizushima Plant, and Tokuyama Plant

The certification renewal process includes reviews of safety inspection and completion inspection methods as well as inspection management, and verification that our Safety Management System meets the regulatory requirements defined in Japan's High Pressure Gas Safety Act and that these systems are operating properly.

To more reliably ensure safety at all plants, we employ our Safety Management System, identify the sources of hazards, and implement measures to mitigate risks at all of our plants. We are also formulating our vision for Smart Industrial Safety^{*3} and promoting the realization of this vision.

*1 Certified Safety Inspector

Certification granted by Japan's Minister of Economy, Trade and Industry based on the High Pressure Gas Safety Act to allow qualified individuals to perform safety inspections to determine whether specified facilities comply with technical standards, either while the equipment is running or while it is stopped.

*2 Certified Completion and Process Safety Inspector Certification granted by Japan's Minister of Economy, Trade and Industry based on the High Pressure Gas Safety Act to allow qualified individuals to perform completion inspections to determine whether manufacturing facilities or Class 1 storage facilities that have undergone specific modifications comply with technical standards.

*3 Smart Industrial Safety

- Smart Industrial Safety is:
- An autonomous and independent effort regarding industrial safety by the public and private sectors,
 From the perspective of appropriate implementation of industrial
- From the perspective of appropriate implementation of industrial safety regulations, promotion of industries, and strengthening of competitiveness,
- In order to deal with economic and social structural changes, including rapid technological innovation, digitalization, low birthrate and aging population, and population decline,
- 4. Considering the safety of the citizenry and industry as a priority.

Certification Status

Plant	Obtained Certified Safety Inspector status	Obtained Certified Completion and Process Safety Inspector status
Takaoka Plant	2000 (renewed in 2020)	_
Kawasaki Plant	1998 (renewed in 2017)	2008 (renewed in 2017)
Tokuyama Plant	2007 (renewed in 2021)	2012 (renewed in 2021)
Mizushima Plant	2006 (renewed in 2021)	2006 (renewed in 2021)

Improving Plant Safety

We conduct Plant Safety Evaluations and Plant Safety Inspections to further raise the level of safety at plants and prevent serious accidents and injuries from occurring.

Plant Safety Evaluations

We verify plant safety at the design stage when commissioning a new plant or upgrading an existing one.

Plant Safety Inspections

For existing plants, while inspecting work areas, we ensure that all sources of danger have been identified and review past decisions regarding the need for safety measures.

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Occurrences of Accidents and Injuries

FY 2021: Safety incidents* 7

(High-pressure gas leaks: 5 [including 3 fluorocarbon leaks]; Hazardous substance leaks: 1; Emission of fumes: 1)

Although these incidents did not result in injury to humans, damage to equipment, or major impacts on the environment, we set up an accident investigation board for each incident. The boards have investigated the direct and indirect causes of the incidents, and are developing countermeasures to prevent recurrence.

*Safety incidents

Defined in company regulations as the occurrence of a fire, explosion, leak, damage, failure, runaway reaction, or similar event. Even if there has been no actual occurrence, the possibility of such an event if actions had been delayed and the observation of signs that could be deemed to indicate the potential for such an event are also defined as safety incidents.

Disaster Preparedness Training

Worksites conduct disaster-response drills each year based on various hypothetical scenarios. The drills include reporting and contracting simulations, first-aid treatment, and rescue and firefighting activities. We conduct full-scale disaster-response drills jointly with local firefighting agencies when possible.

These drills allow us to verify that our standards are adequate, and to verify the operability of emergency equipment (e.g. fire trucks, fire hydrants, broadcasting equipment, etc.). When we encounter problems, we take steps to quickly resolve them, so as to maintain the highest level of disaster-response preparedness.

Third-party Evaluations

Zeon Corporation has participated as a supporting company (full member) since the initial establishment of the Japan Safety Competency Center (a specified nonprofit corporation), and has made efforts to evaluate and improve its safety competency in terms of its safety foundation and safety culture. In third-party evaluations, the Japan Safety Competency Center evaluates Zeon's safety foundation. The Keio University format is also incorporated into the evaluation of the safety culture. The strengths and weaknesses of each worksite and department are objectively measured, and Zeon Corporation continues to conduct improvement activities aimed at improving its safety competency.