



## — Initiatives for Health and Safety

The Nippon Kayaku Group is committed to promoting initiatives for occupational health and safety aimed at completely eliminating accidents and injuries in the workplace. This includes developing a system for safety training, implementing safety training on a company-wide scale, preventing accidents and injuries before they happen, and conducting health promotion programs.

### Protection of Health and Safety Activities

Within its health and safety activities, the Nippon Kayaku Group places special emphasis on pointing and calling, KYT (Danger Prediction Training), and danger prediction prior to a work processes. Furthermore, we continually make efforts to prevent accidents and occupational injuries before they occur through systematic brainstorming of potential risks including non-regular work, while also carefully ensuring that risk assessments for chemical substances are conducted in accordance with legislation in Japan.

For example, we carry out safety inspections during the development and design stages when manufacturing a new product or installing new equipment, and implement risk assessments to account for any potential risks thereby preventing accidents, occupational injuries, and environmental incidents. Moreover, we also promote safety training and enhance awareness of KYT and near misses at our overseas group companies.

### Safety Performance (targets and results)

The Nippon Kayaku Group has set targets for safety performance based on the following categories: serious accidents and injuries, serious environmental incidents, lost worktime accidents, non-lost worktime accidents, motor vehicle accidents, and non-injury related accidents. With regard to motor vehicle accidents, starting in fiscal 2016, we have subdivided this category further into the following sub-categories: serious accidents, personal injuries, property damage, and self inflicted injuries for incidents counted with a separate target per subcategory, in order to analyze incidents and facilitate preventive measures.

#### 1. Safety Performance (results)

In fiscal 2016, there was one lost worktime accident, eight non-lost worktime accidents, and one incident of non-injury related accident. This data is for all business sites of the Nippon Kayaku Group and group companies within our business sites. Furthermore, while the number of motor vehicle accidents (MVA rate \*1) has improved since the previous fiscal year, the rate of occurrence is still high. In response, we will further strengthen our accident and injury prevention efforts in fiscal 2017. Additionally, compared to the previous fiscal year, about the same number of accidents took place in the calendar year of 2016, which includes overseas group companies. This included 12 lost worktime accidents, 11 non-lost worktime accidents, and eight non-injury related accidents.

\*1 MVA Rate = Number of MVA / Number of company vehicles (389 vehicles)

● Fiscal 2016 Safety Targets and Performance

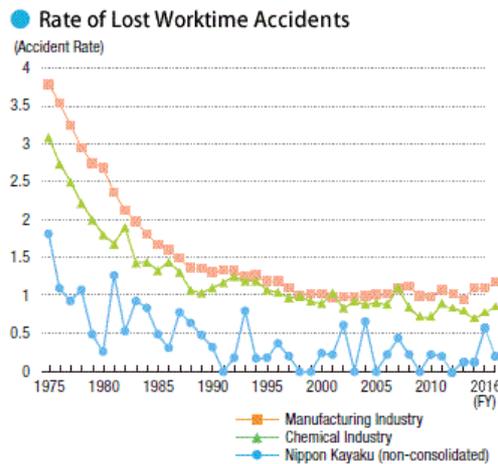
Items		Target	Actual
Major Injury / Accidents		0	0
Serious environmental accidents		0	0
Lost worktime accidents		0	1 cases
Accidents not accompanied by lost worktime		Rate of lost worktime accidents <sup>2</sup> of under 1	1,14
		Less than 5 cases	8 cases
Non-injury related accidents		0	1 cases
Work-related automobile collisions	Serious accidents	0	0
	Personal injuries	0	3 cases
	Property damage	Less than 3%	3.9 %
	Self inflicted	Less than 3%	8.5 %

\*2 Frequency rate of lost worktime accidents: It expressed in terms of numbers of deaths & injuries in industrial accidents per 1 million work-hours in the aggregate.

2. Graph Comparison of frequency rate of Lost Worktime Accidents

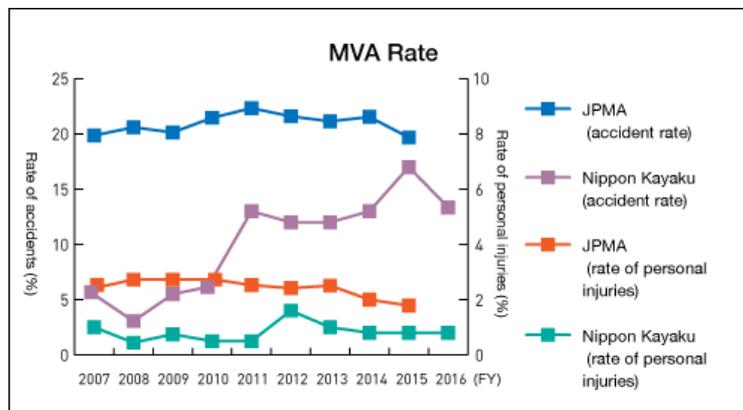
While our frequency rate of lost worktime accidents is lower than that of the manufacturing and chemical industries every year, unfortunately we have not been to maintain the rate of accidents at zero as the graph indicates. We aim to reinforce safety awareness among every employee to achieve the goal of zero accidents by conducting work safely.

Note: The rates shown for the manufacturing and chemical industries are data for the calendar year (January through December).



3. Efforts to Prevent MVA

While the rate of motor vehicle accidents at the Nippon Kayaku Group is lower than that of the Japan Pharmaceutical Manufacturers Association, our rate has remained somewhat elevated since fiscal 2011. Starting in fiscal 2016, we have added seminars at corresponding driving training centers as a new measure against motor vehicle accidents. Going forward, we aim to further reduce motor vehicle accidents.



## 1. Health and Safety Activities at Each Business Site

We define the health and safety policy and targets, and we are undertaking a wide range of health and safety activities at our business sites.

### Safety Activities

- Risk Assessment
- Hiyari Hatto Activity
- TPM Activity\*4
- SS Activity\*3
- KYT Activity
- THP (Total Health promotion Plan)\*5

\*3 SS Activity: An acronym of five Japanese words phonetically starting with the letter "S".

\*4 Total Productive Maintenance (TPM): Activities that maintain equipment and facilities in good working order to ensure safety and maintain productivity.

\*5 Total Health Promotion Plan (THP) is a program that utilizes the P-D-C-A cycle involving "health promotion plan," "health assessment," "health advice," "practical activities" and "improving lifestyle habit and invigorating the workplace."

## 2. Conducting Safety Assessments (Risk assessment, understanding potential risk factors)

Each of our business sites performs safety reviews for new processes and facilities and whenever changes are made to existing processes and facilities. And we implements "Risk Assessments" in order to prevent business sites accidents, injuries, environmental accidents, complaints and quality issues. Risk factors in chemical reactions are analyzed primarily based on HAZOP.\*6

\*6 HAZOP: Hazard and Operability Study. A safety evaluation methodology used at chemical plants. Potential hazards associated with chemical reactions can be comprehensively extracted for evaluation.

## 3. Elimination of Shortcuts and Omissions

Accidents that have occurred within the Nippon Kayaku Group in recent years have tended to result from shortcuts or omissions. As a result, the Nippon Kayaku Group is working to share safety awareness across different workplaces by distributing work flow checklists to help eliminate shortcuts or omissions, having employees issue a safety declaration to prevent shortcuts and omissions, as well as displaying this safety declaration clearly in each workplace.

## 4. Traffic Safety Initiatives

Many Nippon Kayaku Group employees drive a car as part of their work duties or to commute to work. We perform safe driving reviews using a camera-equipped drive recorder \*7. And using the driving aptitude test approved by the National Police Agency\*8. From now on, we will further strengthen the education of new employees in practical skills and engage in reducing traffic accidents.

\*7 Camera-equipped drive recorder: A recorder that can analyze bad driving habits, such as sudden acceleration, sudden braking, and sudden turns using sensors for front/back and right/left acceleration, gyrocompass and GPS system.

\*8 Driving aptitude test approved by the National Police Agency: An exam that measures the aptitude of driving based on seven written questions covering 11 topics, including decision making skills, ability to prevent collisions, and mental stability test.

## 5. Promoting Health Management

Our employees undergo regular health checkups as well as special physical examinations because chemical substances are regularly handled on the job. Employees meet with an industrial physician following their regular health checkup to receive guidance and instructions on their health management and awareness. We also manage a database of information on the hazardous properties of chemical substances and utilize this information to prevent work related illnesses.

We are promoting THP to ensuring mental and physical health in order to enhance and maintain the health of our employees. We recommend employees to review their lifestyle habits and commit to a continuous and systematic health promotion plan with the goal of living a healthy lifestyle. Specifically, we implement assessments of physical fitness, and promote activities such as health management contests, walks, and hiking at each business site.

### Mental Health Initiatives

To balance improvements in operational productivity with the creation of added value, employees need to have workplaces where they can thrive and also be in good mental and physical health.

The President of Nippon Kayaku issued a Mental Health Declaration in 2005 and since then we have provided thorough guidance to managers on the subject. Mental health care requires that all employees have the correct knowledge and understanding to ensure they can prevent or detect mental health issues at an early stage. We focus the greatest efforts on mental health issue prevention. After rolling out our mental health care program, we invited a speaker from our contract EAP\*9 to lead a mental health care training program mandatory for all employees to take part in at least once that was set up on four occasions - in fiscal 2005, between fiscal 2006 and 2008, between fiscal 2009 and 2011 and between fiscal 2012 and 2014. We formulated a new three-year plan in fiscal 2015 and all employees are currently undergoing necessary training.

We have also created the Return to Work Program for employees that were forced to take a leave of absence due to a mental health issue. In this manner, workplace supervisors (the company), industrial physicians, and EAP form a trinity of measures for ensuring employees can return to work smoothly with a focus on preventing relapses.

In addition, with regard to obligations under the "Stress Check System" of the Occupational Safety and Health Act implemented on December 1, 2015, we have made preparations to establish the "Stress Check System", which is scheduled to be implemented in July 2016 for all the employees. In the future, we will carry it out once every year.

\*9 EAP is an acronym for Employee Assistance Program.

## 6. Deployment of AEDs

Driving aptitude test approved by the National Police Agency: A driving aptitude test that measures driving ability based on responses to seven questions covering 11 items including situational awareness, collision prevention ability, and mental stability, among others.



AED training

## 7. Fire Response

Each business location is equipped with a fire truck, fire hydrant, and fire extinguisher for chemical substances in preparation for potential fire hazards. In addition to holding onsite training, employees also participate in local fire fighting competitions at which they have achieved strong results.



Firefighting training

## 8. Natural Disaster Response

As a precaution for earthquakes and other natural disasters at each business sites, we have compiled the Employee's Handbook of Disaster (Earthquake) Prevention and distribute it to each and every employee. This handbook contains instructions on emergency response when an earthquake occurs, how to make contact and confirm one's safety, and alternative methods to reach home when public transportation is unavailable.

Employee safety during a disaster is monitored by a safety reporting and communication system that uses email. As an earthquake strikes, the disaster response headquarters will send out an instruction by email to all employees. Employees can reply to the email by a simple touch of a button, which allows data to be collected. This system will be used to confirm employee safety during an earthquake of a seismic intensity of 6 or higher in Japan.

### KAYAKU CHEMICAL (WUXI) CO., LTD. (KCW) Lectures on Health Check-ups at KAYAKU CHEMICAL (WUXI) Co. Ltd.

KAYAKU CHEMICAL (WUXI) CO., LTD. (KCW) is a Nippon Kayaku Group company, which was established in China in 2002 to manufacture and market synthetic resins and also researches and develops technology services. KCW, as part of "employee health month," under the broader theme of environmental and safety month, organized health check-ups for all employees. Following a similar initiative in 2015, on May 10, 2016 KCW invited specialist physicians from the medical institution that performed employee health check-ups to visit the company to explain the health check-up items used for the results of employee health check-ups. Afterwards, the physician answered questions from employees and provided health guidance. This enabled KCW to encourage employees to make improvements in their daily lives and focus on health issues as well. These efforts will be continued in the future.



Health check-up lectures led by a visiting specialist physician

## Further Expanding Interactive Safety Training Initiatives at Kowa Sangyo Co., Ltd.

Kowa Sangyo mainly carries out contract manufacturing work for Nippon Kayaku's Asa Plant. Kowa Sangyo conducts interactive safety training using equipment they have fabricated to provide employees with a greater sense of the importance of safety in accordance with its policy of placing safety as a top priority. This equipment was given the name Esperanza (or hope in Spanish) because this was the same name given to the child born to a worker who was buried alive with 32 others in the 2010 Copiapó mining accident in Chile only to be rescued 69 days later miraculously along with all the missing workers.

The manufacturing floor involves work that carries with it an element of danger. Therefore, Kowa Sangyo is always heightening its awareness of safety, learning from past accidents and near misses, including through safety training. As part of these efforts, Kowa Sangyo uses Esperanza to simulate actual dangers to enable its employees to experience the scariness of accidents and reaffirm the importance of working safely. At the same time, interactive safety training enables employees to learn the correct usage of tools and the basics about equipment and component names, which helps to prevent accidents before they happen and to train employees about how to respond to accidents if they do occur.

All safety training equipment was created in-house. Also, the safety experience room makes use of an idle room, which was renovated, repainted and installed with unused work tables and equipment, making this learning lab completely homemade from reused equipment.

Learning with these interactive safety equipment helps to reaffirm dangers on the manufacturing floor, educating not only new employees, but veteran employees, too. Currently, Kowa Sangyo has nine kinds of equipment, which are also used by other workplaces for safety training. Kowa Sangyo will continue to further enhance these offerings so as to aid the safe operations of the Nippon Kayaku Group and train employees who are well versed in safety knowledge.

## Polatechno Interactive Training on Getting Caught in Machinery

Polatechno fabricated original interactive machine in November 2012 to teach about and eliminate accidents involving employees getting caught in machinery. Initially, training was provided to all employees working at the company's plants and afterwards it has been held annually for new employees and workers using nip roll machines. The training includes reenactments of past accidents involving employees getting caught as well as how to operate the photoelectric tube sensor and the emergency stop button and rope switch to prevent accidents. Participants also get to experience the feeling of getting caught in machinery (a simple pinching feeling) using the proximity sensor function.

In the past, two lost worktime accidents have occurred at Polatechno involving employees getting caught in machinery. According to fiscal 2014 statistics of the Ministry of Health, Labour and Welfare, there were 180 fatalities in the manufacturing industry, and of these 36%, or 64 fatalities, were caused by getting caught in machinery. Of the 1,057 fatalities across all industries, 14%, or 151 fatalities, were attributed to getting caught in machinery. This indicates that this type of accident is quite serious and occurs quite frequently in the manufacturing industry.

Starting in fiscal 2015, Polatechno has been implementing a greeting campaign, mutual consideration, and onsite patrol instructions based on the general manager's policy, all on the theme of "Reinforcement of Safety Awareness." Going forward, Polatechno will implement the PDCA cycle to foster a corporate culture with an even greater focus on safety, as it underpins all corporate activities.

## Environment, Health and Safety (Integrated) Review with the Labor Union

The Environment, Health and Safety Review is conducted together with the Quality Review in an integrated review of Nippon Kayaku's business sites and certain Group companies based on the annual plan. This review process also involves the labor union of Nippon Kayaku.

During the review, the progress of the environment, health and safety policy and plan of the business sites and Group companies being reviewed is checked and results of activities are identified through meetings, documents and onsite audits. The labor union is also given the opportunity to point out issues, as part of efforts to increase the level of safety and health at the company-wide level.

## Safety and Health Initiatives with the Labor Union

The labor union of Nippon Kayaku have items on safety and health at the top of the movement policy of labor unions, and every year hosts the "Level-up Seminar (Health & Safety)," inviting participants from each branch to attend to receive health and safety training co-hosted by the company. In fiscal 2016, participants took part in outside training using interactive safety training equipment to experience actual dangers first hand. The Environmental Protection & Safety Division also held a lecture entitled, "About learning safety measures from past accidents of Nippon Kayaku, and learning to implement KYT and pointing-and-calling." Furthermore, training participants were asked to identify issues related to the health and safety activities of each branch (business site) that were then used as part of a group discussion on sharing information about health and safety and how to improve the issues faced by participants' own business sites. This process greatly enhanced awareness of health and safety in the workplace.





## Management of Chemical Substances

With countries around the world moving to tighten the management of chemical substances, we have seen a growing importance in complying with chemical related laws both in Japan and abroad and being able to aptly respond to customer requirements for chemical substances contained in our products.

The Functional Chemicals Group established the Chemical Management Office, which collects the latest information on laws and regulations around the world, instructs related departments with their response and provides training on general chemical substance related laws. Through these efforts, the Chemical Management Office is striving to maintain and improve compliance as it relates to chemical substances.

A representative of the Chemical Management Office has been assigned to the Functional Chemicals R&D Laboratories to closely monitor product safety and compliance with legal requirements from the development stage.

In fiscal 2017, we will continue to comply with Europe's REACH \*10 and CLP \*11, and continue to positively promote the response to the new chemicals legislation and legal reform around the world.

\*10 Registration, Evaluation, Authorization and Restriction of Chemicals (REACH): An EU regulation for registering, evaluating, approving and restricting chemical substances.

\*11 Regulation on Classification, Labeling and Packaging of substances and mixtures (CLP): An EU regulation on the classification, labeling and packaging of chemical substances based on GHS.

## GHS Compliance

With each country implementing GHS \*12, companies are now required to provide SDS \*13 compliant with local laws and regulations that are written in the local language. The Functional Chemicals Group has instituted an SDS compilation system (MSDgen) that contains a large database of bilingual documents as well as data on the laws of various countries and data on the properties and toxicity of chemicals. This system enables it to create SDS that are fully compliant with local laws and regulations. The 2013 system update complies with the US version of GHS, which complements its prior compliance with GHS in Japan, Europe and Asia.

The Functional Chemicals Group manages and uses a database of SDS and SDS history to ensure that it always provides the most up to date information on GHS compliance.

\*12 GHS: Globally Harmonized System of Classification and Labeling of Chemicals

\*13 SDS: Safety Data Sheet.



Sample GHS-compliant label