

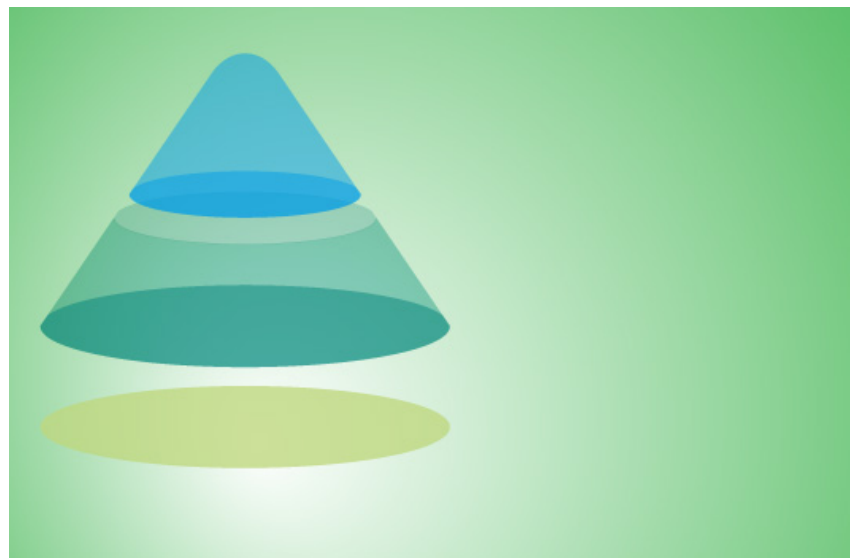


Message From Our President

Read the Message from Our President,
Atsuhiro Wakumoto.

CSR Management

- Our Corporate Vision and CSR Management
- Key Themes ("Materiality") and Our Action Plan
- Corporate Governance
- Compliance
- Risk Management
- The Nippon Kayaku Group's Commitment to CSR





CSR Activities That Fulfill Our Environmental Responsibilities

- Environment/Health/Safety/Quality Management System
- Initiatives for Environmental Protection

CSR Activities That Fulfill Our Social Responsibilities

- Economic Responsibilities and CSR
- With Our Customers
- With Our Business Partners, Stockholders and Investors
- With Our Local Communities
- With Our Employees



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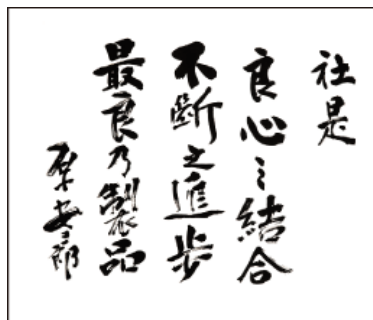
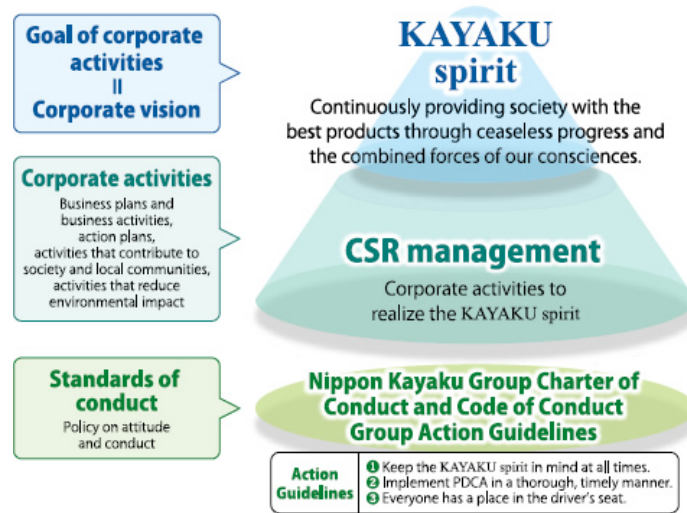


Our Corporate Vision and CSR Management

The Nippon Kayaku Group is implementing CSR management that fosters trust among all stakeholders through its focus on the **KAYAKU spirit**, which calls for "continuously providing society with the best products through ceaseless progress and the combined forces of our consciences."

The KAYAKU spirit and CSR Management

The **KAYAKU spirit**, or "continuously providing society with the best products through ceaseless progress and the combined forces of our consciences," stands as the Nippon Kayaku Group's corporate vision. The **KAYAKU spirit** is based on the corporate motto created more than half a century ago and it has stood at the root of our CSR management ever since. We will be able to achieve our vision for CSR management that earns the trust of all stakeholders by engaging in corporate activities that realize the **KAYAKU spirit**.



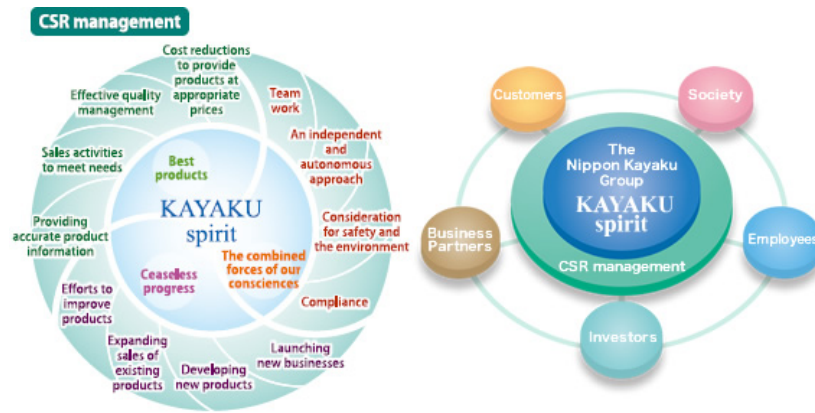
The image at the bottom left is an overhead view of the **KAYAKU Spirit**.

This image pictures the daily efforts of each of our employees, based on the concepts of "best products", "ceaseless progress" and "the combined forces of our consciences",

holding hands and supporting each other as they work towards achieving the corporate vision shown at the top.

This is our commitment to realize a CSR management that fulfills our social, economic and environmental responsibilities, and meets the

trust and expectations that our stakeholders have put into us as a corporate member of our society.
 CSR management is positioned as a key corporate activity for achieving the vision outlined in the **KAYAKU spirit**



| Stakeholders | Overview of initiatives | relevant page |
|-------------------|---|--|
| Customers | We conduct company-wide quality activities under our quality system in order to supply the best products to customers. We are mindful that product quality improvements, safety and reliability, as well as the provision of technical services and information are paramount to improving customer satisfaction. | With Our Customers |
| Business partners | We pursue mutual and sustainable growth with our suppliers, based on the understanding that they are important business partners who help us produce products of the best quality. | With Our Business Partners, Stockholders and Investors |
| Investors | We strive to disclose information to all of our shareholders, investors, and other stakeholders in a timely, impartial, and fair manner, so they may have a proper understanding of the Group's business status, and the various initiatives we are taking. | With Our Business Partners, Stockholders and Investors |
| Employees | A company is nothing without its people. We respect the human rights of each and every employee, and strive to offer a workplace environment that offers peace of mind to them. Our goal is to be a company where employees can grow personally and professionally through work and feel a sense of motivation in what they do. | With Our Employees |
| Society | We aim to be a company closely rooted in communities through our involvement at the local level, proactive engagement with all stakeholders and support for the educational needs of the next generation. | With Our Local Communities |
| Environment | We are committed to achieving a balance between the efficiency of production and reducing its impacts on the environment. For this reason, we consider environmentally friendly management to be an important task. We are now striving to achieve the various environmental targets we have set. We are working to improve facilities and treatment processes in order to use energy more efficiently, reduce exhaust gas including greenhouse gas emissions, and to lower the amount of substances released from effluent and waste that impact the environment. | Initiatives for Environmental Protection Environment/Health/Safety/Quality Management System |

Participation in external initiatives

Nippon Kayaku's initiatives in the ESG (environment, social, and governance) go beyond mere compliance with international standards. We believe that collaboration with other institutions and corporations is critical, and we are proactively participating in such initiatives.

Membership qualifications of major external organizations

| Group Name | |
|--|---|
| KEIDANREN (Japan Business Federation) | Japan Crop Protection association |
| The Japan Chemical Industry Association (JCIA) | Japan Initiative for Marine Environment (in the Japan Petrochemical Industry Association) |

| Group Name | |
|---|---|
| The Japan Chamber of Commerce and Industry (JCCI) | The Institute of Internal Auditors – Japan |
| The Japan Dyestuff and Industrial Chemicals Association (JDICA) | Association of Risk Management |
| The Japan Pharmaceutical Manufacturers Association (JPMA) | The Japan Association for Chemical Innovation(JACI) |
| The Biosimilar Association (JBSA) | Nanotechnology Business Creation Initiative (NBCI) |
| Pharmaceutical manufacturers' association of Tokyo | Japan Bioindustry Association (JBA) |
| Japan explosives industry association | Japan Open Innovation Council (JOIC) |
| Japan Auto Parts Industries Association | |

CSR Implementation System

We established the CSR Management Committee in 2010 and set up the CSR Department within the Corporate Planning Division of our Strategic Corporate Planning Group. The CSR Management Committee sets the goals for, and reviews the results from our activities to promote CSR from a top-down perspective.

At the same time, the CSR Department administers cross-functional CSR projects, while the business sites and group companies take the lead in implementing these projects.



KAYAKU spirit Promotion Efforts using Kayakuma the Bear

We have created a mascot character called Kayakuma the Bear in order to make KAYAKU spirit a concept that is more familiar to all Nippon Kayaku Group employees around the world. This character appears in the CSR section of our company newsletter, where we introduce our CSR activities and initiatives for implementing our corporate vision, using visual depictions that are easy to understand for all audiences. The mascot has also been incorporated into our daily stationery, clear file folders and even the designs of conference rooms. This ensures our employees are always aware of Kayakuma the Bear, and in touch with our corporate vision in all aspects of their work. We are currently filing for a trademark for Kayakuma the Bear and plan on using it widely as a symbol of the Nippon Kayaku Group in newspaper ads, on novelty items, and at company events such as factory festivals.



Kayakuma the Bear mascot character representing KAYAKU spirit



Conference room and employee locker



Key Themes ("Materiality") and Our Action Plan

The Nippon Kayaku Group is implementing CSR management that fosters trust among all stakeholders through its focus on the **KAYAKU spirit**, which calls for "continuously providing society with the best products through ceaseless progress and the combined forces of our consciences."

Practicing CSR management involves properly ascertaining the Key Themes facing our Group from both an internal and external point of view and formulating a mid-term CSR Action Plan that links to our business activities.

CSR and Business Strategy

We believe that CSR is integral to managing our Company. To realize the **KAYAKU spirit** and increase the value of the Company, we believe it is necessary to take the dual approach of implementing both a mid-term business plan and initiatives toward a sustainable society and environment, and that we need to integrate these initiatives into our business strategy.

The Nippon Kayaku Group has formulated its mid-term CSR action plan to meet the expectations of all stakeholders. Our basic management policy is to contribute to a sustainable society and environment as a corporation that continues to provide the best products, technologies and services that safeguard the life and health of consumers, and support a comfortable life.

Under this basic management policy, we ascertain our risks and opportunities by considering the business environment and listening to our stakeholders so that we can identify the Key Themes (CSR materiality) in our business over the medium-term, then we create our Mid-term Business Plan and Mid-term CSR Action Plan that syncs with Mid-term Business Plan. Our CSR activities, which are integral to our business strategy, are highly ethical and place priority on safe operations, strict compliance, and the environment in all of our businesses.

CSR Key Themes ("Materiality")

In formulating our mid-term business plan, **KAYAKU Next Stage**, which kicks off in fiscal 2019, we have organized the issues that we should address and identified the CSR Key Themes ("Materiality").

CSR Key Themes ("Materiality") Identification Process

In formulating our mid-term business plan, **KAYAKU Next Stage**, which kicks off in fiscal 2019, we have organized the themes that we should address and identified the CSR Key Themes (CSR materiality).

CSR Key Themes (CSR Materiality) Identification Process

■ [Step 1 Recognition of the Themes]

Make a list of Themes, taking topics from the GRI standards on the items needed by a diversifying society and adding topics from the Nippon Kayaku Group's CSR Action Plan.

■ [Step 2 Assign Points from Internal and External Feedback]

A. Assignment of points from external assessments

Assign points from external assessments by linking the Themes on the list with assessment criteria for each of the Company's business segments from multiple international assessment organizations that promote responsible investing and SASB* need criteria for each industry.

B. Assignment of points from internal assessments

Survey those responsible for Company's major departments, including its business divisions, to evaluate how much of an impact the Nippon Kayaku Group can have. Set up listening opportunities in the major departments to verify the Themes and rank them by priority. Assign points from the internal assessments by incorporating views on past key Themes addressed in CSR Action Plans.

* An independent non-profit, SASB develops reporting standards that enable businesses around the world to identify, manage and communicate financially-material, sustainability information to investors.

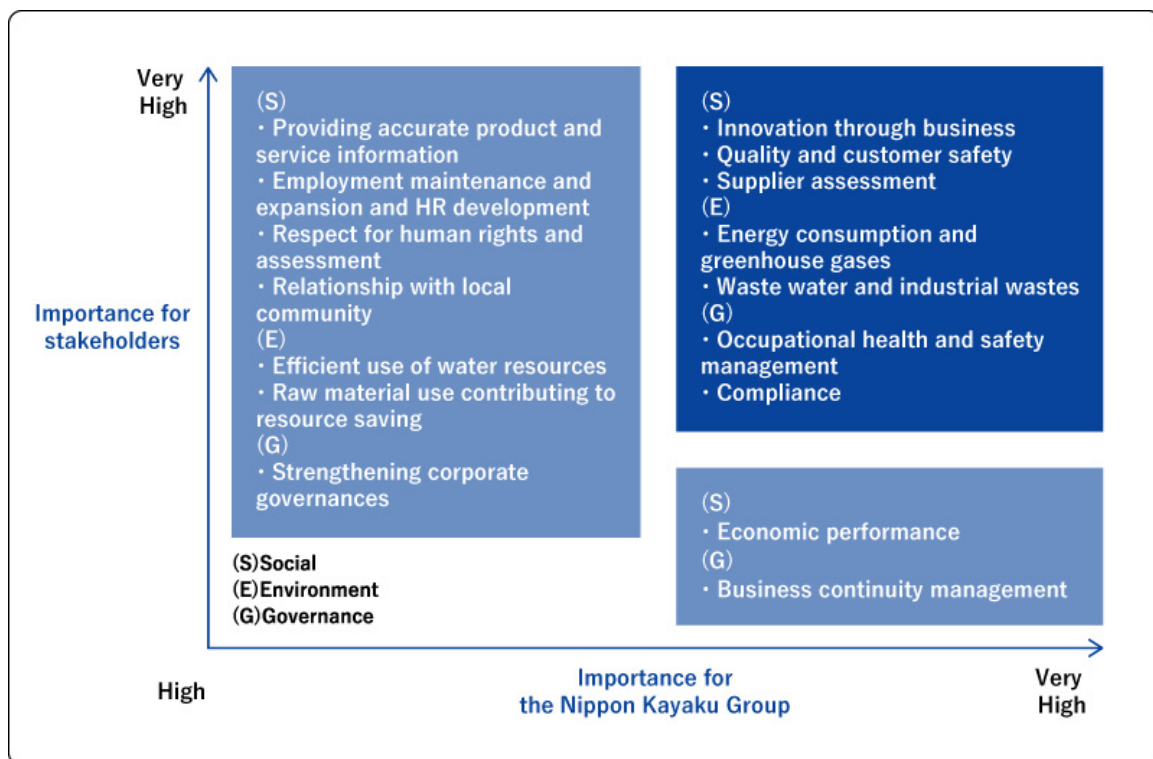
■ [Step 3 Materiality mapping]

Make a matrix of the Themes that have been assigned points from the external and internal assessments to create a materiality mapping. Include thresholds in the point-based map so that those Themes with points that meet or exceed the threshold are considered key.

■ [Step 4 Validity testing and approval]

Get feedback on the identification process and identification results from experts who specialize in CSR, review the process and results at the CSR Management Committee, which is the Company's decision-making body, and approve them after two sessions of deliberation.

Nippon Kayaku Group's CSR Key Themes ("Materiality")



Identification of Environmental Key Themes (Materiality)

In identifying the CSR Key Themes (CSR materiality), we recognized "energy consumption and greenhouse gases" and "waste water and industrial wastes" as environmental Key Themes.

Of these, for energy consumption and greenhouse gases, in accordance with the TCFD,* we solicited experts' views, sorted out the risks and opportunities involved in climate change, and conducted an impact analysis. In fiscal 2019, we are discussing concrete steps to take vis-à-vis the risks and opportunities that we identified with both our manufacturing area and our research area.

* TCFD : Task Force on Climate-related Financial Disclosures

Mid-term CSR Action plan 2019-2021

Based on the materialities that we identified, we have formulated our Mid-term CSR Action Plan 2019-2021, which sets forth specific initiatives and goals. Furthermore, these Themes and goals have been integrated with Key Themes for Mid-term business plan **KAYAKU Next Stage**, and we will implement these in tandem with the business strategies contained in our business plan.

| KAYAKU Next Stage Mid-term CSR Action Plan 2019-2021 | | | | | |
|--|---|--|--|--|--|
| SDG | № | Important CSR issues | Mid-term CSR Action Plan 2019-2021 | Key Indicators (KPI) | FY2021 Targets |
| Highest Priority Issues | 1 | Innovation through business | <ul style="list-style-type: none"> Business divisions will work as one team on pursuing R&D with an eye on exit to market, and create new products and businesses in core businesses and areas of synergy. Invest management resources in medium and long-term R&D themes while enhancing core technologies and meeting the future needs of society. | Amount invested in R&D over three years | (Consolidated) 300 billion over 3 years |
| | 2 | Quality and customer safety | <ul style="list-style-type: none"> Make ongoing improvements to the quality management system and work to strengthen local management capabilities, and create a stronger quality management and quality assurance system. Pursue quality management, improve the level of production technology and expertise, and work to reduce flaws in the process. | Number of serious complaints by customers ¹⁾ | (Consolidated) 0 complaints |
| | 3 | Business partner assessment | <ul style="list-style-type: none"> Implement supply chain management that takes environmental and social aspects into consideration, based on the CSR Procurement Guidelines. | Number of serious flaws in processes ¹⁾ | (Consolidated) 0 incidents |
| | 4 | Energy use and greenhouse gases Wastewater and waste Efficient use of water resources Use of materials that contribute to resource conservation | <ul style="list-style-type: none"> Pursue activities to save energy and combat global warming. Achieve the environmental targets for FY2020 and formulate targets for FY2021. Work to integrate ISO 14001 company-wide and advance environmental management that addresses both the risks and opportunities of environmental problems. | Mid-term environmental targets | FY2020 Target (Non-consolidated) 79,500 tons or less |
| | | | | Amount of CO ₂ emitted from energy sources | |
| | | | | VOC emissions volume | (Non-consolidated) 42 tons or less |
| | | | | COD emissions volume | (Non-consolidated) 155 tons or less |
| | | | | Volume of waste generated ²⁾ | (Non-consolidated) 23,500 tons or less |
| | | | | Recycling rate | (Non-consolidated) 93% or higher |
| | Company-wide integration of ISO 14001 | Integration | | | |
| Formulation of 2030 environmental targets | Formulation | | | | |
| 5 | Occupational health and safety in the workplace | <ul style="list-style-type: none"> Strictly follow basic rules on health and safety and improve equipment and work procedures to build a strong foundation for safe operations. Promote health management and provide a workplace environment that enables employees to work with enthusiasm and achieve work-life balance. | Number of serious accidents ³⁾ | (Consolidated) 0 incidents | |
| | | | White 500 certification | (Non-consolidated) Maintain certification | |
| | | | Percentage of employees taking paid leave | (Non-consolidated) 70% | |
| | | | Percentage of employees who take mental health training | (Non-consolidated) 100% ⁴⁾ | |
| 6 | Compliance | <ul style="list-style-type: none"> Exercise strict compliance, which is a basic principle upon which we conduct corporate activities, and operate the business in a fair manner. Establish a basic policy on preventing corruption, and maintain and strengthen an open and honest corporate culture with high ethical values. | Number of serious compliance violations ⁵⁾ | (Consolidated) 0 incidents | |
| | | | Formulation of a basic policy on preventing corruption | Formulation | |
| Important Issues | 7 | Provision of appropriate information on products and services | <ul style="list-style-type: none"> Increase the presence of the Nippon Kayaku Group by complying with regulations in each business and providing appropriate information and technical services to customers. | Regularly conducting customer satisfaction surveys | (Non-consolidated) Implementation |
| | 8 | Maintaining and expanding employment and development of human resources | <ul style="list-style-type: none"> Promote diversity and inclusion by hiring diverse human resources and effective human resource allocation and exchanges. Pass down and strengthen technical capabilities in monozukuri (manufacturing) and achieve globalization in human resources through ongoing human resource development. | Percentage of female managers | (Non-consolidated) 8% ⁶⁾ |
| | | | | Percentage of people with disabilities employed | (Non-consolidated) 2.3% |
| | 9 | Respect for human rights and assessment | <ul style="list-style-type: none"> Operate businesses in a manner that considers the human rights of employees and all people involved in the supply chain. | Amount invested in education and training per employee | (Non-consolidated) Note results only |
| | | | | Number of training sessions held on human rights | (Non-consolidated) Once a year or more |
| | 10 | Local communities | <ul style="list-style-type: none"> Actively communicate with local communities where our businesses are located and strive to co-exist and prosper together with them as a company rooted in the local community. | Total number of informal community gatherings | (Consolidated) Note results only |
| | 11 | Economic performance | <ul style="list-style-type: none"> Generate stable profits and return profits to society while reinvesting profits as management capital to achieve sustainable growth and enhance corporate value. | Expenditures on social contributions ⁷⁾ | (Non-consolidated) Note results only |
| | | | | ROE | (Consolidated) 8% |
| | 12 | Strengthening corporate governance | <ul style="list-style-type: none"> Strengthen corporate governance of the entire group and manage in a highly transparent and sound manner. | Number of times that the effectiveness of Board of Directors meetings is evaluated | (Non-consolidated) Once a year |
| | | | | Number of times internal business audits are performed by the Audit Division | (Consolidated) 65 times over three years |
| | | | | Implementation rate for the top five risk control activities | (Consolidated) 100% |
| | 13 | Ensuring business continuity | <ul style="list-style-type: none"> Ensure business continuity by responding to the many different risks associated with our businesses, maintaining the production structure, securing the appropriate materials, and strengthening disaster response measures. | Number of times BCP drills are conducted | (Consolidated) Once a year or more |








> Mid-term CSR Action plan 2019-2021 

Relationship between our Mid-term CSR Action Plan and the SDGs



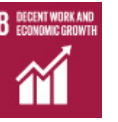

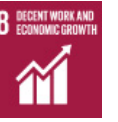

① Environment ② Social ③ Governance
 ①: Losses of 10 million yen or higher
 ②: Accidents resulting in three or more deaths or three or more serious injuries or accidents resulting in death
 ③: Cumulative amount over the three-year period from 2019 to 2021
 ④: Number of incidents reported within the Ethics Committee
 ⑤: The Risk Management Committee
 ⑥: Targeted for the end of FY2020
 ⑦: Expenses for donations, disaster relief activities, social activities, and other social events

Since the Group's beginnings, we have been constantly creating and providing products needed by the society of the time in a spirit of "for the world and for people." Such a management stance is consistent with the direction being pursued by sustainable development goals (SDGs), and we believe that our business has already internalized SDGs. The Nippon Kayaku Group sets its SDGs from the standpoint of their risks and opportunities based on our CSR Key Themes (materiality). Going forward, we will continue to pursue business innovations so that we can contribute to the achievement of those SDGs that are today's social Themes.

Goals that are business opportunities

| CSR Key Issues (CSR Materiality) | Initiatives | SDGs Goals | SDGs icons |
|----------------------------------|---|--|--|
| Pharmaceuticals Business | Support people's health through a stable supply of high-quality pharmaceuticals | Goal 3.8 |  |
| Safety Systems Business | Supply automotive safety components for air bags, seatbelts, etc., globally to give people throughout world over a feeling of safety and security | Goal 3.6 |  |
| Functional Chemicals Business | Contribute to a sustainable global environment with functional products that conserve resources and energy and place a low burden on the environment and with products and technologies that contribute to more efficient water usage | Goal 6.4 Goal 7.3 Goal 9.c Goal 12.2 Goal 12.4 |     |
| Agrochemicals Business | Provide agrochemicals that are easy to use, safe, and more environmentally friendly, and support stable agricultural production | Goal 2.3 Goal 2.4 |  |

Goals that reduce risks

| CSR Key Issues (CSR Materiality) | Initiatives | SDGs Goals | SDGs icons |
|--|--|---|---|
| (S) Quality and customer safety | Prioritizing quality and safety, implement the proper controls over chemical substances, etc. through product life cycle | Goals 12.4 |  |
| (S) Supplier assessment | Conduct social and environmental assessments of our suppliers so that we can do business with human rights and health and safety in mind | Goals 5.2 Goals 8.8 |   |
| (E) Energy consumption and greenhouse gases | Through our initiatives to achieve our mid-term environmental goals, actively promote responses to climate change and a shift toward a low energy-consumption production structure | Goals 7.2 Goals 7.3 Goals 8.4 Goals 13.1 |    |

| CSR Key Issues (CSR Materiality) | Initiatives | SDGs Goals | SDGs icons |
|--|---|--|--|
| (E) Waste water and industrial wastes | Take initiatives to further enhance the efficient use of water resources, improve waste water treatment technologies, and reduce waste | Goals 3.9 Goals 6.3 Goals 12.4 Goals 12.5 Goals 14.1 |     |
| (G) Occupational health and safety management | In consideration of health and safety at all of our worksites, promote the creation of workplaces that are vibrant and rewarding to work at | Goals 3.9 Goals 8.8 |   |
| (G) Compliance | Observe the law and strengthen compliance at every level in order to prevent corruption, harassment, etc. | Goals 16.5 Goals 16.7 |  |

Mid-term CSR Action Plan 2016–2018 for ISO26000 Core Subjects

The Nippon Kayaku Group has created a table of correspondence between the 37 Core Issues of ISO26000 and our each item of Mid-term CSR Action Plan 2016–2018.

Mid-term CSR Action Plan 2016-2018 for ISO26000 Core Subjects

| ISO No. | Important CSR Issues | Mid-term CSR Action Plan 2016-2018 | ISO26000 Core Subjects and Related Issues | | | | | | | | | | | | | | | |
|---------------------------------|--|---|---|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | Organizational governance | Discrimination | Human rights | Anti-slavery | Human rights | Human rights | Human rights | Human rights | Human rights | Human rights | Human rights | Human rights | Human rights | Human rights | Human rights | Human rights |
| Highly priority issues | 1 Innovation through business | <ul style="list-style-type: none"> Business divisions will work to decrease or remove R&D with an eye on cost to realize, and create new products and businesses in core businesses and areas of strength Invest management resources in realize and improve R&D through other cutting-edge technologies and meeting the future needs of society. | | | | | | | | | | | | | | | | |
| | 2 Quality and customer safety | <ul style="list-style-type: none"> Make ongoing improvements to the quality management system and work to establish local management capabilities, and conduct a stronger quality management and quality assurance system. Focus on safe management, improve the level of production technology and expertise, and work to reduce flaws in the process. | | | | | | | | | | | | | | | | |
| | 3 Business partner assessment | <ul style="list-style-type: none"> Implement supply chain management that takes environmental and social aspects into consideration, based on the CSR Procurement Guidelines. | | | | | | | | | | | | | | | | |
| | 4 Energy use and greenhouse gases | <ul style="list-style-type: none"> Reduce activities to save energy and carbon dioxide emissions. Achieve the environmental targets for FY2020 and formulate targets for FY2030. Work to improve ISO 14001 compliance and advance environmental management that addresses both the risks and opportunities of environmental problems. | | | | | | | | | | | | | | | | |
| | 5 Occupational health and safety in the workplace | <ul style="list-style-type: none"> Strictly follow basic rules on health and safety and improve equipment and work procedures to build a strong foundation for safe operations. Promote health management and create a workplace environment that enables employees to work with enthusiasm and achieve work-life balance. | | | | | | | | | | | | | | | | |
| | 6 Compliance | <ul style="list-style-type: none"> Exercise strict compliance, which is a basic principle upon which we conduct corporate activities, and ensure the business is fair, honest. Establish a basic policy on preventing corruption, anti-trust and anti-trust on cases and honest corporate culture with high ethical values. | | | | | | | | | | | | | | | | |
| Important issues | 7 Provision of appropriate information on products and services | <ul style="list-style-type: none"> Increase the presence of the Japan Kasei Group by complying with regulations in each business and providing appropriate information and technical services to customers. | | | | | | | | | | | | | | | | |
| | 8 Marketing and expanding employment and development of human resources | <ul style="list-style-type: none"> Promote diversity and inclusion by hiring diverse human resources and effective human resource allocation and work style. Deepen and strengthen technical capabilities in manufacturing (brand/branding) and across globalization in human resources through ongoing human resource development. | | | | | | | | | | | | | | | | |
| | 9 Respect for human rights and assessment | <ul style="list-style-type: none"> Operate businesses in a manner that considers the human rights of employees and all people involved in the supply chain. | | | | | | | | | | | | | | | | |
| | 10 Local communities | <ul style="list-style-type: none"> Actively contribute to local communities where our businesses are located and strive to cooperate and cooperate together with them as a company rooted in the local community. | | | | | | | | | | | | | | | | |
| | 11 Economic performance | <ul style="list-style-type: none"> Generate stable profits and return results to realize value exceeding profits as management capital to achieve sustainable growth and enhance corporate value. | | | | | | | | | | | | | | | | |
| | 12 Strengthen corporate governance | <ul style="list-style-type: none"> Strengthen corporate governance of the entire group and manage in a highly transparent and sound manner. | | | | | | | | | | | | | | | | |
| 13 Ensuring business continuity | <ul style="list-style-type: none"> Secure business continuity by responding to the many different risks associated with our businesses, maintaining the production structure, ensuring the operations maintain, and strengthening disaster response measures. | | | | | | | | | | | | | | | | | |

| ISO No. | Important CSR Issues | Mid-term CSR Action Plan 2016-2018 | ISO26000 Core Subjects and Related Issues | | | | | | | | | | | | | | | |
|---------------------------------|--|---|---|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | | | Anti-corruption | Responsible Procurement | Responsible Procurement | Responsible Procurement | Responsible Procurement | Responsible Procurement | Responsible Procurement | Responsible Procurement | Responsible Procurement | Responsible Procurement | Responsible Procurement | Responsible Procurement | Responsible Procurement | Responsible Procurement | Responsible Procurement | Responsible Procurement |
| Highly priority issues | 1 Innovation through business | <ul style="list-style-type: none"> Business divisions will work to decrease or remove R&D with an eye on cost to realize, and create new products and businesses in core businesses and areas of strength Invest management resources in realize and improve R&D through other cutting-edge technologies and meeting the future needs of society. | | | | | | | | | | | | | | | | |
| | 2 Quality and customer safety | <ul style="list-style-type: none"> Make ongoing improvements to the quality management system and work to establish local management capabilities, and conduct a stronger quality management and quality assurance system. Focus on safe management, improve the level of production technology and expertise, and work to reduce flaws in the process. | | | | | | | | | | | | | | | | |
| | 3 Business partner assessment | <ul style="list-style-type: none"> Implement supply chain management that takes environmental and social aspects into consideration, based on the CSR Procurement Guidelines. | | | | | | | | | | | | | | | | |
| | 4 Energy use and greenhouse gases | <ul style="list-style-type: none"> Reduce activities to save energy and carbon dioxide emissions. Achieve the environmental targets for FY2020 and formulate targets for FY2030. Work to improve ISO 14001 compliance and advance environmental management that addresses both the risks and opportunities of environmental problems. | | | | | | | | | | | | | | | | |
| | 5 Occupational health and safety in the workplace | <ul style="list-style-type: none"> Strictly follow basic rules on health and safety and improve equipment and work procedures to build a strong foundation for safe operations. Promote health management and create a workplace environment that enables employees to work with enthusiasm and achieve work-life balance. | | | | | | | | | | | | | | | | |
| | 6 Compliance | <ul style="list-style-type: none"> Exercise strict compliance, which is a basic principle upon which we conduct corporate activities, and ensure the business is fair, honest. Establish a basic policy on preventing corruption, anti-trust and anti-trust on cases and honest corporate culture with high ethical values. | | | | | | | | | | | | | | | | |
| Important issues | 7 Provision of appropriate information on products and services | <ul style="list-style-type: none"> Increase the presence of the Japan Kasei Group by complying with regulations in each business and providing appropriate information and technical services to customers. | | | | | | | | | | | | | | | | |
| | 8 Marketing and expanding employment and development of human resources | <ul style="list-style-type: none"> Promote diversity and inclusion by hiring diverse human resources and effective human resource allocation and work style. Deepen and strengthen technical capabilities in manufacturing (brand/branding) and across globalization in human resources through ongoing human resource development. | | | | | | | | | | | | | | | | |
| | 9 Respect for human rights and assessment | <ul style="list-style-type: none"> Operate businesses in a manner that considers the human rights of employees and all people involved in the supply chain. | | | | | | | | | | | | | | | | |
| | 10 Local communities | <ul style="list-style-type: none"> Actively contribute to local communities where our businesses are located and strive to cooperate and cooperate together with them as a company rooted in the local community. | | | | | | | | | | | | | | | | |
| | 11 Economic performance | <ul style="list-style-type: none"> Generate stable profits and return results to realize value exceeding profits as management capital to achieve sustainable growth and enhance corporate value. | | | | | | | | | | | | | | | | |
| | 12 Strengthen corporate governance | <ul style="list-style-type: none"> Strengthen corporate governance of the entire group and manage in a highly transparent and sound manner. | | | | | | | | | | | | | | | | |
| 13 Ensuring business continuity | <ul style="list-style-type: none"> Secure business continuity by responding to the many different risks associated with our businesses, maintaining the production structure, ensuring the operations maintain, and strengthening disaster response measures. | | | | | | | | | | | | | | | | | |

> Mid-term CSR Action Plan 2016-2018 for ISO26000 Core Subjects

Achievements of FY 2018 CSR ACTION PLAN




The achievements of the CSR Action Plan's initiatives for fiscal 2018, which was the final year of the Mid-term CSR Action Plan 2016-2018, are as follows.

Nippon Kayaku Group CSR Action Plan 2018

*** Target achieved
** Almost achieved
* Under-going efforts toward improvement
○ Not achieved

| No. | Mid-term CSR Action Plan 2016-2018 | CSR Action Plan 2018 Achievements | Assessment levels |
|-----|--|--|-------------------|
| 1 | *Contribute to society by promoting innovations using our technological expertise, and by stably supplying high-quality pharmaceuticals coupled with truly reliable information* | <ul style="list-style-type: none"> Performed Phase II clinical trial of NK 105 Development of biosimilars progressed on schedule; launched Trastuzumab BS for gastric cancer indications; received additional approval for breast cancer treatment regimen A Received additional approval for our generic anti-cancer drug Temozolomide for use in recurrent and refractory Ewing's sarcoma; received approval for manufacture and sale of our generic anti-cancer drug, Gefitinib | *** |
| | | <ul style="list-style-type: none"> Sales of new disk inlets and new cylinder inlets expanded smoothly, starting gearing up for global production to help keep more people safe Embarked on the development of new products for the future | *** |
| | | <ul style="list-style-type: none"> Made headway on new directions in current corporate research initiatives, which we shared with the management team Promoted new efforts in corporate research that blends internal and external technologies and in research into cultivating the next generation Facilitated technology exchanges among the business divisions and the laboratories through the Company-wide Research Presentation Conference, technology exchange meetings, and the consolidation of in-house component technologies and shared technologies | *** |
| 2 | *Contribute to public safety by globally supplying a wider range of automobile safety systems to improve automotive collision safety* | <ul style="list-style-type: none"> Strengthened intellectual property management systems at overseas Group companies Used patent evaluation metrics to analyze our Company's and other companies' patents and then used them in our R&D | ** |
| | | <ul style="list-style-type: none"> In the Functional Materials Business, promoted the expansion of epoxy resins for semiconductors and electronic devices and the development of new resins In the Color Materials Business, expanded inkjet printer colorants for use in industrial printing In the Catalysts Business, expanded catalysts used in production of acrylic acid and methacrylic acid, which help to save energy and resources | *** |
| 3 | *Contribute to society, safeguard the life and health of the public, and support a comfortable life by executing R&D investments to consistently deliver the best products* | <ul style="list-style-type: none"> Launched our new insecticide, FINSEAVE, in June 2018, and then expanded its applications to 4 crops and 3 pests and promoted its sales Expanded the applications of our existing insecticide, Leafguard, to 4 crops and 2 pests and our spreading agents, Fumon and Widecoat, to 3 crop groups and 1 crop | *** |
| | | <ul style="list-style-type: none"> Promote supply chain management | ** |
| | | <ul style="list-style-type: none"> Aimed for close communication and information sharing with suppliers and promoted multiple purchasing channels for procurement stability Zeroed in on procurement risk and quality issues for some raw materials and parts resulting from changes in the external environment | ** |
| | | <ul style="list-style-type: none"> Serious customer complaints: None⁽¹⁾ (vs. 1 in the prior year) Serious quality process failures: None⁽²⁾ (vs. 1 in the prior year), did not reach target for the number of small and medium-sized quality process failures Held risk management training for managers and practitioners, and produced the English version of the "Why/Why" Analysis Manual Set up a Quality Assurance Division within the Functional Chemicals Group to foster a strong quality assurance system Promoted a stronger global quality assurance system in the Safety Systems Group, and taking initiatives to resolve issues at our overseas sites | ** |
| | | <ul style="list-style-type: none"> Achieved all mid-term environmental targets for fiscal 2020 except the zero emission rate; expect to achieve all⁽³⁾ of these targets by the end of fiscal 2020 | *** |
| 4 | *Contribute to the creation of an "Super Smart Society" by providing functional chemical materials that offer special characteristics for the fields of information and communication, and energy and resource conservation* | <ul style="list-style-type: none"> Completed the companywide project aimed at improving waste water treatment technology, and as a follow-up, working with each business site working toward optimizing waste water treatment facility operating and maintenance management and operating conditions | *** |
| | | <ul style="list-style-type: none"> Continued conducting various initiatives to communicate with the local residents at our business sites As part of educational CSR, made outreach classes to local primary schools and participated in the experience-based classroom, Summer Children's Science Experiment Show 2018 Supported the table tennis T League as part of our initiatives promoting health through sports | *** |
| | | <ul style="list-style-type: none"> Released an integrated report with fuller financial and nonfinancial information Engaged in ongoing dialogs with institutional investors | *** |
| 5 | *Promote the additional improvement of customer satisfaction of product quality* | <ul style="list-style-type: none"> Ratio of female managers: 7.7%⁽⁴⁾ (+0.7 pts vs. the prior year) To foster global human resources, implemented overseas language school programs and rotations to the head office for local staff overseas Held educational training sessions on diversity (sexual harassment, power harassment, LGBT issues, etc.) through e-Learning Number of men taking childcare leave: 13⁽⁵⁾ (+9 vs. the prior year); held headquarters visits for employees' children Ratio of paid leave days taken: 61.1%⁽⁶⁾ (+1.9 pts vs. the prior year) Average monthly hours of overtime: 13.3 hours⁽⁷⁾ (+0.5 hours vs. the prior year) | ** |
| | | <ul style="list-style-type: none"> Met with the labor union for a working hour advisory committee to consider measures for dealing with performance management and issues at each business site Set up a new workstyle advisory committee with the labor union | *** |
| | | <ul style="list-style-type: none"> Received recognition under the Certified Health & Productivity Management Outstanding Organizations Recognition Program (White 500), which is a health management indicator Promoted companywide health events and other specific activities for health and productivity management as part of our Responsible Care (RC) Policy | *** |
| | | <ul style="list-style-type: none"> Serious accidents and injuries: None⁽⁸⁾ (vs. 1 in the prior year) Lost worktime accidents: 3⁽⁹⁾ (vs. 9 in the prior year) Designed and started using the RC progress checklist to enable common diagnostics of all business sites. Also, formulated an RC Policy based on the contents of the RC progress checklist in all business sites Started using a chemical substance risk assessment database and a job history database | ** |
| | | <ul style="list-style-type: none"> Achieved sales of 172.6 billion yen and operating income of 19.9 billion yen; continued to return profits to shareholders via dividends Prepared for future growth by investing 16.0 billion yen in capital expenditures and 12.5 billion yen in R&D | *** |
| | | <ul style="list-style-type: none"> Conducted a review of the BCP manuals for the head office, each business division, and all group companies in China Held BCP training at the Central Headquarters for Disaster Countermeasures and the Aso Plant | *** |
| | | <ul style="list-style-type: none"> CSR training taken in Japan by 12,138 people⁽¹⁰⁾ through 5 sessions of e-Learning training and by 409 people through 13 sessions of group training Compliance training taken in Japan by 2,416 people⁽¹¹⁾ in e-Learning training, by 669 people in group training, and by 269 people in DVD training, for a total of 3,353 people, and overseas by 720 people in group training | *** |
| | | <ul style="list-style-type: none"> In response to the EU's General Data Protection Regulation, entered into an agreement on the transfer of personal data among Group companies in Europe | ** |
| | | <ul style="list-style-type: none"> Gathered data for the Board of Directors effectiveness assessment survey and changed how the Board operates with respect to three areas needing improvement; formulated an action plan for the fiscal 2019 Board of Directors Carried out companywide assessments of 9 of our companies with respect to their internal control and reporting systems (J-SOX); no problems detected | *** |
| | | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people⁽¹²⁾ Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ** |
| 6 | *Carry out dialogue with stakeholders by providing appropriate information in a timely manner* | <ul style="list-style-type: none"> Secured stable earnings as a corporate group with growth potential | *** |
| | | <ul style="list-style-type: none"> Maintain business continuity even during an emergency* | *** |
| 7 | *Provide a work environment that focuses on respect for human rights and work-life balance, and promote HR training and diversity* | <ul style="list-style-type: none"> Fortify corporate governance throughout the group | ** |
| | | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people⁽¹²⁾ Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ** |
| 8 | *Contribute to environmental preservation by promoting energy and resource conservation, and measures to prevent global warming* | <ul style="list-style-type: none"> Fortify corporate governance throughout the group | ** |
| | | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people⁽¹²⁾ Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ** |
| 9 | *Improve environmental preservation technologies for water treatment* | <ul style="list-style-type: none"> Fortify corporate governance throughout the group | ** |
| | | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people⁽¹²⁾ Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ** |
| 10 | *Contribute to coexistence with the local society through communication with its residents* | <ul style="list-style-type: none"> Fortify corporate governance throughout the group | ** |
| | | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people⁽¹²⁾ Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ** |

⁽¹⁾ Loss of 10 million yen or more (number of incidents is for the Nippon Kayaku parent company)
⁽²⁾ Figure is for the Nippon Kayaku parent company only
⁽³⁾ Accidents due to which at least 3 people had to take off from work simultaneously or people died (number of incidents is for the Nippon Kayaku parent company only)

- > Results of FY 2018 CSR ACTION PLAN 
- > Results of FY 2017 CSR ACTION PLAN 
- > Results of FY 2016 CSR ACTION PLAN 

| KAYAKU Next Stage Mid-term CSR Action Plan 2019-2021 | | | | | | |
|--|--|------------------------------|--|--|--|--|
| | ESG | No | Important CSR Issues | Mid-term CSR Action Plan 2019-2021 | Key Indicators (KPI) | FY2021 Targets |
| Highest Priority Issues | S | 1 | Innovation through business | <ul style="list-style-type: none"> ● Business divisions will work as one team on pursuing R&D with an eye on exit to market, and create new products and businesses in core businesses and areas of synergy. ● Invest management resources in medium and long-term R&D themes while enhancing core technologies and meeting the future needs of society. | Amount invested in R&D over three years | (Consolidated) ¥40 billion over 3 years |
| | | 2 | Quality and customer safety | <ul style="list-style-type: none"> ● Make ongoing improvements to the quality management system and work to strengthen local management capabilities, and create a stronger quality management and quality assurance system. ● Pursue quality management, improve the level of production technology and expertise, and work to reduce flaws in the process. | Number of serious complaints by customers※1 | (Consolidated) 0 complaints |
| | | | | | Number of serious flaws in processes※1 | (Consolidated) 0 incidents |
| | 3 | Business partner assessment | <ul style="list-style-type: none"> ● Implement supply chain management that takes environmental and social aspects into consideration, based on the CSR Procurement Guidelines. | Number of times assessments of main business partners are performed | (Non-consolidated) 50 times/year | |
| | E | 4 | Energy use and greenhouse gases Wastewater and waste Efficient use of water resources Use of materials that contribute to resource conservation | <ul style="list-style-type: none"> ● Pursue activities to save energy and combat global warming. Achieve the environmental targets for FY2020 and formulate targets for FY2030. ● Work to integrate ISO 14001 company-wide and advance environmental management that addresses both the risks and opportunities of environmental problems. | Mid-term environmental targets <ul style="list-style-type: none"> • Amount of CO2 emitted from energy sources | FY2020 Target (Non-consolidated) 79,500 tons or less |
| | | | | | • VOC emissions volume | (Non-consolidated) 42 tons or less |
| | | | | | • COD emissions volume | (Non-consolidated) 150 tons or less |
| | | | | | • Volume of waste generated | (Non-consolidated) 23,500 tons or less |
| | | | | | • Recycling rate | (Non-consolidated) 80% or higher |
| | | | | | • Zero emissions rate | (Non-consolidated) 3% or lower |
| | | | | | Company-wide integration of ISO 14001 | Integration |
| | | | | | Formulation of 2030 environmental targets | Formulation |
| | G | 5 | Occupational health and safety in the workplace | <ul style="list-style-type: none"> ● Strictly follow basic rules on health and safety and improve equipment and work procedures to build a strong foundation for safe operations. ● Promote health management and provide a workplace environment that enables employees to work with enthusiasm and achieve work-life balance. | Number of serious accidents※2 | (Consolidated) 0 incidents |
| White 500 certification | | | | | (Non-consolidated) Maintain certification | |
| Percentage of employees taking paid leave | | | | | (Non-consolidated) 70% | |
| Percentage of employees who take mental health training | | | | | (Non-consolidated) 100%※3 | |
| Percentage of employees who undergo regular health check-ups | | (Non-consolidated) 100% | | | | |
| 6 | | 6 | Compliance | <ul style="list-style-type: none"> ● Exercise strict compliance, which is a basic principle upon which we conduct corporate activities, and operate the business in a fair manner. ● Establish a basic policy on preventing corruption, and maintain and strengthen an open and honest corporate culture with high ethical values. | Number of serious compliance violations※4 | (Consolidated) 0 incidents |
| | Formulation of a basic policy on preventing corruption | | | | Formulation | |
| Important Issues | S | 7 | Provision of appropriate information on products and services | <ul style="list-style-type: none"> ● Increase the presence of the Nippon Kayaku Group by complying with regulations in each business and providing appropriate information and technical services to customers. | Regularly conducting customer satisfaction surveys | (Non-consolidated) Implementation |
| | | 8 | Maintaining and expanding employment and development of human resources | <ul style="list-style-type: none"> ● Promote diversity and inclusion by hiring diverse human resources and effective human resource allocation and exchanges. ● Pass down and strengthen technical capabilities in monozukuri (manufacturing) and achieve globalization in human resources through ongoing human resource development. | Percentage of female managers | (Non-consolidated) 8%※5 |
| | | | | | Percentage of people with disabilities employed | (Non-consolidated) 2.3% |
| | Amount invested in education and training per employee | | | | (Non-consolidated) Note results only | |
| | G | 9 | Respect for human rights and assessment | <ul style="list-style-type: none"> ● Operate businesses in a manner that considers the human rights of employees and all people involved in the supply chain. | Number of training sessions held on human rights | (Non-consolidated) Once a year or more |
| | | | | | 10 | Local communities |
| | | 11 | Economic performance | <ul style="list-style-type: none"> ● Generate stable profits and return profits to society while reinvesting profits as management capital to achieve sustainable growth and enhance corporate value. | | |
| | | | | | ROE | (Consolidated) 8% |
| | G | 12 | Strengthening corporate governance | <ul style="list-style-type: none"> ● Strengthen corporate governance of the entire group and manage in a highly transparent and sound manner. | Number of times that the effectiveness of Board of Directors meetings is evaluated | (Non-consolidated) Once a year |
| | | | | | Number of times internal business audits are performed by the Audit Division | (Consolidated) 45 times over three years |
| 13 | | Ensuring business continuity | <ul style="list-style-type: none"> ● Ensure business continuity by responding to the many different risks associated with our businesses, maintaining the production structure, securing the appropriate materials, and strengthening disaster response measures. | Implementation rate for the top five risk control activities | (Consolidated) 100% | |
| | | | | Number of times BCP drills are conducted | (Consolidated) Once a year or more | |
| | | | | | | |

(E)Environment (S)Social (G)Governance
※1: Losses of 10 million yen or higher
※2: Accidents resulting in time off work for three or more people simultaneously or accidents resulting in death
※3: Cumulative amount over the three year period from 2018 to 2020
※4: Number of incidents deemed serious by the Ethics Committee or the Risk Management Committee
※5: Target for the end of FY2020
※6: Expenses for donations, Asunaro House activity expenses, plant festivals, and other local events

Nippon Kayaku Group CSR Action Plan 2018




★★★ Target achieved
 ★★☆ Almost achieved
 ★☆☆ Under-going efforts toward improvement
 ☆☆☆ Not achieved

| No | Mid-term CSR Action Plan 2016-2018 | CSR Action Plan 2018 Achievements | Assessment levels |
|----|--|--|-------------------|
| 1 | "Contribute to society by promoting innovations using our technological expertise, and by stably supplying high-quality pharmaceuticals coupled with truly reliable information" | <ul style="list-style-type: none"> Performed Phase II clinical trial of NK 105 Development of biosimilars progressed on schedule; launched Trastuzumab BS for gastric cancer indications; received additional approval for breast cancer treatment regimen A Received additional approval for our generic anti-cancer drug Temozolomide for use in recurrent and refractory Ewing's sarcoma; received approval for manufacture and sale of our generic anti-cancer drug, Gefitinib | ★★★ |
| | | <ul style="list-style-type: none"> Sales of new disk inflators and new cylinder inflators expanded smoothly, starting gearing up for global production to help keep more people safe Embarked on the development of new products for the future | ★★★ |
| | | <ul style="list-style-type: none"> Made headway on new directions in current corporate research initiatives, which we shared with the management team Promoted new efforts in corporate research that blends internal and external technologies and in research into cultivating the next generation Facilitated technology exchanges among the business divisions and the laboratories through the Company-wide Research Presentation Conference, technology exchange meetings, and the consolidation of in-house component technologies and shared technologies | ★★★ |
| 2 | "Contribute to public safety by globally supplying a wider range of automobile safety systems to improve automotive collision safety" | <ul style="list-style-type: none"> Strengthened intellectual property management systems at overseas Group companies Used patent evaluation metrics to analyze our Company's and other companies' patents and then used them in our R&D | ★★☆ |
| | | <ul style="list-style-type: none"> In the Functional Materials Business, promoted the expansion of epoxy resins for semiconductors and electronic devices and the development of new resins In the Color Materials Business, expanded inkjet printer colorants for use in industrial printing In the Catalysts Business, expanded catalysts used in production of acrylic acid and metacrylic acid, which help to save energy and resources | ★★★ |
| | | <ul style="list-style-type: none"> Launched our new insecticide, FINESAVE, in June 2018, and then expanded its applications to 4 crops and 3 pests and promoted its sales Expanded the applications of our existing insecticide, Leafguard, to 4 crops and 2 pests and our spreading agents, Fumon and Widecoat, to 3 crop groups and 1 crop | ★★★ |
| 3 | "Contribute to society, safeguard the life and health of the public, and support a comfortable life by executing R&D investments to consistently deliver the best products" | <ul style="list-style-type: none"> Aimed for close communication and information sharing with suppliers and promoted multiple purchasing channels for procurement stability Zeroed in on procurement risk and quality issues for some raw materials and parts resulting from changes in the external environment | ★★☆ |
| | | <ul style="list-style-type: none"> Serious customer complaints: None^{※1} (vs. 1 in the prior year) Serious quality process failures: None^{※1} (vs. 1 in the prior year), did not reach target for the number of small and medium-sized quality process failures Held risk management training for managers and practitioners, and produced the English version of the "Why Why" Analysis Manual | ★★☆ |
| | | <ul style="list-style-type: none"> Set up a Quality Assurance Division within the Functional Chemicals Group to foster a strong quality assurance system Promoted a stronger global quality assurance system in the Safety Systems Group, and taking initiatives to resolve issues at our overseas sites | ★★☆ |
| 4 | "Contribute to the creation of an "Super Smart Society" by providing functional chemical materials that offer special characteristics for the fields of information and communication, and energy and resource conservation" | <ul style="list-style-type: none"> Achieved all mid-term environmental targets for fiscal 2020 except the zero emission rate; expect to achieve all of these targets by the end of fiscal 2020 | ★★★ |
| | | <ul style="list-style-type: none"> Completed the companywide project aimed at improving waste water treatment technology, and as a follow-up, working with each business site working toward optimizing waste water treatment facility operating and maintenance management and operating conditions | ★★★ |
| | | <ul style="list-style-type: none"> Continued conducting various initiatives to communicate with the local residents at our business sites As part of educational CSR, made outreach classes to local primary schools and participated in the experience-based classroom, Summer Children's Science Experiment Show 2018 Supported the table tennis T League as part of our initiatives promoting health through sports | ★★★ |
| 5 | "Contribute to stable agricultural production by offering agrochemicals that suit the needs of the market environment and our customers" | <ul style="list-style-type: none"> Released an integrated report with fuller financial and nonfinancial information Engaged in ongoing dialogs with institutional investors | ★★★ |
| | | <ul style="list-style-type: none"> Ratio of female managers: 7.7%^{※2} (+0.7 pts vs. the prior year) To foster global human resources, implemented overseas language school programs and rotations to the head office for local staff overseas Held educational training sessions on diversity (sexual harassment, power harassment, LGBT issues, etc.) through e-Learning | ★★★ |
| | | <ul style="list-style-type: none"> Number of men taking childcare leave: 13^{※2} (+9 vs. the prior year); held headquarters visits for employees' children Ratio of paid leave days taken: 61.1%^{※2} (+1.9 pts vs. the prior year) Average monthly hours of overtime: 13.3 hours^{※2} (+0.5 hours vs. the prior year) | ★★☆ |
| 6 | "Promote the additional improvement of customer satisfaction of product quality" | <ul style="list-style-type: none"> Met with the labor union for a working hour advisory committee to consider measures for dealing with performance management and issues at each business site Set up a new workstyle advisory committee with the labor union | ★★★ |
| | | <ul style="list-style-type: none"> Received recognition under the Certified Health & Productivity Management Outstanding Organizations Recognition Program (White 500), which is a health management indicator Promoted companywide health events and other specific activities for health and productivity management as part of our Responsible Care (RC) Policy | ★★★ |
| | | <ul style="list-style-type: none"> Serious accidents and injuries: None^{※3} (vs. 1 in the prior year) Lost worktime accidents: 3^{※2} (vs. 9 in the prior year) Designed and started using the RC progress checklist to enable common diagnostics of all business sites. Also, formulated an RC Policy based on the contents of the RC progress checklist in all business sites Started using a chemical substance risk assessment database and a job history database | ★★☆ |
| 7 | "Contribute to environmental preservation by promoting energy and resource conservation, and measures to prevent global warming" | <ul style="list-style-type: none"> Achieved sales of 172.6 billion yen and operating income of 19.9 billion yen; continued to return profits to shareholders via dividends Prepared for future growth by investing 16.0 billion yen in capital expenditures and 12.5 billion yen in R&D | ★★★ |
| | | <ul style="list-style-type: none"> Conducted a review of the BCP manuals for the head office, each business division, and all group companies in China Held BCP training at the Central Headquarters for Disaster Countermeasures and the Asa Plant | ★★★ |
| | | <ul style="list-style-type: none"> CSR training taken in Japan by 12,138 people^{※2} through 5 sessions of e-Learning training and by 409 people through 13 sessions of group training Compliance training taken in Japan by 2,416 people^{※2} in e-Learning training, by 669 people in group training, and by 269 people in DVD training, for a total of 3,353 people, and overseas by 720 people in group training | ★★★ |
| 8 | "Improve environmental preservation technologies for water treatment" | <ul style="list-style-type: none"> In response to the EU's General Data Protection Regulation, entered into an agreement on the vtransfer of personal data among Group companies in Europe | ★★★ |
| | | <ul style="list-style-type: none"> Gathered data for the Board of Directors effectiveness assessment survey and changed how the Board operates with respect to three areas needing improvement; formulated an action plan for the fiscal 2019 Board of Directors Carried out companywide assessments of 9 of our companies with respect to their internal control and reporting systems (J-SOX); no problems detected | ★★★ |
| | | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people^{※2} Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ★★☆ |
| 9 | "Contribute to coexistence with the local society through communication with its residents" | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people^{※2} Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ★★☆ |
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| 12 | "Provide a work environment that focuses on respect for human rights and work-life balance, and promote HR training and diversity" | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people^{※2} Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ★★☆ |
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| 13 | "Maintain a safe and secure work environment that is free of accidents and work-related disasters" | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people^{※2} Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ★★☆ |
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| 14 | "Secure stable earnings as a corporate group with growth potential" | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people^{※2} Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ★★☆ |
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| 15 | "Maintain business continuity even during an emergency" | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people^{※2} Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ★★☆ |
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| 16 | "Instill CSR management throughout the group and continue to fully implement compliance" | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people^{※2} Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ★★☆ |
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| 17 | "Fortify corporate governance throughout the group" | <ul style="list-style-type: none"> Information security training received through monthly e-Learning training by 24,224 people^{※2} Improved the level of security literacy through employee self-testing Set up an internal website to communicate information about information security within the Group | ★★☆ |
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※1 : Loss of 10 million yen or more (number of incidents is for the Nippon Kayaku parent company)
 ※2 : Figures are for the Nippon Kayaku parent company only
 ※3 : Accidents due to which at least 3 people had to take off from work simultaneously or people died (number of incidents is for the Nippon Kayaku parent company only)

CSR Action Plan 2017 Achievements

★★★ Target achieved
 ★★☆☆ Almost achieved
 ★☆☆☆ Under-going efforts toward improvement
 ☆☆☆☆ Not achieved

| No | Mid-term CSR Action Plan 2016–2018 | CSR Action Plan FY 2017 Achievements | Assessment levels |
|--|------------------------------------|--|-------------------|
|  Safeguarding life and health | 1 | <ul style="list-style-type: none"> Contribute to society by promoting innovations using our technological expertise, and by stably supplying high-quality pharmaceuticals coupled with truly reliable information Commenced clinical trial for NK105, a polymeric micelle anti-cancer drug Brought to market Temozolomide NK tablets, a generic anti-cancer drug Obtained marketing approval for Trastuzumab BS NK, a monoclonal antibody biosimilar for cancer fields | ★★★ |
| | 2 | <ul style="list-style-type: none"> Contribute to public safety by globally supplying a wider range of automobile safety systems to improve automotive collision safety Completed capacity increases and production system expansion for existing products at our business sites in Japan and overseas as planned and provided a stable supply of products under a global quality assurance system Completed the construction of a production/sales system for new products as planned | ★★☆ |
| | 3 | <ul style="list-style-type: none"> Contribute to society, safeguard the life and health of the public, and support a comfortable life by executing R&D investments to consistently deliver the best products Newly established one corporate research theme seeking technological integration Held initiatives for creating opportunities for mutual understanding and integration of technologies, including a company-wide research presentation meeting, meeting of research laboratory heads, and exchange meeting for analytical evaluation technologies Newly established two joint research projects with research institutions inside and outside Japan | ★★★ |
|  Supporting a comfortable life | 4 | <ul style="list-style-type: none"> Contribute to the creation of an “Super Smart Society” by providing functional chemical materials that offer special characteristics for the fields of information and communication, and energy and resource conservation*1 Reinforced management system of intellectual properties at overseas Group companies Promoted utilization of intellectual properties through analysis of our own patents and those of other companies | ★★★ |
| | 5 | <ul style="list-style-type: none"> Contribute to stable agricultural production by offering agrochemicals that suit the needs of the market environment and our customers Provided dry film photoresist for digital devices in the ICT field Developed and provided pigments for inkjet printers in the industrial printing field | ★★★ |
| | 6 | <ul style="list-style-type: none"> Contribute to stable agricultural production by offering agrochemicals that suit the needs of the market environment and our customers Completed agrochemical registration of new insecticide FINESAVE® Expanded indications of existing insecticides to 13 crops + 1 crop family and 19 pests & diseases | ★★★ |
|  Contributing to the development of a sustainable society and environment | 7 | <ul style="list-style-type: none"> Promote supply chain management Ensured stable procurement by seeking to mitigate procurement risk by gathering information through communications with suppliers and by diversifying our supplier base | ★☆☆ |
| | 8 | <ul style="list-style-type: none"> Promote the additional improvement of customer satisfaction of product quality One serious customer complaint (loss valued at more than 10 million yen)*1 Revamped the customer complaint database and quality process failure database and rolled out preventive measures following “Why Why” analysis Continued to strengthen the global quality assurance system and created a new education center to enhance safety and technical training for employees | ★☆☆ |
| | 9 | <ul style="list-style-type: none"> Contribute to environmental preservation by promoting energy and resource conservation, and measures to prevent global warming Conducted initiatives for the environment at each business division under the Responsible Care Policy and the forecast indicates targets for 2020 will be achieved Energy consumption per unit: achieved target by reducing 2.7%*1 compared to last year | ★★★ |
| | 10 | <ul style="list-style-type: none"> Improve environmental preservation technologies for water treatment Implemented company-wide project aimed at enhancing wastewater treatment technologies and established core technology | ★★★ |
| | 11 | <ul style="list-style-type: none"> Contribute to coexistence with the local society through communication with its residents Continued various forms of engagement with local residents around plants Held outreach classes at local elementary schools as part of educational CSR and participated in the event-based Children’s Science Experiment Show 2017 Carried out Pink Ribbon Campaign activities throughout Japan and raised awareness about early detection and early treatment of breast cancer among around 20,000 people | ★★★ |
|  Represent the embodiment of a good and strong company | 12 | <ul style="list-style-type: none"> Carry out dialogue with stakeholders by providing appropriate information in a timely manner Disclosed financial and non-financial information in a timely and appropriate manner Continued ongoing engagement with institutional investors Carried out impact assessment in the project to review the adoption of IFRS | ★★★ |
| | 13 | <ul style="list-style-type: none"> Provide a work environment that focuses on respect for human rights and work-life balance, and promote HR training and diversity Promotion of the active role of women: percentage of women in management was 7.0%*1 (0.3 percentage points higher than last year) Carried out HR training including rank-based training and skills training at each plant and business division Carried out training for employees prior to being posted overseas, language learning support and interchange with personnel of overseas Group companies to foster globally-minded human resources Held manager training as part of measures to develop the next generation Held a meeting of the working hours committee with the labor union, promoted no overtime days, and introduced the anniversary paid leave system to encourage employees to take paid leave Reinforced operations of the dedicated hotline and countermeasures committee following revisions to company rules related to harassment prevention and responses Held group training and e-learning program (for all employees) on harassment | ★★☆ |
| | 14 | <ul style="list-style-type: none"> Maintain a safe and secure work environment that is free of accidents and work-related disasters Continued to carry out stress check-ups and conducted group counseling for high stress workplaces One electrical system work accident*1 Continued to hold fire drills and safety audits at each workplace and Group company and commenced workplace patrol activities (fixed-point observations) for identifying unsafe actions Carried out environmental and safety diagnoses at Group companies in China and held committee meeting involving persons in charge of environment and security | ★★☆ |
| | 15 | <ul style="list-style-type: none"> Secure stable earnings as a corporate group with growth potential Achieved higher profit on higher revenue in terms of both net sales and operating income Established ROIC as a management indicator to improve capital efficiency and promoted cost reductions at plants and the sale of idle assets | ★★★ |
| | 16 | <ul style="list-style-type: none"> Maintain business continuity even during an emergency BCP training was held for the Pharmaceuticals Group in fiscal 2017 Continued to review BCP manuals focused on the frontlines | ★★★ |
| | 17 | <ul style="list-style-type: none"> Instill CSR management throughout the group and continue to fully implement compliance CSR training: Implemented group training for 315 employees, including 189 employees in five Group companies Compliance training: In Japan, implemented e-learning for 1,973 employees, group training for 825 employees, and DVD training for 778 employees, and in China, implemented group training for 380 employees Complied promptly with revisions to laws in each country/region, and took steps to comply with the EU General Data Protection Regulation (GDPR) | ★★★ |
| | 18 | <ul style="list-style-type: none"> Fortify corporate governance throughout the group Conducted questionnaire of Directors and Audit & Supervisory Board Members about the effectiveness of the Board of Directors Exchanged views between the Internal Audit Department and Audit & Supervisory Board Members, held meetings between the Internal Audit Department and audit corporation, and strengthened collaboration of three-pronged audits Continued to implement information security training and information security self checks involving all employees | ★★☆ |

*1: Figures for Nippon Kayaku on a non-consolidated basis

CSR Action Plan 2016 Achievements

★★★ Target achieved
 ★★☆☆ Almost achieved
 ★☆☆ Under-going efforts toward improvement
 ☆☆☆ Not achieved

| No | Mid-term CSR Action Plan 2016–2018 | CSR Action Plan 2016 | CSR Action Plan 2016 Achievements | Assessment levels | |
|---|--|--|---|--|-----|
| Safeguarding life and health | 1 | Contribute to society by promoting innovations using our technological expertise, and by stably supplying high-quality pharmaceuticals coupled with truly reliable information | Proceed with development of polymeric micelle anti-cancer drugs | Results from joint international trials of NK105 in patients with breast cancer did not meet the prespecified statistical criteria of the primary endpoint, and planning for future clinical trials is underway | ★☆☆ |
| | | Develop and launch generic anti-cancer drugs without delay and supply monoclonal antibody biosimilar treatments | Brought three generic drugs to market and proceeded with development of biosimilars favorably | ★★★ | |
| | 2 | Contribute to public safety by globally supplying a wider range of automobile safety systems to improve automotive collision safety | Governed by safe operations, increase our Japanese and overseas production capacity as scheduled, and deliver high-quality products to global markets | Implemented the strengthening and expansion of production systems at our Japanese and overseas bases as scheduled, and supplied a wider range of automobile safety components globally | ★★★ |
| Implement next-generation designs, production, and sales that suit growing needs in global markets as planned | | | Focused on products capable of handling quality requirements for global markets, and carried out development of new-generation designs | ★★★ | |
| Supporting a comfortable life | 3 | Contribute to society, safeguard the life and health of the public, and support a comfortable life by executing R&D investments to consistently deliver the best products | Create new products and businesses by implementing R&D investments, coordinating and integrating group intellectual assets and technologies, and promoting open innovations with parties outside the company | <ul style="list-style-type: none"> Promoted joint research with the Group's internal and external research institutes Launched three new corporate research projects in collaboration with each of the research laboratories Held a company-wide research presentation meeting and an exchange meeting for analytical evaluation technologies, and implemented initiatives to promote the integration of intellectual property and technologies | ★☆☆ |
| | | | Create, protect, and use intellectual assets and establish a global management system | Established a global management system of intellectual property for our Chinese Group companies | ★★★ |
| | 4 | Contribute to the creation of an "Super Smart Society" by providing functional chemical materials that offer special characteristics for the fields of information and communication, and energy and resource conservation*1 | Promote business development of epoxy resins and industrial-use inkjet colorants that contribute to reducing environmental impact and energy usage, and develop and launch high-performance catalysts used to manufacture acrylic acid | <ul style="list-style-type: none"> Promoted business development of environmentally-friendly epoxy resins and industrial-use inkjet colorants Development is earnestly underway for high-performance catalysts used to manufacture acrylic acid | ★★★ |
| 5 | Contribute to stable agricultural production by offering agrochemicals that suit the needs of the market environment and our customers | Gear up for launch of new insecticides, develop a unique formulation using formulation technologies, and expand applications for existing products | Promoted registration procedures for new insecticides, and implemented information sessions on the safe use of agrochemicals in each representative's area | ★★★ | |
| Contributing to the development of a sustainable society and environment | 6 | Promote supply chain management | Maintain a stable supply chain and alleviate procurement risks through the promotion of CSR procurement, while promoting improved quality and proper purchasing | <ul style="list-style-type: none"> Grasped procurement risks and maintained a stable supply chain by actively communicating with suppliers through audits and investigations Developed familiarization activities for suppliers in relation to CSR procurement | ★★★ |
| | 7 | Promote the additional improvement of customer satisfaction of product quality | Continue to implement activities to maintain our record of zero serious customer complaints (5-Whys analysis, cross-organizational sharing of case studies, preventing human error, etc.) | Serious customer complaints: Zero cases ² Continued to implement quality assurance activities for making the workplace stronger through the Nippon Kayaku "Why Why" Analysis and quality engineering training | ★★☆ |
| | | | Strengthen global quality assurance system in the safety systems business | Established the Quality Assurance Division, and strengthened global systems | ★★☆ |
| | 8 | Contribute to environmental preservation by promoting energy and resource conservation, and measures to prevent global warming | Promote initiatives for achieving our FY2020 mid-term environmental targets | Reviewed FY 2020 mid-term environmental targets based on the achievements of FY 2015, and started initiatives towards stricter targets | ★★☆ |
| | | | Promote initiatives to reduce our energy consumption per unit by more than 1% each year | Promoted the update of energy-conserving equipment and review of energy consumption methods, and implemented energy conservation inspections | ★★☆ |
| | 9 | Improve environmental preservation technologies for water treatment | Review existing wastewater treatment technologies, including those at group companies, and seek out new treatment technologies | Planned a project to implement a review of existing wastewater treatment technologies and seek out new treatment technologies, and activities are underway towards future results | ★★☆ |
| 10 | Contribute to coexistence with the local society through communication with its residents | Continue to hold events, such as plant festivals, local community socials, local cleanup activities, Pink Ribbon Campaign, and interactive events for children at each of our locations and operate Asunaro house | <ul style="list-style-type: none"> Pink Ribbon Campaign: Implemented activities at each business site, including overseas Group companies, in October Interactive events for children (educational CSR): Offered chemistry experiment shows at each business site and event Plant festivals, local community socials, etc.: Implemented according to plan Asunaro House: used by over 104 families (51% occupancy rate) | ★★★ | |
| Represent the embodiment of a good and strong company | 11 | Carry out dialogue with stakeholders by providing appropriate information in a timely manner | Increase both disclosure of non-financial information for stakeholders, and dialogue with shareholders and investors, to promote mutual understanding | Improved optional items in business reports, and explained the corporate value creation process and improved non-financial information in the annual report. | ★★☆ |
| | | | Timely and appropriate disclosure of financial information and preparations to introduce IFRS | Continued to implement activities for the project to review the adoption of IFRS. | ★★☆ |
| | 12 | Provide a work environment that focuses on respect for human rights and work-life balance, and promote HR training and diversity | Foster an environment conducive for diverse human resources to play an active role, and implement HR training (conform with the law to promote the active role of women in the workplace, global HR training, training to pass on and develop manufacturing technologies, etc.) | <ul style="list-style-type: none"> Created an action plan for initiatives to promote the active role of women in the workplace, and announced the action plan and targets inside and outside the Company Continued to implement training to pass on and develop manufacturing technologies at each business site and Group company (Female manager employment rate: 6.7%², Achieved the legally mandated 2.1% employment for workers with disabilities²) | ★★☆ |
| | | | Promote initiatives conducted in accordance with the Act on Advancement of Measures to Support Raising Next-Generation Children (support for child-rearing and nursing care, encourage men to participate in child raising, reduction of overtime, improvement of the paid leave acquisition rate, etc.) | <ul style="list-style-type: none"> Implemented various initiatives towards Platinum Kurumin certification, and plan to lodge an application on our achievements at the end of the fiscal year Changed the system of leave for child-rearing and nursing care to make half-day increments also available | ★★☆ |
| | 13 | Maintain a safe and secure work environment that is free of accidents and work-related disasters | Promote health management that takes into account employee occupational safety and health (continuing mental health training, implementing stress check-ups, developing data health plans, etc.) | <ul style="list-style-type: none"> Mental health training and health check-ups both achieved a 100% participation rate² Implemented stress check-ups, and responded to employees with high-levels of stress | ★★★ |
| | | | Continue to conduct activities for preventing accidents and disasters in advance (fire drills, safety inspections, plant inspections by managers, employee training, etc.) | <ul style="list-style-type: none"> Incidence of major accidents: Zero cases² Implemented activities to internally instill risk assessments focused on strengthening chemical substance management | ★★★ |
| | | | Carry out health and safety activities at group companies in accordance with the Nippon Kayaku Group FY 2016 Responsible Care Policy | <ul style="list-style-type: none"> Familiarized each Group company with the companywide Responsible Care Policy and targets together with confirming the status of these initiatives with environmental health and safety diagnostics Continued to implement health and safety activities at each Group company (various types of safety training, KYT, near-miss training, etc.) | ★★☆ |
| | 14 | Secure stable earnings as a corporate group with growth potential | Optimally allocate management resources, improve capital efficiency, and carry out business operations that focus on earnings improvement | <ul style="list-style-type: none"> Did not achieve our net sales plan, but achieved our plan for operating income nevertheless through promotion of cost reductions Ensured appropriate inventory management to focus on capital efficiency, and promoted the sale of idle assets | ★★★ |
| | 15 | Maintain business continuity even during an emergency | Implement training adapted for the field and review the BCP manual | <ul style="list-style-type: none"> Implemented BCP training for hypothetical typhoon damage for the Catalysts Division and Asa Plant Created BCP manuals for two Chinese Group companies | ★★★ |
| | 16 | Instill CSR management throughout the group and continue to fully implement compliance | Continue to implement CSR and compliance training, which includes training for employees at group companies | <ul style="list-style-type: none"> CSR training: Implemented 12 times for 260 employees, including 73 employees in seven Group companies Compliance training: Implemented group training in Japan in 33 times for 2,023 employees, DVD training for 1,422 employees, and for 506 employees in management roles in six overseas Group companies | ★★★ |
| Comply with local laws in each country/region, and quickly and properly address legal revisions | | | Executed business operations that complied with the laws in each country/region for the entire group, including laws related to chemical substances | ★★☆ | |
| 17 | Fortify corporate governance throughout the group | Promote measures in accordance with the revised Companies Act and the Corporate Governance Code | Established opportunities for exchanging opinions with persons responsible for each business and advance briefings of agenda items for the Board of Directors for Outside Directors | ★★☆ | |
| | | Continue to implement and strengthen systems of internal control and risk management (Top 5 risk control activities), as well as follow-up and improve on the effectiveness of internal audits | <ul style="list-style-type: none"> Evaluated the operating conditions of important meeting bodies, and confirmed that governance was functioning Implemented internal audits as planned, and carried out follow-up investigations on three Group companies | ★★★ | |
| | | Establish an information security system to strengthen corporate information management | <ul style="list-style-type: none"> Continued to implement information security training for employees in addition to new career hires Development is underway towards the implementation of the information security policy next fiscal year | ★★☆ | |

*1: Partial change in wording from April 2017 *2: Nippon Kayaku non-consolidated basis figures



Corporate Governance

The Nippon Kayaku Group Corporate Governance and Internal Control System

Fundamental Approach to Corporate Governance

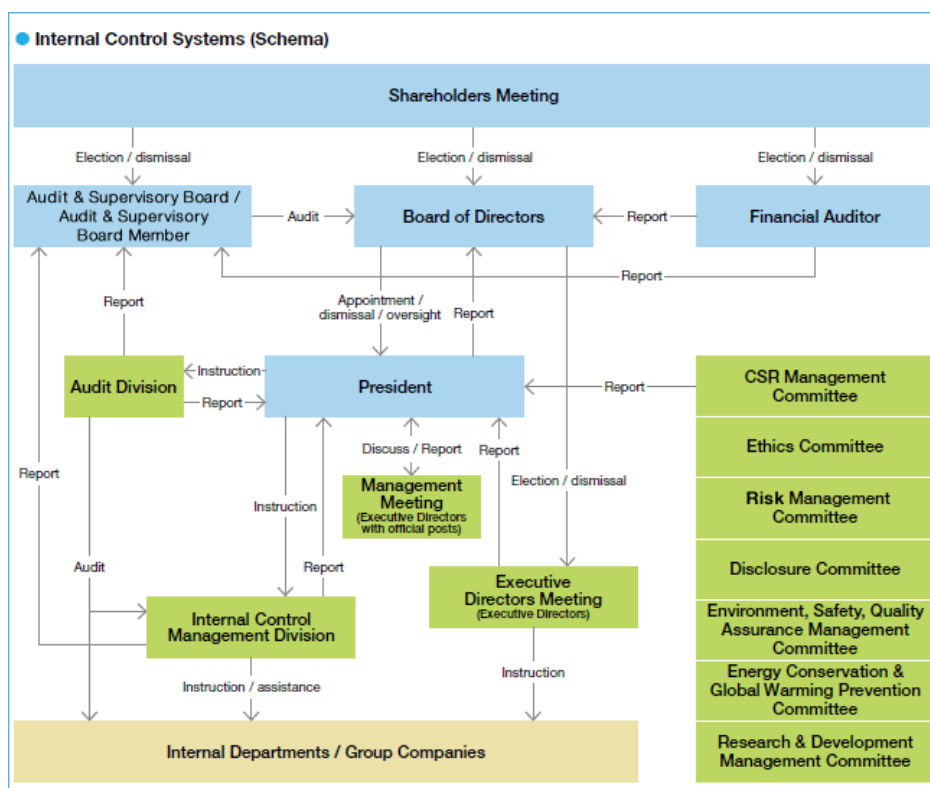
The Nippon Kayaku Group recognizes the vital importance of preserving business transparency through greater checks and balances, and of timely, impartial information disclosure to investors and shareholders to gain the trust of society. To that end, we have put in place an autonomous corporate governance system.

Corporate Governance System

Through decision-making by the council system of our Board of Directors and the corporate auditor system, the Nippon Kayaku Group believes that its system of corporate governance effectively supports management functions.

We have introduced the executive director system, which clearly separates management's decision-making and supervisory functions from business execution functions, enabling each of these functions to be reinforced, and ensuring that appropriate decision making and punctual business execution take place. In addition, we have also elected independent Outside Directors in order to enhance the supervisory functions over those executing daily operations. Audit & Supervisory Board Members attend various important internal meetings, including meetings of the Board of Directors, and communicate with the Internal Audit Department in monitoring and supervising the execution of duties of the Directors from an independent perspective.

[> Summary of Internal Control Systems](#) 



Internal Control System and Corporate Auditor Audits

The Internal Audit Department has been established separate from the Audit & Supervisory Board and is directly managed by the president in order to perform internal audit that help prevent improprieties and errors before they happen, improve business operations, and protect company assets. This department performs business audit on all Nippon Kayaku Group companies in accordance with the fiscal year plan.

Audit & Supervisory Board Members attend board of director meetings and other important company deliberations, and performs business execution audits to oversee and monitor directors' execution of duties from an independent perspective, in accordance with the audit policy, audit plan, and assignment of duties decided by the Audit & Supervisory Board.

[> Corporate Governance](#)

Initiatives to prevent corruption and anti-competitive behavior

The Nippon Kayaku Group established the Nippon Kayaku Group Charter of Conduct and Code of Conduct^{※1} in 2011 to define the scope of conduct that should be observed and practiced by the Company's executives and employees in carrying out business activities. Chapter 1 of the Code of Conduct sets forth detailed standards of conduct for business operation. Also, to have CSR procurement practices that aim for mutually sustainable development with our business partners, in addition to observing laws and social norms, we have drawn up detailed guidelines with respect to compliance, human rights, labor, health and safety, and other areas, and we are sponsoring study sessions and briefings on these guidelines. We have also created the Nippon Kayaku Code of Practice in response to the JPMA Code of Practice^{※2} (hereinafter, JPMA Code) created by the Japan Pharmaceutical Manufacturers Association, which went into effect on April 1, 2013, and builds on its previous Promotion Code for Prescription Drugs. Not only our Pharmaceutical Group, but all of Nippon Kayaku's executives and employees (including those of our domestic subsidiaries) strive to be trusted by society, and are mindful that our stakeholders always desire high ethical standards and transparency in our activities.

※1 The Nippon Kayaku Group Charter of Conduct and Code of Conduct were established in 2000, and have been in effect at all of our Group companies since 2011.

※2 The JPMA Code of Practice is the Japan Pharmaceutical Manufacturers Association's Code of Practice.

Summary of each Meeting

Board of Directors Meeting (Held Monthly)

To ensure prompt decision-making, the Board is limited to 10 members. Decisions related to important business matters are made through the stipulations of the Board of Directors in conformity with relevant laws and our articles of incorporation. Operational oversight functions also are being strengthened.

Management Meeting (Held Weekly)

The Management Meeting deliberates important matters related to management and business affairs and receives reports from business divisions. The President, as the chairman, makes decisions after thorough deliberation among the Management Meeting members.

Executive Directors Meeting(Held Quarterly)

The Executive Directors Meeting is chaired by the President, and attended by all Executive Directors (up to 25) appointed by the Board of Directors. Executive Directors report on the status of the businesses they have been entrusted with from the Board of Directors and the President as well as other necessary matters.

Management Strategy Meeting(Held Semi-Annually)

Important management matters at the Board Meeting such as basic policy of our group and management strategy are distributed to management personnel through the Management Strategy Meeting to ensure thorough understanding and awareness.

Board of Auditors Meeting(Held Monthly)

The Board of Auditors consists of five auditors (three external). The members monitor and oversee the duties of Directors from an independent position based on the stipulations of the Board of Auditors..

In addition, the Company clarifies authority and responsibility by management position, segregation of duties and company organization structure, setting rules that stipulate duties and powers. This promotes organized and efficient operations and establishes a framework of accountability.

Establishment of Various Committees

CSR Management Committee

Decides CSR action policy and mid-term action plan as well as confirms the validity of the measures based on KAYAKU spirit and CSR philosophy to undertake corporate social responsibility sustainably.

Ethics Committee

Works to formulate policies and measures for compliance and implementation of the Charter of Business Conduct and Code of Business Conduct and to evaluate companywide compliance.

Risk Management Committee

Develops and maintains a risk management structure for risk preventive measure, damage control and damage remediation over the full range of management issues.

Disclosure Committee

Scrutinizing important managerial information of the company and maintains and improves the structure for timely and proper external disclosure.

Environment, Safety, and Quality Assurance Management Committee

Presents its fiscal year policies on environment, safety, and quality assurance matters. Assesses results, and devises plans for improvement.

Energy Conservation and Global Warming Prevention Committee

Makes mid- and long-term plans, confirms each activity and discusses measures to problems based on the policy about energy conservation and global warming prevention.

These results are disclosed to inside and outside the company.

Research & Development Management Committee

Develops company-wide research and development policies and strategies. A forum to report, discuss and make decisions on important research and development matters.



Compliance

The Nippon Kayaku Group widely recognizes compliance as not only adhering to laws and ordinances, but also upholding social norms and responding to the needs of society.

Nippon Kayaku Group Charter of Conduct and Code of Conduct

With the recognition that compliance holds a position of the utmost importance in its business activities, the Nippon Kayaku Group, established the Nippon Kayaku Action Charter and Nippon Kayaku Action Standards in 2000. Later, in 2011, this was amended to the [Nippon Kayaku Group Charter of Conduct and Code of Conduct](#), which follows ISO 26000, the international standard for effectively assessing and addressing social responsibilities.

The Nippon Kayaku Group Charter of Conduct

Business operation

1. The Nippon Kayaku Group will pay careful attention to the safety and reliability of its products and services, and provide customers with products and services satisfying their needs.
2. The Nippon Kayaku Group will comply with the words and spirit of relevant laws and regulations, as well as with its internal rules, to conduct fair, transparent and open competition.
3. In conducting overseas business operations, the Nippon Kayaku Group will comply with relevant laws and regulations in Japan and abroad, and respect the culture and customs of each country and region.
4. The Nippon Kayaku Group will appropriately manage and utilize the company assets and seek to improve the efficiency of business operations, so as to achieve a continuous growth.
5. The Nippon Kayaku Group will deal firmly with anti-social forces, and will not yield to unjustified or illegal requests.

Relationship with society

6. The Nippon Kayaku Group will promote coordination and cooperation with society and contribute to the society as a good corporate citizen.
7. The Nippon Kayaku Group will disclose information concerning on its business operations to customers, local society, employees and business partners, based on objective facts, in an adequate and timely manner.
8. The Nippon Kayaku Group will always give consideration to the impact of its business on the global environment. The Group will aim to achieve environmentally friendly business operation, by not only by compliance with relevant laws and regulations, but also by establishing voluntary standards.

Management of business information

9. The Nippon Kayaku Group will adequately protect any information obtained through its business operations and develop countermeasures safe-guarding against information leakages and unauthorized external and internal access.
10. The Nippon Kayaku Group will acknowledge the proprietary nature of information (Intellectual Property) and respect the rights of others.

Relationship between the company and individuals

- The Nippon Kayaku Group will comply with labor laws and regulations to ensure a safe and comfortable working environment, and will also respect the fundamental human rights and privacy of the individuals.

Relationship between the Code of Conduct and ISO 26000

Relationship between the Code of Conduct and ISO 26000

| Nippon Kayaku Group Charter of Conduct | Nippon Kayaku Group Code of Conduct | ISO26000 Core Subjects and Related Issues | | | | | |
|--|---|--|------------------|-----------------|-----------------|-----------------|---------------------------------------|
| | | Human Rights | Labour Practices | The Environment | Anti-Corruption | Consumer Issues | Community Involvement and Development |
| Business operation | | Code of Conduct on business operations | | | | | |
| 1. The Nippon Kayaku Group will pay careful attention to the safety and reliability of its products and services, and provide customers with products and services satisfying their needs. | 1. Product safety and quality | | | | | | ● |
| 2. The Nippon Kayaku Group will comply with the words and spirit of relevant laws and regulations, as well as with its internal rules, to conduct fair, transparent and open competition. | 2. Provision of product information | | | | | | ● |
| | 3. Fair and impartial trade | | | | | | ● |
| | 4. Prohibition of excessive gifts and entertainment | | | | | | ● |
| | 5. Priority on ethics | ● | ● | ● | ● | ● | ● |
| 3. In conducting business operations, the Nippon Kayaku Group will comply with relevant laws and regulations in Japan and abroad and respect the culture and customs of each country and region. | 6. Prohibition of pursuit of individual benefits | | | | | | ● |
| 4. The Nippon Kayaku Group will appropriately manage and utilize the company assets and seek to improve the efficiency of business operations, so as to achieve a continuous growth. | 7. Compliance with local laws and regulations and respect for international norms, cultures and customs | ● | ● | ● | ● | ● | ● |
| 5. The Nippon Kayaku Group will deal fairly with anti-trust laws, and will not seek to monopolize or engage in illegal practices. | 8. Adequate protection and efficient utilization of corporate assets | | | | | | ● |
| | 9. Active efforts for operational improvement | ● | ● | ● | ● | ● | ● |
| | 10. Exclusion of anti-social forces, criminal and/or other illegitimate sources | | | | | | ● |
| Relationship with the society | | Code of Conduct on the relationship with society | | | | | |
| 6. The Nippon Kayaku Group will promote coordination and cooperation with society and contribute to the society as a good corporate citizen. | 11. Social action programs | | | | | | ● |
| 7. The Nippon Kayaku Group will disclose information concerning its business operations to customers, local society, employees and business partners, based on objective facts, in an adequate and timely manner. | 12. Exchange with local societies | | | | | | ● |
| 8. The Nippon Kayaku Group will always give consideration to the impact of its business on the global environment. The Group will aim to achieve environmentally friendly business operations, by not only by compliance with relevant laws and regulations, but also by establishing voluntary standards. | 13. Adequate and timely disclosure of information | | | ● | ● | ● | ● |
| | 14. Thorough crisis management | ● | ● | ● | ● | ● | ● |
| | 15. Prohibition of insider trading | | | | | | ● |
| | 16. Environmental C | | | ● | | | ● |
| | 17. Environmental protection efforts/existence | | | ● | | | ● |
| Management of business information | | Code of Conduct for the management of business information | | | | | |
| 9. The Nippon Kayaku Group will adequately protect any information obtained through its business operations and develop countermeasures safeguarding against information leakage and unauthorized external and internal access. | 18. Protection of business information | | | | | | ● |
| 10. The Nippon Kayaku Group will acknowledge the proprietary nature of information (including patents) and respect the rights of others. | 19. Protection of personal information | ● | | | | | ● |
| | 20. Appropriate use of information system | | | | | | ● |
| | 21. Respect for the rights of other people | | | | | | ● |
| Relationships between the company and individuals | | Code of Conduct on the relationship between the company and individuals | | | | | |
| 11. The Nippon Kayaku Group will comply with labor laws and regulations to ensure a safe and comfortable working environment, and will also respect the fundamental human rights and privacy of the individuals. | 22. Maintenance of the working environment | ● | ● | | | | ● |
| | 23. Prohibition of harassment and abuse of power | ● | ● | | | | ● |
| | 24. Respect for human rights and privacy | ● | ● | | | | ● |

> [Relationship between the Code of Conduct and ISO 26000](#)

Raising Awareness about Compliance

The Nippon Kayaku Group provides training on compliance for its employees, and calls on each workplace to establish an action plan and carry out activities to raise awareness of compliance among them. The results of these activities are evaluated and are utilized in continuous efforts to further educate employees about the importance of compliance.

Compliance Month and Compliance Survey

Every October, which is designated Compliance Month, we conduct a compliance survey. Issues concerning the promotion of compliance are identified for each business site, and feedback is provided in the form of a report that includes recommendations for improvements. Each business site incorporates this information into their action plans for the following fiscal year to continue raising awareness of compliance. In fiscal year 2015, we entered into a new contract with a survey analysis firm, and also shared objective feedback with each workplace, such as comparisons with other companies and improvement proposals, with recommendations for improvements to be made.

Compliance Training

Every year, the Nippon Kayaku Group's compliance training in Japan focuses on an annual theme. Study sessions and case studies are offered regular meetings and other occasions at each work site. Compliance training in fiscal 2018 focused on two themes: "The Nippon Kayaku Code of Practice: Talks with Medical Professionals" and "Power Harassment in the Workplace." Most training is to our employees through e-Learning on our database, so that all employees will have access to training opportunities and programs. Group training sessions and DVD recordings are also available for all business locations and affiliated companies.



Group Training Session on Compliance



Raising Awareness at Overseas Group Companies

Nippon Kayaku's overseas Group companies now make up almost half of the Group's sales and employ more people than our domestic operations. In particular, our six Group companies in China have almost 1,000 employees, who all need to be trained on the **KAYAKU spirit** and compliance awareness. In June 2018, the general managers and ethics officers from our Chinese Group companies met for the Second Ethics Officer Conference, which included reports on compliance initiatives and issues at each company, discussions about setting up a whistle-blower system in China and conducting a compliance survey. Following the conference, each Group company created internal rules and launched its own whistle-blower system that included setting up a whistle-blower hotline at an external legal office. Then, the first compliance survey was conducted in October, and feedback on the findings was given to each Chinese Group company and the relevant business divisions at the head office. Furthermore, the Company's Internal Control Management Division and the person in charge of legal affairs from KSC* collaborated in holding compliance training for local employees at each company. Going forward, we will take into account each country's situation and strengthen ties among departments so that we can initiate a more effective and efficient global compliance activities.



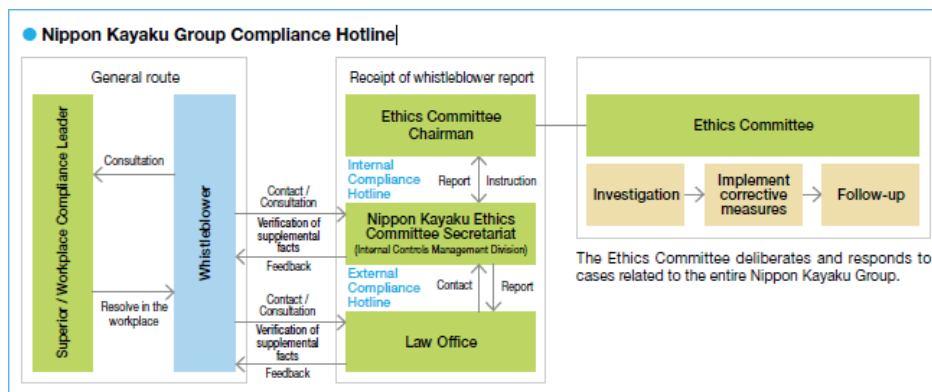
Training at Chinese Group companies



* KSC : Kayaku (Shanghai) Co., Ltd

The Nippon Kayaku Group's whistle-blower system

We have set up whistle-blower hotlines for employees both inside and outside the company. Through these hotlines we strive to quickly remedy situations and also prevent violations of laws, company rules and our code of business conduct before they occur.



Number and nature of reports over the previous three years

| Nature of reports | 2016 | 2017 | 2018 |
|--|------|------|------|
| Acts that damage the work environment (power harassment/sexual harassment, etc.) | 6 | 2 | 4 |
| Violations of company rules or etiquett | 1 | 1 | 3 |

| Nature of reports | 2016 | 2017 | 2018 |
|----------------------------|------|------|------|
| Labor/Management Relations | 0 | 0 | 2 |
| Others | 0 | 0 | 0 |

Relationship between the Code of Conduct and ISO 26000

| Nippon Kayaku Group Charter of Conduct | Nippon Kayaku Group Code of Conduct | | ISO26000 Core Subjects and Related Issues | | | | | | |
|---|--|--|---|-----------------|-----------------|--------------------------|-----------------|---------------------------------------|---|
| | | | Human rights | Labor practices | The environment | Fair operating practices | Consumer issues | Community involvement and development | |
| ■ Business operation | Code of Conduct on business operations | | | | | | | | |
| <p>1. The Nippon Kayaku Group will pay careful attention to the safety and reliability of its products and services, and provide customers with products and services satisfying their needs.</p> <p>2. The Nippon Kayaku Group will comply with the words and spirit of relevant laws and regulations, as well as with its internal rules, to conduct fair, transparent and open competition.</p> <p>3. In conducting overseas business operations, the Nippon Kayaku Group will comply with relevant laws and regulations in Japan and abroad, and respect the culture and customs of each country and region.</p> <p>4. The Nippon Kayaku Group will appropriately manage and utilize the company assets and seek to improve the efficiency of business operations, so as to achieve a continuous growth.</p> <p>5. The Nippon Kayaku Group will deal firmly with anti-social forces, and will not yield to unjustified or illegal requests.</p> | 1 | Product safety and quality | | | | | | ● | |
| | 2 | Provision of product information | | | | | | ● | |
| | 3 | Fair and impartial trade | | | | ● | ● | | |
| | 4 | Prohibition of excessive gifts and entertainment | | | | ● | | | |
| | 5 | Priority on ethics | ● | ● | | ● | ● | | ● |
| | 6 | Prohibition of pursuit of individual benefits | | | | ● | | | ● |
| | 7 | Compliance with local laws and regulations and respect for international norms, cultures and customs | ● | ● | ● | ● | ● | | ● |
| | 8 | Adequate protection and efficient utilization of corporate assets. | | | | ● | | | |
| | 9 | Active efforts for operational improvement | | ● | ● | ● | | | |
| | 10 | Exclusion of anti-social forces, criminal and/or other illegitimate sources | | | | ● | | | |
| ■ Relationship with the society | Code of Conduct on the relationship with society | | | | | | | | |
| <p>6. The Nippon Kayaku Group will promote coordination and cooperation with society and contribute to the society as a good corporate citizen.</p> <p>7. The Nippon Kayaku Group will disclose information concerning on its business operations to customers, local society, employees and business partners, based on objective facts, in an adequate and timely manner.</p> <p>8. The Nippon Kayaku Group will always give consideration to the impact of its business on the global environment. The Group will aim to achieve environmentally friendly business operation, by not only by compliance with relevant laws and regulations, but also by establishing voluntary standards.</p> | 11 | Social action programs | | | | | | | ● |
| | 12 | Exchange with local societies | | | | | | | ● |
| | 13 | Adequate and timely disclosure of information | | | | ● | ● | | ● |
| | 14 | Thorough crisis management | | ● | | ● | ● | | ● |
| | 15 | Prohibition of insider trading | | | | ● | | | |
| | 16 | Environmental C | | | ● | | | | |
| | 17 | Environmental protection effortsoexistence | | | ● | | | | |
| ■ Management of business information | Code of Conduct for the management of business information | | | | | | | | |
| <p>9. The Nippon Kayaku Group will adequately protect any information obtained through its business operations and develop countermeasures safe-guarding against information leakages and unauthorized external and internal access.</p> <p>10. The Nippon Kayaku Group will acknowledge the proprietary nature of information (Intellectual Property) and respect the rights of others.</p> | 18 | Protection of business information | | | | ● | | | |
| | 19 | Protection of personal information | ● | | | ● | ● | | |
| | 20 | Appropriate use of information system | | | | ● | | | |
| | 21 | Respect for the rights of other people | | | | ● | | | |
| ■ Relationship between the company and individuals | Code of Conduct on the relationship between the company and individuals | | | | | | | | |
| <p>11. The Nippon Kayaku Group will comply with labor laws and regulations to ensure a safe and comfortable working environment, and will also respect the fundamental human rights and privacy of the individuals.</p> | 22 | Maintenance of the working environment | ● | ● | | | | | |
| | 23 | Prohibition of harassment and abuse of power | ● | ● | | | | | |
| | 24 | Respect for human rights and privacy | ● | ● | | | | | |



Risk Management

Identifying and controlling various risks is an important element of corporate governance. The Nippon Kayaku Group works to mitigate risks by following the Risk Management Action Plan approved by the Risk Management Committee.

Activities Promoting Risk Management

The Nippon Kayaku Group carries out TOP5 Risk Control Activities as part of its Risk Management Action Plan. The "TOP5 risks" are those identified as the five most critical risks for our business operations.

TOP5 Risk Control Activities cover all subsidiaries of the Nippon Kayaku Group, that are in turn broken down into more than 70 individual groups.

Through TOP5 Risk Control Activities, a performance report is compiled for the Risk Management Committee that includes an analysis of the risks present and identification of sustainable trends that can be adopted by management. These include risks present for the Company as a whole, whether risks are being dealt with regardless of their severity, and whether risk management is being carried out effectively.

Information Security Initiatives

The Information Security Subcommittee was established under the Risk Management Committee to help reinforce information security of the entire company, with the goal of managing and monitoring company-wide information security at all times and preventing risks such as information leakages before they happen. Based on the Corporate Information Management Regulations, which covers the entire company, persons in charge of corporate information are appointed in each workplace to draft regulations for their own respective workplaces, and provide ongoing training on information security for each and every employee to raise the awareness about information security.

In fiscal year 2018, we had all employees carry out an information security self-check to identify issues at the individual level. This information will be used for future improvement plans.

Risk Management Training

The Nippon Kayaku Group implements the Plan, Do, Check, Act (PDCA) cycle continuously so that it can minimize and raise awareness of risks. As part of these efforts, we conduct risk management training for all employees. Also, a separate risk management training session is organized for new hires, newly appointed managers, and Japanese expatriate employees being assigned overseas.

Risk Management System

We have established a "Risk Management Manual" and "BCP Manual" in preparation for risks that could have a serious impact on corporate activities.

The first version of the Risk Management Manual was created in FY 2000, so that various risks surrounding the Nippon Kayaku Group's business operations could be managed and addressed in a proper manner.

The Risk Management Manual has been through several revisions due to various situations faced since then, currently being the fourth revision which was updated in FY 2018.

The Nippon Kayaku Group's Business Continuity Plan Initiatives

We have conducted business continuity plan (BCP) training at the head office since FY 2012, utilizing the lessons learned from the Great East Japan Earthquake and tsunami that struck Japan on March 11, 2011. This section takes a closer look at our BCP initiatives.

Preparing BCP Manuals

The Nippon Kayaku Group has launched a cross-organizational BCP project, under which all business divisions and plants in Japan have established their BCP manuals, based on the premise that the business must be recovered within a given time after a contingency. In addition, the Nippon Kayaku Group has begun preparing BCP manuals at overseas group companies in order to respond to global risks. In FY 2016, two Chinese subsidiaries established BCP manuals and put them into practice.

BCP Training

Ongoing BCP training is critical to putting the plans established in the BCP Manual into action promptly. We hold BCP training every year, attended by executive officers, including the president.

In FY 2018, we conducted a simulation of first-response actions in the event of a major earthquake at our Central Headquarters for Disaster Countermeasures.

Going forward, we will continue to carry out BCP training based on a wide variety of scenarios.



Fire and Disaster Prevention Activities

Starting in FY2011, the Nippon Kayaku Group has gathered and summarized information regarding the Disaster Prevention Training Activities at each group company.

[> FY 2018 Nippon Kayaku Group Disaster Prevention Training Activities Summary sheet](#) 

Takasaki Plant Fire and Disaster Prevention Activities

Since the Great Hanshin-Awaji Earthquake, increasing the ability to respond to large-scale disasters has become an important issue. Given this, the Fire Services Act was partially revised, and the Disaster Prevention Management System was newly established in accordance with the current Fire Prevention Management System.

The size of the Takasaki Plant necessitates disaster prevention management, so in addition to the conventional fire fighting training (held annually), the plant now holds a new training drill with the scenario of a major earthquake.

Now, the plant holds a comprehensive fire prevention drill as part of fire prevention management during the spring, and a comprehensive disaster prevention training using the scenario of a major earthquake (seismic intensity of 6 upper) as part of its disaster prevention management in the fall each year.



All employees participate in both trainings, in which they assigned to teams with their designated roles, and practice evacuation, rescue, communications (using satellite phones), and protection measures.

The Takasaki Plant is surrounded by rivers and forests, which also exposes it to the risk of wild fires. With this in mind, the plant's firefighting brigade conducts fire extinguishing drills at the same time as those mentioned above, using the plant's own fire truck. On the day of the drills, all participants take part earnestly and the nearby fire chief visits to assess the drill every year. These activities make the training quite beneficial to all involved.

Also, fire drills using actual fire extinguishers are conducted as part of the annual safety training for new hires, and AED training is offered during Safety Week in October each year.

Furthermore, following the Great East Japan Earthquake, we have stocked up provisions of food rations (1,000 meals), drinking water and fuel (diesel and gasoline) in preparation for any emergency in the future.

Kayaku Safety Systems de Mexico (KSM) Disaster Prevention Training

KSM conducts disaster prevention training so that it can prepare for and be able to respond appropriately during emergency situations.

The disaster prevention training is designed based on risks that could occur at the KSM site, in accordance with Mexican laws and regulations.

KSM's plant has a high risk of fire, so training focuses mainly on fire prevention. Details such as causes of fires, preventive measures and chain of communication during emergencies are explained on a monthly basis. Employees are taught what to do and who to contact in the case they find potential causes for fires, as well as how to respond to an evacuation warning.

KSM has an emergency response brigade that comprises of 40 employees representing each department. Training for this emergency response brigade takes place at an offsite institution certified by the government, with experts in the field brought in as trainers. This training involves not only lectures concerning theoretical fire prevention, but also field training that includes exercises for safe fire extinguishing activities, first aid, rescue and responses to leakages of hazardous substances.

For example, training on the use of fire extinguishers and fire hydrants uses actual kerosene and other flammables to train with an open flame. First aid training covers emergency scenarios with potential injuries that occur inside a plant, such as burns, cuts, as well as breathing difficulty and suffocation.

Rescue training focuses on saving people from hazardous areas safely, including those with injuries, and from difficult to reach places and locations with low visibility.

Furthermore, training on leakages of hazardous substances was held onsite at our own facilities and mainly involved the collection of leaked substances and decontamination methods for the polluted site.



Kayaku Safety Systems Malaysia Sdn. Bhd. (KMY) 2018 Evacuation Training and Chemical Spill Training

KMY held evacuation and chemical spill training on December 26, 2018. This training was designed to be compliant with the laws and regulations of Malaysia's fire departments and focused in particular on risks that could potentially occur during normal everyday work.

The evacuation training was jointly organized by the Safety, Health and Environment Department and the emergency response team (ERT), and ensuring that all employees predetermined evacuation route and rendezvous points during an emergency situation.



The chemical spill training involved the person in charge of the department that caused the spill to promptly report to ERT members, and carry out appropriate cleanup as well. At the same time, it is the ERT's responsibility to provide set up spill controls and personal protection equipment so as to ensure that chemicals being handled can be obtained easily.

The training also fulfilled the goal of educating ERT members about the KMY command system and fostering understanding about their individual roles and responsibilities. It was also confirmed that KMY's firefighting, support and first aid teams, along with the production staff are all standing by and ready to assist during an emergency, with all fire fighting facilities in place and ready for use.



FY2018 Nippon Kayaku Group Disaster Prevention Training Activity Summary Sheet

☒ : Unrealized due to lease limitations — : Non-applicable

* : Notification, evacuation, fire fighting, and other training in cooperation with the Fire Departments overseeing Comprehensive Disaster Prevention Exercises

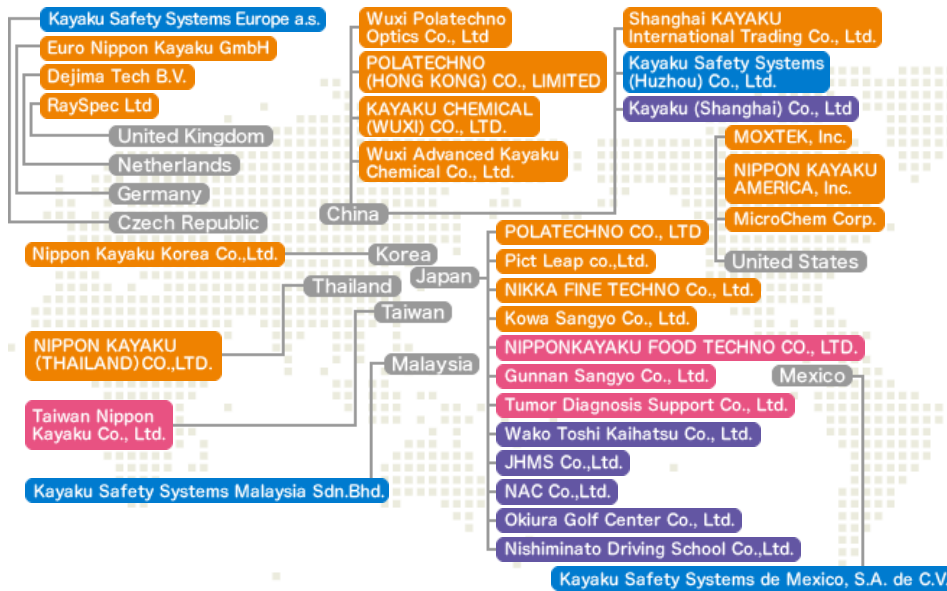
☎ : Training in placing the monthly satellite phone calls, starting June 2012, required by the Satellite Phone Training section of the BCP

| Business site/ Company name | Comprehensive disaster prevention training* | Notification training, evacuation training | Early stage fire-fighting training : Use of fire extinguishers and fire hydrants, firefighting skills Satellite phone training | Earthquake simulation training | First-Aid training, AED training | Lectures, study sessions | Leakage Response training, Sandbag training |
|--|---|--|--|--------------------------------|----------------------------------|--------------------------|---|
| Head Office, NIPPON KAYAKU CO., LTD. | ● | ● | ● ☎ | ● | ● | ● | — |
| Fukuyama Plant/ NIPPONKAYAKU FUKUYAMA CO., LTD. | ● | ● | ● ☎ | ● | ● | ● | ● |
| Asa Plant | ● | ● | ● ☎ | ● | ● | ● | ● |
| Tokyo Plant/ NIPPON KAYAKU TOKYO CO., LTD. | ● | ● | ● ☎ | ● | ● | ● | ● |
| Takasaki Plant | ● | ● | ● ☎ | ● | ● | ● | ● |
| Himeji Plant | ● | ● | ● ☎ | ● | ● | ● | ● |
| Kashima Plant | ● | ● | ● ☎ | ● | ● | ● | ● |
| Tokyo business CENTER/ Tokyo R&D Administration office | ● | ● | ● ☎ | ● | ● | ● | — |
| POLATECHNO CO., LTD. | ● | ● | ● | ● | ● | ● | ● |
| MOXTEC, INC. | × | ● | ● | × | × | ● | — |
| WUXI POLATECHNO OPTICS CO., LTD. | ● | ● | ● | ● | — | ● | ● |
| Dejima Tech B.V. | × | ● | ● | × | ● | ● | — |
| POLATECHNO (HONG KONG) CO., LIMITED | — | ● | × | × | × | × | — |
| NIKKA FINE TECHNO CO., LTD. | — | ● | / | ● | — | ● | — |
| Nippon Kayaku Korea Co., Ltd. | — | / | ● | / | / | ● | — |
| NIPPON KAYAKU AMERICA, INC. | — | / | ● | / | ● | ● | — |
| Euro Nippon Kayaku GmbH | — | — | ● | — | — | × | — |
| KAYAKU CHEMICAL (WUXI) CO., LTD. | ● | ● | ● | × | ● | ● | × |
| MicroChem Corp. | ● | ● | ● | — | ● | ● | ● |
| Wuxi Advanced Kayaku Chemical Co., Ltd. | ● | ● | ● | ● | ● | ● | ● |
| Shanghai KAYAKU International Trading Co., Ltd. | — | ● | ● | — | — | ● | — |
| NIPPON KAYAKU FOOD TECHNO CO., LTD. | ● | ● | ● | ● | ● | × | — |
| Tumor Diagnosis Support Co., Ltd. | / | / | ● | / | / | × | — |
| NAC Co., Ltd. | ● | ● | ● | ● | ● | ● | — |
| Taiwan Nippon Kayaku Co., Ltd. | ● | ● | ● | — | ● | ● | — |
| Kayaku Safety Systems Europe a.s. | ● | ● | ● | — | ● | ● | ● |
| Kayaku Safety Systems (Huzhou) Co., Ltd. | ● | ● | ● | — | ● | ● | ● |
| Kayaku Safety Systems de Mexico, S.A. de C.V. | ● | ● | ● | — | ● | ● | ● |
| Kayaku Safety Systems Malaysia Sdn.Bhd. | ● | ● | ● | — | ● | ● | ● |
| Nishiminato Driving School Corporation | / | ● | ● | × | × | × | — |
| Okiura Golf Center Co., Ltd. | — | ● | ● | × | ● | × | — |
| Kayaku (Shanghai) Co., Ltd. | — | ● | ● | — | — | ● | — |
| JHMS Co., Ltd. | — | ● | ● | ● | ● | — | — |
| Wako Toshi Kaihatsu Co., Ltd. | ● | ● | ● | ● | ● | ● | — |
| Kouwa Sangyo Co., Ltd. | ● | ● | ● | ● | ● | ● | ● |
| Gunnan Sangyo Co., Ltd. | ● | ● | ● | ● | ● | ● | ● |
| Head Office, Kayaku Japan Co., Ltd. | ● | ● | ● | ● | ● | ● | — |
| Asa Plant, Kayaku Japan Co., Ltd | ● | ● | ● | ● | ● | ● | ● |
| Sanko Kagaku Kogyo Co., Ltd. | × | ● | ● | ● | × | ● | — |
| Head Office, KAYAKU AKZO CORPORATION | ● | ● | ● | ● | ● | ● | — |
| Asa Plant, KAYAKU AKZO CORPORATION | ● | ● | ● | ● | ● | ● | ● |



The Nippon Kayaku Group's Commitment to CSR

The Nippon Kayaku Group has business operations in twelve countries around the world, comprising a total of 35 group companies, 13 in Japan and 22 overseas. This section presents the unified CSR commitment of the 31 consolidated group companies.



Japan Functional Chemicals Group

CEO & Representative Director & President Masatomi Akezuma, POLATECHNO CO., LTD



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POLATECHNO specializes in the 'Light Control Business', and aims to provide distinctive products useful to people in various situations all over the world. At the Niigata Factory, our manufacturing base, we recycle waste liquids and materials, and detoxify emissions. Our energy saving program was rated highly and received the "Chairman Award of 2014 Tohoku 7 Prefecture Electricity Effective Use Promotion Committee". We will continue supplying distinctive products from our energy-saving and eco-friendly plant and keep contributing to society.

Japan Functional Chemicals Group

CEO & Representative Director & President Norio Koma, Pict Leap co.,Ltd.



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Pict Leap Co., Ltd. creates new electronic displays and security products. With our special optical film technology and unique display system design, we aim to contribute to the realization of a safe, comfortable, and convenient society by offering displays that can be seen clearly under any conditions and, in the security area, thin and highly reliable fingerprint sensors.

Japan Functional Chemicals Group

Representative Director & President Shinya Fukuoka, NIKKA FINE TECHNO Co., Ltd.

Nikka Fine Techno is the only domestic trading company in the Nippon Kayaku Group. We strive to be a helpful trading company that immediately accommodates our customers' wishes, and we market not only the Nippon Kayaku Group's products but also the best goods and materials carefully chosen from a broad range of available products in the market. So that our customers will feel comfortable using our products, we market only goods that have passed checks that are stricter than those required by safety, quality, and legal standards. This is why our employees work together as a team in pursuing corporate activities according to the Company's Charter of Conduct and Code of Conduct. Our goal is to realize the **KAYAKU spirit** and achieve sustainable growth with CSR management that meets the expectations of all of our stakeholders and earns their trust.



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Japan Functional Chemicals Group

Representative Director & President Kazuki Uchida, Kowa Sangyo Co., Ltd.

Kowa Sangyo performs contract manufacturing work at Nippon Kayaku's Asa Plant. Specifically, our main safety and health initiatives entail using interactive training tools to further improve employee education with first-hands experiences or simulations of dangerous situations. We also believe that we can help provide some help in the event of an emergency by offering training in first aid and AED use and by supporting local fire departments.

The Wasshoi! Kayaku Festival that we co-sponsor with the Asa Plant every November has become an annual community event. We hope that all of our employees will be able to continue contributing to the community through their corporate activities.



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Japan Pharmaceuticals Group

Representative Director & President Hiroshi Shimada, NIPPONKAYAKU FOOD TECHNO CO., LTD.

NIPPONKAYAKU FOOD TECHNO CO., LTD. manufactures and sells food preservatives and other products. As part of our CSR-centered management, we aim to contribute to society through the provision of highly valuable services and excellent products that emphasize food safety and healthy diets. As a member of the Nippon Kayaku Group, each and every employee abides by the Nippon Kayaku Group Charter of Conduct and Code of Conduct, following an esteemed set of ethical values with safe operations, compliance and environmental consciousness receiving top priority to realize the **KAYAKU spirit**. With this stance, we are working to develop new fields in the food industry, and live up to the trust and expectations of our customers.



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Japan Pharmaceuticals Business

Representative Director & President Daisuke Funagoshi, Gunnan Sangyo Co., Ltd.

Gunnan Sangyo provides the security, landscaping and janitorial services for the Takasaki Plant, and is responsible for the property management of Hisho, the training center for the employees of the Nippon Kayaku Group. We are working to carry out CSR activities by providing a more comfortable environment for local residents, the people that work at Takasaki Plant and the training center.

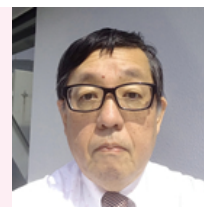


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Japan Pharmaceuticals Business

Representative Director & President Koichi Ono, Tumor Diagnosis Support Co., Ltd.

The Tumor Diagnosis in Tumor Diagnosis Support stands for tumor diagnosis. We support the diagnosis of pathological tissue found in mammary glands. Today, breast cancer has the highest prevalence rate of any cancer for women. However, breast cancer is believed to be an extremely difficult type of cancer to diagnose accurately with pathological tissue. Without the right diagnosis, a patient will not be able to receive the most effective treatment. As part of The Nippon Kayaku Group's Commitment to CSR management, Tumor Diagnosis Support is working day in and day out to contribute to an environment where breast cancer patients can receive treatment with the best possible outcome.



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Japan Other Businesses

Representative Director & President Naohiko Takeuchi, Wako Toshi Kaihatsu Co., Ltd.

Wako Toshi Kaihatsu engages in the real estate leasing business. We own land and a six-story building located in front of Wakoshi Station in Saitama Prefecture, which is leased to retailer Itoyokado's Wako store. We also lease two company housing buildings and one employee dormitory to Nippon Kayaku, as well as the building used for Asunaro House, a facility for supporting families of children with intractable diseases such as pediatric cancer, or who require bone marrow transplants and are being treated at specialist institutions. Our facilities, including Asunaro House, are used by a large number of people, and this is why we strive to continually update and upgrade each to ensure user safety and comfort.



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Japan Other Businesses

Representative Director & President Naoki Shiota, JHMS Co.,Ltd.

Japan Human Resources Medical Science Research Institute Co., Ltd. has a mission to contribute to society as a company providing comprehensive business support solutions to healthcare and other fields. Our business areas span a wide range of pharmaceutical support businesses for medical devices, including video productions, human resources development, training, worker dispatch, worker recruiting, and medical statistics. We also abide by related laws and regulations, and we hope to continually meet the needs of our customers to the best of our abilities.



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Japan Other Businesses

Representative Director & President Naoki Shiota, NAC Co.,Ltd.

NAC Co., Ltd. is involved in providing reception, security, and landscaping, and environmental safety services for, as well as operating a Sumida River ferry that serves as a mode of transportation for Nippon Kayaku's Akabane campus and Tokyo Plant as well as delivering internal mail, letters, and consumables to each workplace, filing confidential documents, and waste material handling for the Akabane campus as well. Additionally, NAC provides mainstay services for the Pharmaceutical Group which is the consignment of standard quality testing. and providing high quality data which plays a role in new compound and new preparation agent development and chemotherapy establishment and possesses the technology for delivering high quality pathological tissue specimens which contribute to accurate diagnosis of breast cancer.

One of our distinctive features is our inclusive workplace that hires persons with disabilities. We aim to evolve into a business where persons with disabilities can realize their fullest potential.



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Japan Other Businesses

Representative Director & President Tadayuki Kiyoyanagi, Okiura Golf Center Co., Ltd.

Okiura Golf Center was established in 1985 and began operations in 1986 with the goal of utilizing idle land. We offer one of the largest golf practice facilities in Hiroshima Prefecture, featuring a 250 yard natural

grass driving range with 72 tee boxes, along with a putting green, chipping green, sand trap and even a restaurant. The facility is surrounded by trees we have planted with the environment in mind. We are open from early in the morning to late at night and offer a host of golf lessons taught by professionals, and our facilities and services have earned us a strong reputation among customers. We promote CSR management to ensure that customers of all ages, from children to seniors, can enjoy using our facilities with peace of mind, and utilize our facilities as a venue for socializing with other members of the local community.



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Japan Other Businesses

Representative Director & President Shigeyoshi Nose, Nishiminato Driving School Co.,Ltd.

Nishiminato Driving School's primary goal is to teach people how to become safe and considerate drivers in preparation for obtaining their driving licenses and joining the automotive society. We also host outreach programs at local elementary and high schools on traffic safety, and also organize presentations on traffic safety for seniors and companies. We actively fulfill our role as a hub for community transportation safety education. As a comprehensive institute of learning for traffic safety, we will continue to strive to become a positive company that is supported and empathized by the community.



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United Kingdom Functional Chemicals Group Managing Director Peter Smith, RaySpec Ltd.

RaySpec Ltd is committed to conducting business in a fair and just manner, fully respecting its legal obligations regarding equal opportunities and non-discrimination, and providing a safe and healthy environment for its employees. Environmental impact is considered for all new product developments and the company actively promotes energy saving through both investments and daily activities. RaySpec actively promotes engagement with charitable organizations and supports fund raising initiatives.

RaySpec's products contribute to the safety and well-being of people around the world by utilizing systems which can measure and restrict the use of hazardous substances, determine material failure modes and check product quality.



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Netherlands Functional Chemicals Group Managing Director Henk Kalsbeek, Dejima Tech B.V.

Dejima aims to conduct its business in a socially responsible and ethical manner, to contribute to the community in which it operates, and to respect the needs of its employees, shareholders, customers, suppliers, regulators and other stakeholders. Dejima is committed to maintaining a healthy and safe work environment that ensures tolerance, respect and dignity for all its employees. Dejima is also committed to providing equal opportunity in all aspects of employment, and will not engage in or tolerate unlawful workplace conduct, including discrimination, intimidation, or harassment. Dejima recognizes that pollution prevention, biodiversity and resource conservation are key to a sustainable environment, and will effectively integrate these concepts into its business decision-making. All employees are responsible and accountable for contributing to a safe working environment, for fostering safe working attitudes, and for operating in an environmentally responsible manner.



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Germany Functional Chemicals Group Managing Director Naoya Miyachi, Euro Nippon Kayaku GmbH

In Germany, there is a labor court that exclusively handles labor issues, and companies are required to carry out business activities following CSR management and give consideration to their employees. In this regard,

people are very aware of CSR in Germany at the individual level. At Euro Nippon Kayaku we use the **KAYAKU spirit** booklets to broaden understanding of CSR management, and to ensure employee safety and create healthy workplaces, we strive to prevent all accidents and injuries during the commute and make sure employees take their paid leave. Moving forward, we are committed to actively carrying out CSR activities with consideration for the local community.



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Czech Republic **Safety Systems Group**
President Shinji Ichikawa, Kayaku Safety Systems Europe a.s.

Kayaku Safety Systems Europe a.s. manufactures and sells safety components for automobiles. The products we supply serve as important safety related components that help to save the lives of passengers. With safety being our utmost concern, we provide the market with high quality products. We aim to contribute to the community through implementing CSR-centered management, practicing environmental awareness, improving the quality of life of employees, and organizing charity activities.



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United States **Functional Chemicals Group**
CEO & President Shigeyuki Kawamura, MOXTEK, Inc.

MOXTEK makes contributions to society through utilizing the latest nano optical technology and x-ray technology in visual devices and analysis equipment.

As part of our CSR activities, we support programs in the local community through active participation in the Homeless Assistance Program. We strive to continue operating as a well rooted local business in the community.



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United States **Functional Chemicals Group • Safety Systems Group**
President Go Mizutani, NIPPON KAYAKU AMERICA, INC.

Nippon Kayaku America promotes the sale of functional chemical products and automotive safety components to, and provide technical support for customers in North America. We are located in California, which has some of the most rigorous environmental regulations and worker protection measures of any state in the United States. We comply fully with these rigorous laws, and market chemical products that are safe and eco friendly. We also promote products that contribute to the environment and energy efficiency, and constantly work to propose even safer automotive safety components to customers. Moving forward, we will continue to proactively engage in CSR activities with the goal of practicing **KAYAKU spirit** to its fullest.



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United States **Functional Chemicals Group**
President & CEO Jeremiah J. Cole Jr., KAYAKU Advanced Materials Inc.

KAYAKU Advanced Materials is committed to its corporate responsibilities for the welfare of our employees and to creating economic value for the community, environment, and stakeholders. We are dedicated to helping our customers succeed through our innovative products and technologies. In addition, we ensure that our business success is in line with KAYAKU Advanced Materials's high ethical principles and societal expectations.



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Mexico Safety Systems Group

Director General Susumu Tokutake, Kayaku Safety Systems de Mexico, S.A. de C.V.

Kayaku Safety Systems de Mexico (KSM) has been promoting the **KAYAKU spirit** among its employees and striving to implement CSR-centered management since its establishment in May 2007. Besides social contributions targeting employees and the local community, we are also providing assistance by donating food and clothing to the southern and central regions of Mexico that are prone to earthquakes.

As the automobile industry has become globalized, automobile safety components made by KSM are used in countries around the world. We aim to continually grow as a company that is recognized by various stakeholders both locally and globally through provision of high quality products with explosive safety technology as our core competence, which serves to protect human lives from automobile accidents.



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China Functional Chemicals Group

General Manager Yoshihiro Ogawa, Wuxi Polatechno Optics Co., Ltd

Wuxi Polatechno Optics (WPLC) was established in 2003 in Wuxi, Jiangsu Province as a plant responsible for the post processes of POLATECHNO CO., LTD. In China, local region oriented CSR activities geared towards environmental protection and social contribution have become increasingly important. It is crucial to ensure a safe work environment for each and every employee following the WPLC Charter of Conduct. We are also conducting efforts aimed to developing our company into a corporation that fulfills its responsibilities to all stakeholders.



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China Functional Chemicals Group

General Manager Jiro Hanada, POLATECHNO (HONG KONG) CO., LIMITED

POLATECHNO (HONG KONG) is a key sales company that accounts for more than 70% of the POLATECHNO Group's sales. Our direct customers include Chinese LCD manufacturers and Japanese projector manufacturers, but our end products are widely used around the world in final products for automobile, LCD projectors, electricity and water meters, medical devices, and home electronics. These products include products indispensable to our daily lives, and many more are associated with energy efficiency, safety and health. We are committed to contributing to society, albeit indirectly, through the sales and marketing activities for our products.



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China Functional Chemicals Group

General Manager Kazuhiko Ishii, KAYAKU CHEMICAL (WUXI) CO., LTD.

China is faced with many environmental issues and other problems associated with its rapid economic growth, which has heightened the challenging nature of the business environment here. CSR management has become more important in terms of continually growing our business in this environment. We find it extremely important for each and every one of our employees to take action based on our corporate principles and behavioral standards in order to practice CSR management for the realization of **KAYAKU spirit**. We will continue to contribute to society by continually supplying our customers with the products they need, at the highest quality in many aspects through actions based on individual ethical values, instead of what others are doing, while respecting the local culture, history and business practices.



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China Functional Chemicals Group

General Manager Yoshiki Akatani, Wuxi Advanced Kayaku Chemical Co., Ltd.

China's President Xi Jinping has called for a shift from the country's focus on GDP to setting and achieving indicators for worker's income and environmental protection. As a result, China's environmental regulations are becoming more rigorous and thoroughly implemented, which has caused issues in the raw materials supply chain of certain chemicals companies, due to operating restrictions or forced shutdowns for raw materials manufacturers.



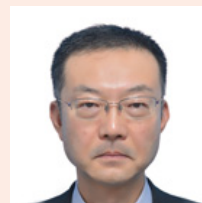
Wuxi Advanced Kayaku Chemical has introduced a new biological effluent treatment system this fiscal year as part of its response to tighter regulation. We are also strengthening our relationships with raw materials manufacturers to ensure the stable supply of our products, which is considered an important CSR issue.

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China Functional Chemicals Group

General Manager Ryo Fujimori, Shanghai KAYAKU International Trading Co., Ltd.

Shanghai KAYAKU International Trading (SKT) sells dyes, inks for industrial ink jet printers and heat-sensitive developing agents to the China and ASEAN markets. Environmental and energy conservation issues in these regions will only continue to grow in importance moving forward. In particular, environmental consideration and energy efficiency are very important issues facing customers who dye textiles. We are actively rolling out dyes that take about half the normal time to complete, which contributes to our customers' production efficiency, energy conservation and reduction in wastewater.



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China Safety Systems Group

General Manager Fumihiko Kamiwatari, Kayaku Safety Systems (Huzhou) Co., Ltd.

As Kayaku Safety Systems (Huzhou), we have constructed a five-point corporate vision which consists of "safety first, best quality, technical advance, employee development and focus on market". We have been carrying out the "KAYAKU spirit" through our IATF16969 (for quality), ISO14001 (for environment) and ISO45001 (for occupational health and safety) management systems.

Furthermore, for the purpose of improving our employee's awareness and skills about CSR management, we have established the education and training department as well as a training ground named as Dojo in 2018 to level up our employees positively.

By manufacturing and selling automobile safety parts, all of our employees are striving to contribute to the improvement of safety in automotive society in China and to bring about sustainable synergistic development of both communities and society.



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China Other Businesses

General Manager Masayuki Arakawa, Kayaku (Shanghai) Co., Ltd

Kayaku (Shanghai) Co., Ltd. implements activities to mitigate management risks of Nippon Kayaku Group companies in China. We implement regular compliance training to ensure the employees of our group companies are cognizant of correct compliance information while carrying out their daily duties. In addition, we also provide accurate information regarding financial and legal matters to promote appropriate and efficient business operations.



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Korea Functional Chemicals Group

Representative Director & President Keitaro Tada, Nippon Kayaku Korea Co., Ltd.

Nippon Kayaku Korea imports and sells Nippon Kayaku's functional materials and pigment materials in Korea, and exports pigment material and safety related raw materials from suppliers in Korea to Japan and overseas group companies. While laws in Korea that govern the import and sales of chemical materials into



the country, namely the Act on the Registration, Evaluation, etc. of Chemicals (K-Reach) and Chemicals Control Act are being revised (made stricter) yearly, we strive to accurately meet all revised criteria with the aim of realizing the **KAYAKU spirit**.

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Taiwan Pharmaceuticals Group • Functional Chemicals Group
General Manager Daisuke Komagata, Taiwan Nippon Kayaku Co., Ltd.



Taiwan Nippon Kayaku markets products from, and carries out market research for the Pharmaceuticals Group and Functional Chemicals Group. Currently, Taiwan Nippon Kayaku is carrying out daily activities to realize the **KAYAKU spirit**. Our commitments include: (1) correctly understanding customer needs, and striving to improve the quality of our daily work and convey those practices to related departments; (2) contributing to cultural and economic exchange by actively participating in and supporting activities and events of the Interchange

Association of Japan and the Taiwan Chamber of Commerce; and (3) displaying corporate vision boards in central locations of our office to constantly raise awareness of the **KAYAKU spirit**, and carrying a card at all times that contains our corporate vision. Moving forward, we will continue to proactively carry out CSR activities for the benefit of the local community.

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Malaysia Safety Systems Group
Managing Director Shigeru Maeda, Kayaku Safety Systems Malaysia Sdn. Bhd.



Kayaku Safety Systems Malaysia was founded in Malaysia at the end of 2012 to manufacture and market automotive safety components. Our product line-up encompasses a broad range that includes inflators, MGGs, and glass-to-metal-sealed squibs. We are working to imbue the company with the **KAYAKU spirit**, the Nippon Kayaku Group's corporate vision, and to put CSR management into practice. Putting safety first, we will continue providing our customers with quality products that will meet their satisfaction aims to be useful to society by contributing to the reduction of car accident fatalities in its region through its safety components.

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Thailand Functional Chemicals Group
Managing Director Tetsuya Tomita, NIPPON KAYAKU (THAILAND) CO., LTD.



NIPPON KAYAKU (THAILAND) CO., LTD. is a new company, recently established in 2018. Its primary business focuses on the sale of products from the Functional Chemicals Business in ASEAN and the South Asian region, procurement of raw materials and intermediates, as well as surveys of related markets.

Together with all of our employees, we will embrace the **KAYAKU spirit** and make great contributions to ASEAN and local communities in Southern Asia through the observance of compliance, and provision of safer materials and materials that lead to energy saving.

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Environment/Health/Safety/Quality Management System

We prioritize health, safety and environmental matters in our management of the company as well as strive to reduce our impact on the environment through the reduction of environmental emissions across the entire Nippon Kayaku Group.

The Declaration on Environment, Health and Safety, and Quality

The Nippon Kayaku Group, under the spirit of its CSR philosophy and Responsible Care[※], has formulated The Declaration on Environment, Health and Safety, and Quality, in order to maintain and enhance its environmental protection, health and safety and quality assurance practices. We are also implementing this declaration using organized activities.

**The Declaration on Environment,
Health and Safety, and Quality**


**Enacted November 7, 1995
Amended May 22, 2017**

The Nippon Kayaku Group, under its corporate motto of "KAYAKU spirit", which calls for continuously providing society with the best products through ceaseless progress and the combined forces of our consciences, we will contribute to the realization of a sustainable society that safeguards the life and health of consumers, and supports a comfortable life.

Fundamental Policies

1. We will strive to maintain and improve the environment, people's health and safety across the entire product lifecycle, from R&D to production, distribution, sales, recycling, and disposal.
2. We will strive to conserve the environment by introducing and developing technologies that are useful toward reducing waste, carrying out the appropriate disposal of waste, conserving resources, conserving energy, and implementing global warming prevention measures.
3. We will actively provide business partners with information needed for the safe usage and handling of our products and for conserving the environment.
4. We will enhance the quality of not only products, but operating processes as well, and also work to enhance customer satisfaction.
5. We will heighten employee knowledge and skills through education and training and achieve our goal of zero pollution, zero injuries, zero accidents and enhanced quality.
6. We will disclose information so that stakeholders correctly understand our business activities and also strive to engage in dialogue with local communities and government authorities.

June 25, 2019



President & Representative Director
Nippon Kayaku Co., Ltd.

※ Responsible Care: A voluntary initiative under which companies that manufacture or handle chemical substances actively work on ensuring an operation that is aware of the environment, safety and health throughout its entire value-chain; from product development through production, sales, consumption, and disposal of chemical substances. The initiative began in Canada in 1985, and has now spread to encompass activities at companies in over 50 countries around the world.

Message from the Head of Technical Operations Group

The Nippon Kayaku Group has grown on the back of chemical technologies. And based on our social mission and the demands of the market, we have endeavored to harness our long-standing technologies and the latest knowledge each and every day to provide stable supplies of high quality products.

In regard to the environment, we will carry out activities to reduce environmental impact, such as dealing with the decarbonizing society as a measure against global warming, which is an issue for the formation of a sustainable society, and waste reduction. We are implementing these initiatives not merely in response to legal requirements but also to broaden the scope of our corporate business continuity efforts by further streamlining our production processes and reducing wasteful energy use.

We are focusing more than ever on tiered education and follow-up education so that the next generation of workers in the manufacturing and technology departments will be able to maintain safe operations as we expand our business globally. In regard to health and hygiene, we have been focusing on health management in recent years based on the belief that each employee is a valuable asset to the company.

Also, to satisfy all of our stakeholders, we continue to implement Responsible Care activities as well as product quality maintenance and improvement.

Nippon Kayaku Group Responsible Care

The every Nippon Kayaku Group company hereby commits to "Prioritize Safety Above All" in our efforts. And we agreed not only complying with related environmental and safety laws in Japan and Overseas, but also preventing environmental and safety accidents. Furthermore we ensured they can carry out activities together under The Declaration on Environment, Health and Safety, and Quality, with the ultimate goal of realizing the **KAYAKU spirit**.

The Nippon Kayaku Group Responsible Care Policy since fiscal 2019 has been particularly formulated with "de-carbonization" in mind.

Nippon Kayaku Group Responsible Care Policy Statement

The Nippon Kayaku Group companies hereby commit to "Prioritize Safety Above All" in our efforts, and have all employees work on our business activities in accordance with the spirit of Responsible Care and the Fundamental Policies stated in "The Declaration on Environment, Health and Safety, and Quality."

Each group company shall work towards meeting their goals, set in accordance with their specific needs, status and country of location.

① Promoting initiatives for "Zero Accidents, Zero Injuries"

- Zero serious accidents, zero serious injuries
- Every Nippon Kayaku Group company shall prevent accidents and injuries by enhancing their ability to foresee potential risks by Risk Assessments and KYT/KYK (Danger Prediction Training/Activities) and by promoting health and safety activities by means of patrols and inspection tours focused on pointing out unsafe actions

② Promoting initiatives aimed at prevention of global warming and reduction of our environmental impacts

- Every Nippon Kayaku Group company (including those overseas) will establish their own targets in sync with their company and country of location, and aim to become an eco-friendly company.
- Integrate the management system ISO-1400 company-wide so that the environmental goals and the medium-term business plan work together in a Plan-Do-Check-Action cycle.
- Promote initiatives that reduce our burden on the environment by adopting MFCA on a company-wide basis and rethinking our production processes.
- Review the issues facing us over the medium-to long-term by reassessing company-wide risks and opportunities.
- Clarify and create concrete measures for the new 2030 environmental targets.

③ Comprehensive chemical management

- Have all Nippon Kayaku Group companies properly ascertain and promote appropriate management of the hazard levels of chemical substances by using SDS and complying with GHS.
- Appropriately manage and maintain each chemical substance management DB.

④ Response to biodiversity

- Comprehensively manage effluent and promote "prevention of pollution caused by over nutrition and other factors."
- Promote transition to FSC-certified products for paper products such as copy paper and packaging cardboard. Use stress checks and other group analytics to find out which of our workplaces have high-stress working environments and be sure to conduct follow-ups.

⑤ Consideration of employees' health

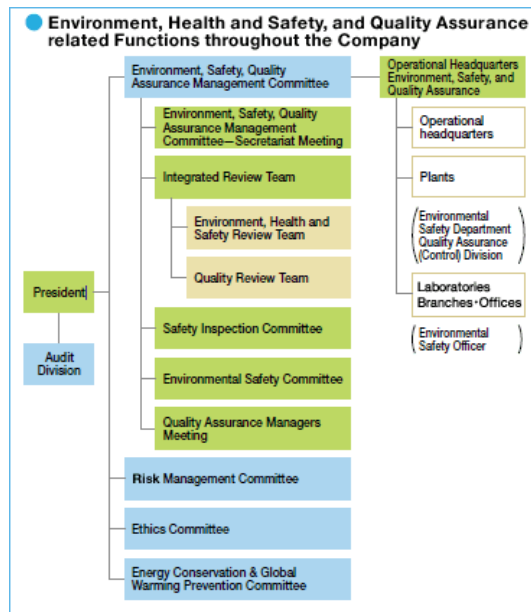
- Use stress checks and other group analytics to find out which of our workplaces have high-stress working environments and be sure to conduct follow-ups.
- Set numerical goals for the rate of participation in health management activities and the rate of specific-health-guidance implementation at each of our offices.

February 1, 2019

Company-wide System for Managing Environment, Health and Safety, and Quality Assurance

The Nippon Kayaku Group takes part in organized activities at all of its sites and certain Group companies including overseas plants to ensure employees are aware of the environment, health and safety, and quality assurance as well as to maintain and improve quality assurance. These activities revolve around the Environment, Health and Safety, and Quality Assurance Management Committee, which is led by the President of Nippon Kayaku.

> [Structure of Environment, Health and Safety, and Quality Assurance related Functions throughout the Company](#) 



Management Structure at Our Business Sites

Each of our business sites has a committee on the health and safety or the environment, health and safety headed by the head of that particular site. In addition, as a subordinate body, each business site also has a committee for promoting health and safety that consists of members representing each of the site's workplaces. Matters discussed by the Health and Safety Committee or the Environment, Health and Safety Committee are shared with all employees at roundtable meetings organized by the Health and Safety Promotion Committee. Conversely, matters discussed at roundtable meetings and by the Health and Safety Promotion Committee are communicated back to the Health and Safety Committee or the Environment, Health and Safety Committee as employee feedback.

Each business site's quality assurance (management) department leads Quality (Assurance) Committee meetings on a regular basis to check raw materials handled at each business site, examine customer complaints or quality issues concerning products made at that particular site, and deliberate on how to eliminate such complaints and quality issues. The committee also debates quality issues pertaining to new products, modified products and existing products to ensure that quality is constantly improved.



Certification of Environmental Management System

The Nippon Kayaku Group has moved forward with acquiring ISO14001 certification in order to develop, manufacture and provide eco-friendly products. We started acquiring ISO14001 environmental management system certification in 1998. Since then all six of our plants have obtained certification, while other Group companies, including those outside of Japan, are in the process of obtaining this certification.

● Environmental Management System
Certified Business Sites

| Workplace | ISO14001 |
|--|------------|
| Fukuyama Plant | April 1999 |
| Asa Plant | Sept. 1998 |
| Tokyo Plant | Dec. 1998 |
| Takasaki Plant | Jan. 2000 |
| Himeji Plant | Jan. 2001 |
| Kashima Plant | March 1999 |
| POLATECHNO CO., LTD. | Aug. 2002 |
| KAYAKU CHEMICAL (WUXI) CO., LTD. | Aug. 2006 |
| Wuxi Advanced Kayaku Chemical Co., Ltd. | July 2007 |
| Kayaku Safety Systems Europe a.s. | Dec. 2002 |
| Kayaku Safety Systems (Huzhou) Co., Ltd. | Jun. 2016 |

Quality Management System Authorization Status

The Nippon Kayaku Group has moved forward with acquiring certification for international quality assurance standards in order to provide and develop products and services of superior quality.

With respect to quality management system ISO 9001, which is an international standard for quality assurance, we began acquiring ISO9001 quality assurance system certification starting with our plants in 1995 and later expanded this scope to include business divisions, R&D departments, and Group companies outside of Japan.

Our overseas Group companies involved in the auto industry are working on obtaining ISO/TS 16949 certification.

In the Pharmaceuticals Group, which includes the Takasaki Plant and the Pharmaceutical Research Laboratories, we are working to strengthen our quality assurance system and have acquired integrated certification for ISO 9001 and for ISO 13485, which is a quality assurance management system standard for medical devices and in vitro diagnostics.

Also, the Safety Systems Group, which includes our Himeji Plant and the Safety Systems Development Laboratories, has acquired IATF 16949 certification, which is an international quality management system standard for the automotive industry created by the International Automotive Task Force (IATF). Our automotive-related overseas group companies have also acquired IATF 16949 in their quest to provide higher-quality products.

● Quality assurance Management System
Certified Business Sites

| Workplace | ● ISO9001 ■ ISO 13485 ▲ IATF16949 |
|---|---|
| Fukuyama Plant | ● |
| Asa Plant | ● |
| Tokyo Plant | ● |
| Functional Chemicals Group | ● |
| Functional Chemicals R&D | ● |
| Takasaki Plant | ● ■ |
| Pharmaceuticals Business | ● ■ |
| Pharmaceuticals R&D | ● ■ |
| Himeji Plant | ▲ |
| Safety Systems Group | ▲ |
| SSD R&D | ▲ |
| Kashima Plant | ● |
| Agrochemicals Business | ● |
| Agrochemicals Group | ● |
| POLATECHNO CO.,LTD. | ● |
| Wuxi Polatechno Optics Co., Ltd. | ● |
| Moxtek, Inc. | ● |
| Dejima Optical Films B.V. | ● |
| RaySpec Ltd. | ● |
| KAYAKU CHEMICAL (WUXI) CO., Ltd. | ● |
| MicroGhem Corp. | ● |
| Wuxi Advanced Kayaku Chemical Co., Ltd. | ● |
| NIPPON KAYAKU FOOD TECHNO CO., LTD. | ● |
| Kayaku Safety Systems Europe a.s. | ▲ |
| Kayaku Safety Systems (Huzhou) Co., Ltd. | ▲ |
| Kayaku Safety Systems de Mexico, S.A. de C.V. | ▲ |
| Kayaku Safety Systems Malaysia Sdn. Bhd. | ▲ |

Kayaku Safety Systems de Mexico, S.A. de C.V. (KSM)

Obtained IATF16949 quality management certification for the automotive industry

In June 2018, KSM Quality Management System received an external audit by LRQA[※] Certification Team according to ISO 9001:2015 and IATF 16949:2016 requirements, and we obtained the recommendation for the IATF Certificate.

To keep this certificate we have to take periodic audits by LRQA. Maintaining this certification endorse the commitments of KSM; providing high quality products through safety, high quality, increasing customer satisfactions and continuous improvements.

Achieving this certification is possible due to dedication, teamwork and commitment of KSM collaborators.

※ LRQA—third certification party for IATF certificate.



IATF 16949 Certificate



GMP Authorization Status

The Takasaki Plant has obtained manufacturing approval under the Ministerial Ordinance on Standards for Manufacturing Control and Quality Control for Drugs and Quasi-drugs (GMP ordinance) and has obtained accreditation from the United States and Europe (EU).

● GMP[※]
Approval
Status

| Workplace | Main governments |
|----------------|------------------------------------|
| Takasaki Plant | Japan, USA, Europe, Canada, Brazil |

- ※ GMP: A Japanese standard issued by the Ministry of Health and Welfare as a ministerial ordinance in 1980. Stipulates production control and compliance standards to ensure supply of high quality pharmaceutical and medical products.

Response to environmental regulations

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 Quality Assurance Division in February 2017 in order to reinforce quality management and the quality assurance system annually. Under this organization, it also established the Quality Assurance Department and Chemical Management Department (formerly the Chemical Management Office).

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.

From now on in fiscal 2017, we will continue to comply with Europe's REACH^{※1} and CLP^{※2}, and continue to positively promote the response to the new chemicals legislation and legal reform around the world.

- ※1 Registration, Evaluation, Authorization and Restriction of Chemicals (REACH): An EU regulation for registering, evaluating, approving and restricting chemical substances.
- ※2 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^{※1}, companies are now required to provide SDS^{※2} 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.

- ※1 GHS: Globally Harmonized System of Classification and Labeling of Chemicals
- ※2 SDS: Safety Data Sheet.



Sample GHS-compliant label

Overview of Environment, Health and Safety and Quality Organizations

Environment, Safety, Quality Assurance Management Committee

The Environment, Safety, Quality Assurance Management Committee is a company-wide committee led by the President of Nippon Kayaku and comprised of executive officers responsible for business divisions, general managers of business divisions, and the General Manager of the Technical Operations Group. The committee formulates annual policy for the environment, health and safety and quality assurance, assesses the results and recommends improvements.

Environment, Safety, Quality Assurance Management Committee – Secretariat Meeting

The secretariat is comprised of general managers from the technical departments of each business division and from related departments of the head office. The secretariat deliberates fiscal year policy proposals and implementation status and reports back to the Environment, Safety, Quality Assurance Management Committee. It also reviews material matters related to the environment, health and safety, and quality assurance.

Central Integrated Reviews

An integrated review is a combination of the conventional environment and health and safety review and the quality review, which had been implemented independently targeting business sites and group companies. The Integrated Review Team is led by the General Manager of the Technical Operations Group, and is comprised of the Environment, Health and Safety Review Team, led by the General Manager of the Environmental Protection & Safety Division and the Quality Review Team, which is headed by General Manager of the Quality Assurance Division. The same review as before is being performed on the head office, business sites and group companies that received environment and health and safety reviews or quality reviews. The head office, divisions, business sites and group companies for which issues were identified during the review process are required to create and execute an improvement implementation plan. The results of central integrated reviews are reported to the Environment, Safety, Quality Assurance Management Committee.

Safety Screenings

Safety screenings are conducted when developing and manufacturing new products, designing new facilities and equipment, replacing facilities, changing raw materials, and outsourcing production. Risk and other assessments are also performed to prevent problems before they occur.

Environmental Safety Committee

The Environmental Safety Committee comprises environmental safety managers or representatives from the Environmental Safety Department of each business site and group company selected by the General Manager of the Environmental Protection & Safety Division. The committee debates material matters and problems associated with the implementation of environmental protection and safety activities.

Quality Assurance Managers Meeting

The Quality Assurance Managers Meeting comprises quality assurance managers from the head office, business sites and group companies selected by the General Manager of the Quality Assurance Division. The meeting deliberates the implementation status of quality assurance and quality control activities.



Initiatives for Environmental Protection

Nippon Kayaku is committed to achieving a balance between the efficiency of production and reducing its impacts on the environment. For this reason, we consider environmentally friendly management to be an important task. We are now striving to achieve the various environmental targets we have set.

We are working to improve facilities and treatment processes in order to use energy and exhaust gas including green house gas emissions more efficiently and to lower the amount of substances released from effluent and waste that impact the environment. We have added some disclosure items according to GRI (Global Reporting Initiative) this year.

Promotion of Environmental Protection Activities

Nippon Kayaku has established specific numerical targets as one aspect of the mid-term environmental targets it has set for fiscal 2020, and with these targets in mind, we are now implementing activities for environmental protection. Also, to achieve these targets, we are working to reinforce our responses to natural disasters as well as promoting the development and improvement of wastewater treatment technologies.

Results of the Mid-term Corporate Plan for the Environment

Nippon Kayaku has established a mid-term corporate plan for the environment for the period running from fiscal 2011 to fiscal 2020 that consists of six items covering three areas. Fiscal 2018 was the 8th year of this plan. In addition, in response to the interim results of fiscal 2015, we set the target value for fiscal 2020 to a more stringent level.

The scope of reporting covers Nippon Kayaku (non-consolidated).

Mid-term Corporate Master Plan for the Environment (FY 2011 - FY 2020)

| | Prevention of Global warming | Prevention of Global warming | | | Reduction of waste | |
|------------------------------|--|------------------------------|-----------------------------|----------------------|---|----------------------------------|
| | Energy Derived CO ₂ Emission ^{※1} (Production Divisions+ Operation Divisions) | VOC ^{※2} Emissions | COD ^{※3} Emissions | Total waste produced | Recycling Rate | Zero Emission Rate ^{※4} |
| Fiscal 2018 results | 69.7 thousand tons | 25.6 tons | 133.7 tons | 21,491 tons | 81.4% <small>Displacement outside of the factory 20,080 tons of which final disposal volume 870 tons</small> | 4.0% |
| Year-on-year | Decreased 2.2% | Increased 4.5% | Increased 1.2% | Increased 4.5% | Increased 1.7 point | Decreased 1.6 point |
| Target value for fiscal 2020 | Under 79.5 thousand tons | Under 42 tons | Under 150 tons | Under 23,500 tons | More than 80% | Under 3.0% |

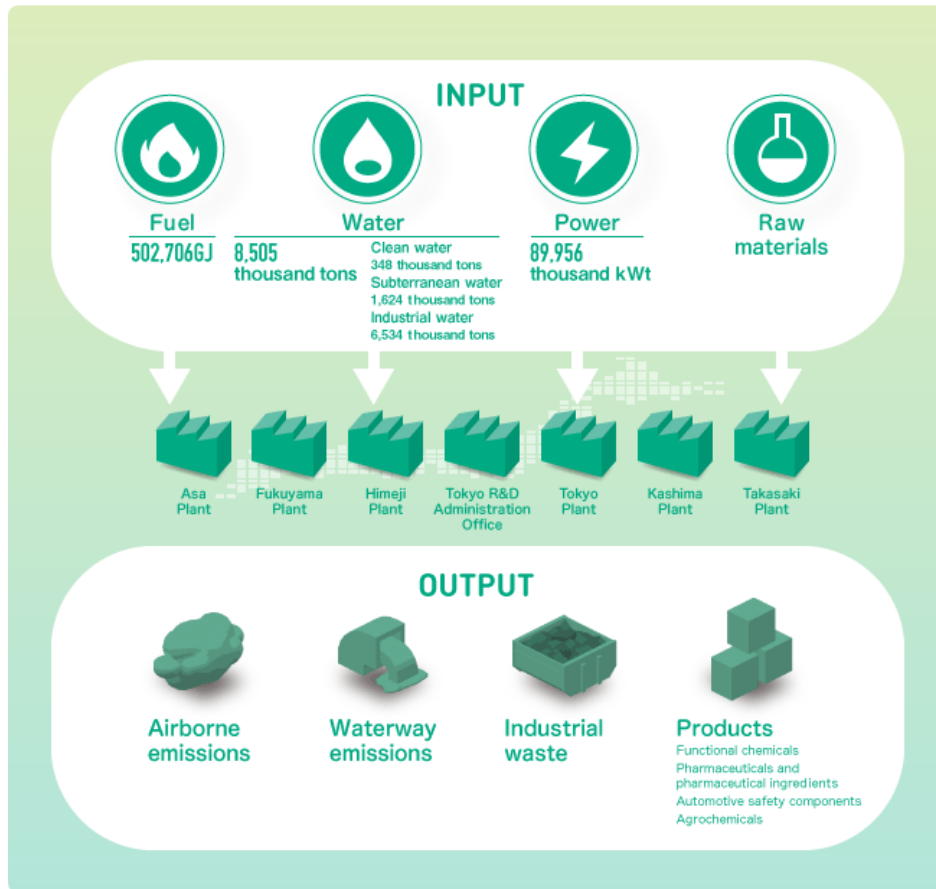
※1 Energy-derived CO₂ emissions: Japanese Government policy is to reduce these emissions by 3.8% versus 2005 (82.6 thousand tons).

※2 VOC: Volatile Organic Compounds (VOCs). This tally includes all chemical substances of reporting regulation, emitted into the atmosphere.

※3 COD: Chemical Oxygen Demand. An indication of the amount of oxygen needed to oxidize a subject compound under a predetermined condition using oxidizing agents.

※4 Zero emission rate: The amount of internal and external landfill waste produced as a percentage of total waste produced.

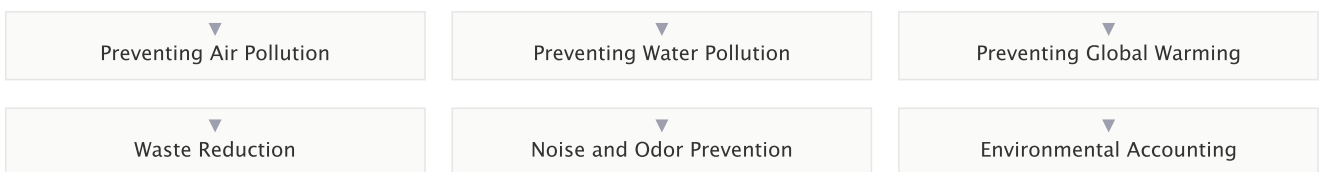
● Overview of business activities and environmental impacts



Scope: Nippon Kayaku (non-consolidated)

Results of Our Efforts to Reduce Environmental Impacts

As part of its effort to reduce environmental impacts, Nippon Kayaku focuses on preventing air, water and noise and odor pollution as well as stopping global warming and reducing waste.



Preventing Global Warming

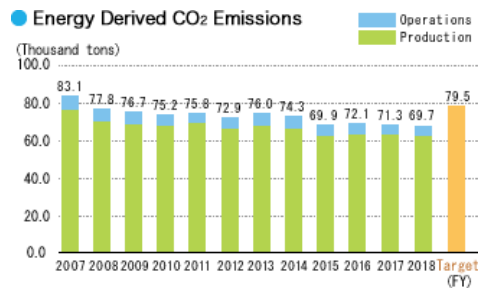
At each business site, we have been working on energy conservation measures such as improving the operation of utility equipment, replacing it with high efficiency equipment, and changing to LED lighting. We will continue making efforts to attain the medium-term environmental goals.

In addition, As part of its efforts to help reduce CO₂ emissions from homes, the Nippon Kayaku Group has established the program to encourage employees to conserve energy at home called "My Home is Currently Conserving Electricity", which focuses exclusively on electricity usage.

In 2015, we created new version of Kayakuma the Bear with the phrase "I'm currently conserving electricity" to raise greater awareness of this campaign.

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Moreover, regarding measures to counter global warming, we are considering making our mid-term environmental targets for fiscal 2030 more stringent in view of the Paris Agreement (COP21). Besides continuing to implement our established energy-saving measures, we are also focusing on activities that address energy loss.

> FY2018 Energy saving activity summary sheet of Nippon Kayaku Group

Kayaku Safety Systems (Huzhou) Co., Ltd. Initiatives for Reducing Environmental Impacts

KSH^{*1} has switched over to LED lighting, made modifications to its pneumatic system, and carried out energy conservation activities including switching off equipment when not in use and educating employees, in order to contribute to the prevention of global warming. While it is achieving results from these initiatives, KSE is continuing to make efforts by combining the power of its entire workforce. In aiming to be an environmentally friendly company, KSE ensures that dangerous wastes are sorted and disposed of by an accredited vendor. The company has also prepared and registered an emergency response manual for environmental accidents and is working to have the necessary facilities and materials in place for any contingency.

^{*1} KSH: A group company located in China that manufactures automotive safety components.

| item | 2015 | 2016 | 2017 | 2018 | 2019 targets |
|---|-------|-------|-------|-------|--------------|
| Intensity of electricity usage (Electricity usage/Net sales) (kWh/10,000 RMB) ^{*2} | 174.6 | 169.9 | 158.8 | 164.3 | 153.0 |
| Electricity cost savings (10,000 RMB) | - | 17.5 | 51.4 | 11.0 | 40.0 |
| CO ₂ reduction (tons) | - | 165.5 | 463.2 | 239.0 | 550.0 |
| SO ₂ reduction (tons) | - | 20.1 | 60.5 | 0.7 | 16.0 |

Himeji Plant Introduction of a Photovoltaic System

The electricity situation for the Himeji Plant has changed a great deal since before the Great East Japan Earthquake as follows.



1. Electricity supply shortages are forecast every year for the Kansai Electric Power Company service area during the summer months because of lost capacity from the shutdown of nuclear power plants, and so customers have been asked to reduce their electricity usage during peak times
2. The minimum necessary electricity needed to contact customers and other related stakeholders during a major disaster is required as part of its BCP measures

The Himeji Plant began operating a power generation system combining a photovoltaic system and lithium-ion batteries in April 2014 to satisfy the following three conditions.

1. Use of a system that can reduce the plant's electricity usage during time of peak demand in non-emergency situations
2. A system that can operate even when external lifelines are cut off
3. A system that can ensure the minimum operations of indirect and sales departments in case of a blackout from a major disaster

The capacity of each component of the system is as follows.

- **Photovoltaic system: 54kW generating capacity**
- **Lithium-ion batteries: Output of 30kVa**

After putting the system into operation, the Himeji Plant has been able to reduce its use of electricity by up to 50kW during peak demand times in the summer. Additionally, the Himeji Plant was forced to initiate an emergency shutdown due to a nearby accident in December 2014. The photovoltaic system and lithium-ion batteries operated as normal and supported the operations of indirect and sales departments. In the future, the Himeji Plant will increase the number of solar panels and take further steps for its BCP and energy saving activities.

Click to show the other activities

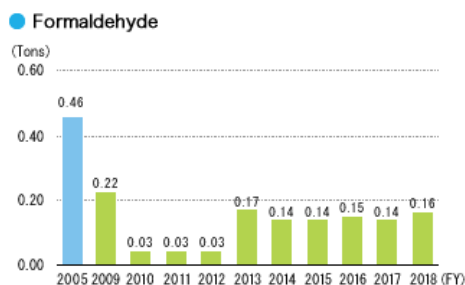
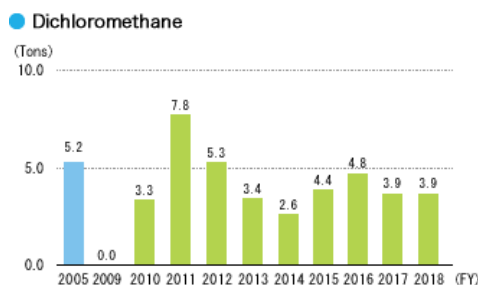
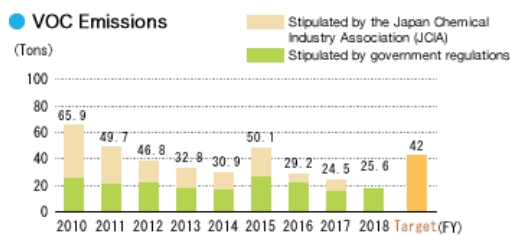
- Activities by Kayaku Safety Systems de Mexico, S.A. de C.V. (KSM) to Reduce its Environmental Impacts ▼
- Wuxi Advanced Kayaku Chemical Co., Ltd. (WAC) Switching to LED lighting ▼
- Rolling Out Eco-friendly Sales Vehicles ▼

Preventing Air Pollution

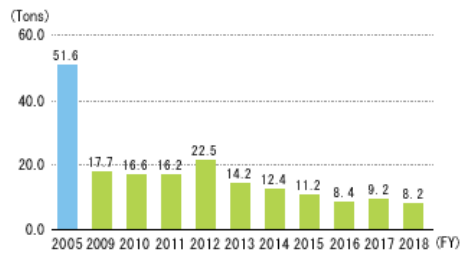
To help prevent air pollution, we carefully manage substances subject to Japan's Air Pollution Control Act, hazardous substances released into the air and other air pollutants.

(Under the initiative of the Japan Chemical Industry Association, the industry is taking action to voluntarily manage and reduce emissions of 12 control substances*¹ that are deemed to be harmful air pollutants. Of these 12 control substances, we used five substances after 1995, but stopped the use of benzene in 1995. Emissions of chloroform and ethylene oxide have been cut to zero since fiscal 2007. About dichloromethane emissions there were few times of zero since fiscal 2007, but have risen slightly since fiscal 2010 because of their minor use in products. Formaldehyde emissions continue to occur, albeit in small amounts, because of its use in products and in sterilization and fumigation. Going forward we will focus particularly on reducing the use and emissions of dichloromethane and formaldehyde through production process improvements and other means.

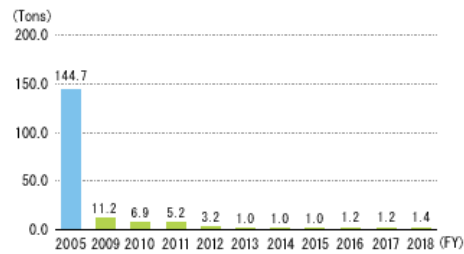
Air pollutants sulfur oxide (SOx)*² and nitrogen oxide (NOx)*³ are emitted during boiler operations. To date, the Nippon Kayaku Group has gradually shifted the fuel for its boilers from Bunker C heavy oil with high sulfur content to other lower sulfur content fuels such as Bunker A, in addition to LPG and natural gas, which are sulfur free. As a result, since fiscal 2008, we maintain to reduce SOx emissions about, we made further reductions. The Nippon Kayaku Group will continue to make efforts. to properly maintain air pollution prevention equipment, carry out regular inspections and upkeep, and reduce overall emission of air pollutants into the atmosphere.



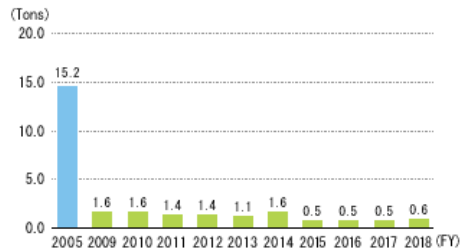
● NOx Emissions



● SOx Emissions



● Dust*Emissions



- ※1 12 control substances subject to voluntary controls: acrylonitrile, acetaldehyde, vinyl chloride monomer, chloroform, 1,2-dichloroethane, dichloromethane, tetrachloroethylene, trichloroethylene, 1,3-butadiene, benzene, formaldehyde, and ethylene oxide.
- ※2 SOx (sulfur oxide): SOx is emitted when fossil fuels that contain sulfur are burned. SOx reacts with water in the atmosphere to form sulfuric acid and sulfurous acid, which are causes of air pollution and acid rain.
- ※3 NOx (nitrogen oxide): NOx is produced when burned chemical substances react to nitrogen in the air and when fuels and chemical substances that contain nitrogen compounds such as coal are burned. Not only is it a major cause of air pollution including photochemical smog and acid rain, but NOx also has a harmful effect on the human respiratory system. In addition, NOx is also known to include the greenhouse gas dinitrogen monoxide.
- ※4 Dust: Dust mainly refers to fine particulate soot found in dust smoke produced when burning fossil fuels. In addition to a major cause of air pollution, humans can contract pneumoconiosis or other harmful health conditions when breathing dust in high concentrations.

Fukuyama Plant VOC Reduction Initiative

Some of the products manufactured at the Fukuyama Plant are made utilizing organic solvents which are target compounds of VOC emission control.

While removal of such compounds is a required process at the final stage of manufacturing, a small amount of these organic solvents are released into the atmosphere during this process. Upon reviewing the potential of recovering and reusing these organic solvents, we achieved a reduction of VOCs released into the air by more than 30% as well as reduced the amount of organic solvents used through equipment modifications and process improvement.

● VOC Emissions

| FY | ton |
|------|------|
| 2013 | 12.0 |
| 2014 | 10.0 |
| 2015 | 11.5 |
| 2016 | 5.6 |
| 2017 | 5.2 |
| 2018 | 6.0 |

Response to Water Risks

The Sustainable Development Goals (SDGs) were adopted at the UN Summit in September 2015. The SDGs consist of 17 goals and 169 targets to achieve by 2030. Within the 17 goals, Goal 6 (water and sanitation), Goal 12 (sustainable production and consumption), Goal 13 (climate change), Goal 14 (ocean conservation), and Goal 15 (ecosystems and forests) are items related to water risks*. The Nippon Kayaku Group is working not only to resolving waste water issues as discussed in the Special Feature article of fiscal 2018 CSR report, but also the reduction of water usage.

- ※ Water risks refer to the following three main categories.
 1. Physical risk: impact on business operations due to drought, flood, and water pollution
 2. Regulation risk: tightening water quality standards and revisions to waterworks and sewerage charges
 3. Reputation risk: declined corporate image based on response to water access rights

■ Preventing Water Pollution

The Nippon Kayaku Group has set voluntary wastewater discharge control standards that are tougher than requirements laid out in national laws and local ordinances.

And The Nippon Kayaku Group produces color material-related products including dyes and ink jet printer ink, among others. Our Tokyo and Fukuyama plants, where color material-related products are manufactured, fully decolorize colored wastewater before it is

discharged.

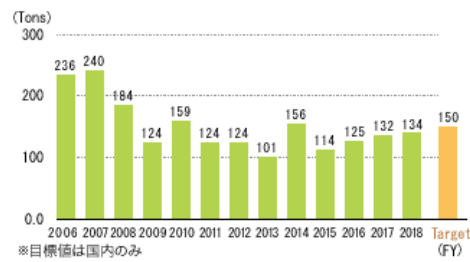
The Nippon Kayaku Group has made efforts to reduce its COD emissions by employing activated sludge treatment equipment at plants with high levels of COD emissions.

PRTR^{*1} Initiatives

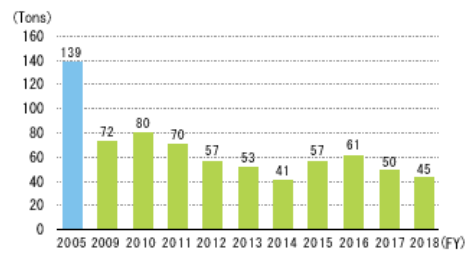
Since 1995, the Nippon Kayaku Group has participated in the Japan Chemical Industry Association led initiative to reduce compounds identified in the PRTR regulation, working to reduce its emissions of PRTR controlled compounds into the environment. In fiscal 2018, our emissions of PRTR controlled substances totaled 28.5 tons which marked about 4% increase from 27.4 tons in fiscal 2017. This was caused in fiscal 2018 by increased amount of use at the PRTR substance of Takasaki Plant and Kashima Plant. Among PRTR substances, toluene emissions were high, but it decreased to 15.5 tons in 2015, and 4.4 tons in fiscal 2018.

The result of the VOC emission reduction effect surely appeared.

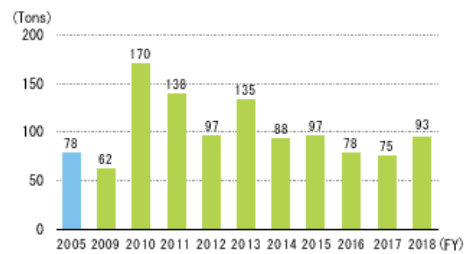
COD Emissions



SS^{*2} Emissions



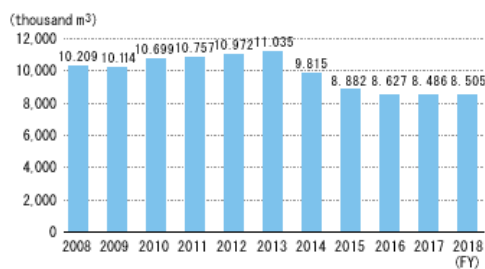
Nitrogen Emissions



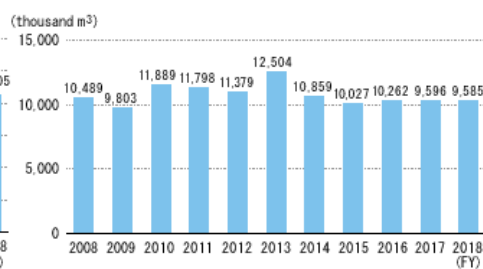
Phosphorus Emissions



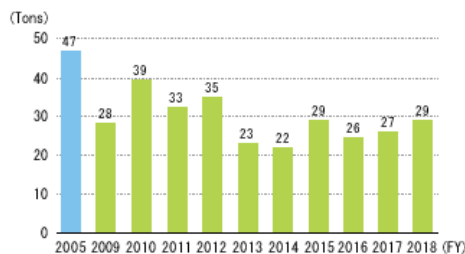
Water Consumption



Drainage



Emissions of PRTR Controlled Substances



*1 PRTR: Pollutant Release and Transfer Register. The PRTR regulation is designed to prevent occurrences of environmental safety incidents by encouraging businesses to improve their own chemical substance management.

*2 SS: Suspended Solids. SS is a water-quality indicator generally referring to insoluble substances of 2 mm or less in diameter suspended in water. The organic matter and metal originating in particulate-like mineral, animals-and-plants plankton and its corpse, a sewer, factory effluent, etc. are contained. The increase in SS worsens transparency, and influences underwater photosynthesis by preventing light penetration.

As of 2015, the amount of contracted volume of industrial water usage was 24,000 m³/day. In November 2015, this amount was amended to 23,000m³/day, which has been further reduced at the present to 22,000 m³/day through our implementation of reduction efforts.

The Fukuyama Plant conducts treatment of waste water resulting from the colorant manufacturing process at its own expense. The treated water is then released into the Seto Inland Sea. Since the beginning of 2000, we have strived to optimize the treatment method of waste water resulting from the manufacturing of colorants for inkjet printer ink. This included many efforts to implement individualized treatment by brand and to revise the manufacturing process to realize reduced wastewater amounts.

Through these efforts, we have achieved a reduction in industrial water usage as stated above since 2015. At present, we are still working to develop better wastewater treatment techniques. Moreover, in addition to industrial water, we also use the city water supply during the manufacturing and equipment cleaning processes, which is also target for our reduction initiative.

KSE Kayaku Safety Systems Europe a. s.(KSE)
Effective rainwater usage



KSE* introduced a system to utilize rainwater more effectively following capital investment activities to support the environment and its environmental protection policies. This system both complies with the laws and regulations of the Czech Republic and contributes to the Nippon Kayaku Group's CSR-centered management.

This initiative not only received a positive review during a regular inspection on construction management performed by an administrative institution of the Czech Republic's government, but has also lowered costs through less usage of potable water, because it uses non-potable water (before that, drinking water was being used). In 2017, KSE installed a 55m³ water storage tank under its parking lot.

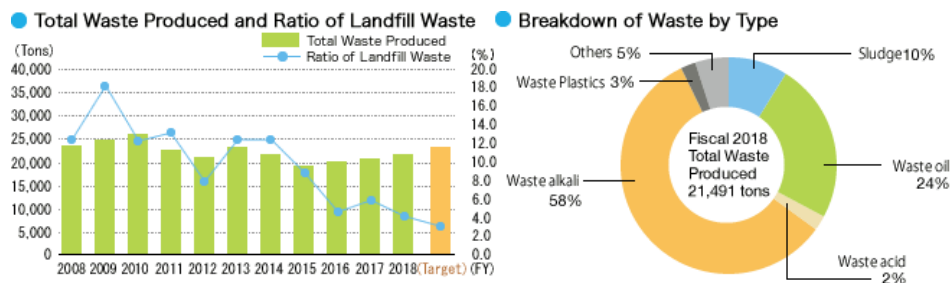
In fiscal 2018, KSE installed two water storage tanks with a total capacity of 75m³ and two more water storage tanks with a total capacity of 152m³ in its production facilities. In 2019, KSE is planning to install three water storage tanks with a total capacity of 198m³.

Water from these water storage tanks is used for toilet flushing.

* [KSE] A group company located in the Czech Republic that manufactures automotive safety components.

Waste Reduction

In fiscal 2018, the Nippon Kayaku generated 21,491 tons of waste, which represents 4.5% increase compared to fiscal 2017. Landfill waste in fiscal 2018 amounted to 870 tons, and Zero Emissions rate of 4.0%. It was a decrease of 1.6 points from fiscal 2017, so we will continue to make efforts toward the 2020 target.



Fukuyama Plant

Fukuyama Plant Achieved Zero Net Emissions through Changes to its Sludge Treatment Process

Many types of wastes are produced during the Fukuyama Plant's production activities. Sludge that occurs from the treatment of waste liquids accounts for a considerably large portion of these wastes.

This sludge is difficult to dispose of because it contains moisture. In the past, this sludge was disposed of in landfills after undergoing appropriate treatment, but after examining whether this sludge could be recycled to reduce environmental impacts, the Fukuyama Plant found that it could be utilized as fuel for adjusting the heat used in waste incineration plants. Also, our waste

disposal vendor now has a source of recycled fuel, so both it and the Fukuyama Plant are able to utilize this sludge more effectively. As a result, the Fukuyama Plant was able to reach its zero emission rate target (less than 1%) for the portion of its waste disposed of in landfills. Not only this, but it was also able to increase the recycling rate of waste and lower disposal costs.

Polatechno Co., Ltd. Industrial Waste Reduction CHANGE&CHALLENGE

Polatechno Co., Ltd. generates waste plastics, waste resin, waste fluids, and other industrial waste materials in the process of producing polarizing plates, its major product. In its continuing efforts to conserve resources and to reduce the generation of and recycle waste, the company formed an Industrial Waste Reduction Subcommittee to change its traditional methods of reducing waste (CHANGE) and challenge itself to come up with new ideas for achieving waste reduction (CHALLENGE).

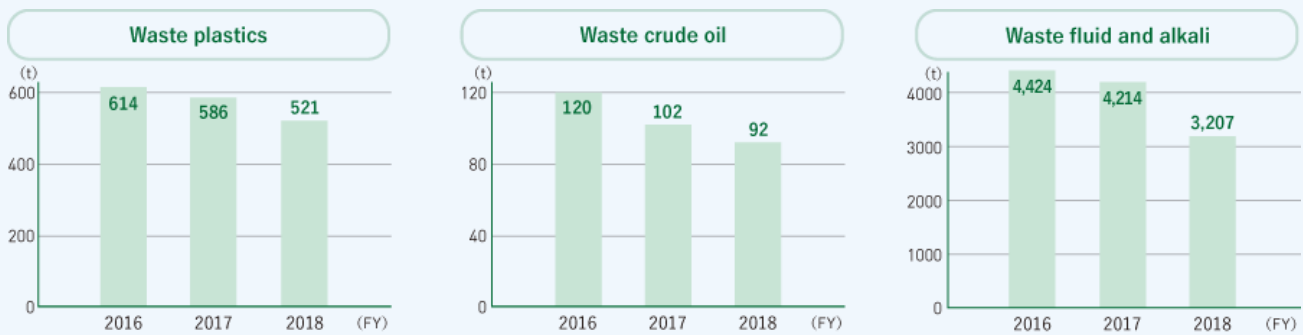


First, the fiscal 2016 results were examined and reviewed from the standpoint of zero emissions. Then, we adjusted raw material and product inventories when we changed our production process to producing small volumes of a large variety of items. After that, we changed to a bulk production process, which cut down on the volume of waste plastics and waste fluids. Next, we reduced our surplus generation of resin by ascertaining the optimal amounts of resin to be used in adhesive processing.

A recycling facility that reuses waste fluids went on line in fiscal 2018, and this makes it possible to achieve a large-scale reduction in waste fluids.

Polatechno continues to find ways to reduce its industrial waste so that its operations will be kind to the environment.

Amount of waste generation Result of FY2016–FY2018



Kayaku Safety Systems de Mexico, S.A. de C.V. (KSM)

Waste management: an approach to life cycle

KSM works to recycle solid waste, such as wood, cardboard, ferrous metals, aluminum and plastics by finding external suppliers which can re-use those wastes. After collecting those wastes from production sites, we store them in the plant until the certified waste collect suppliers to come pick them up. Those suppliers use woods to manufacture wood pallets, cardboard and plastic are recycled, aluminum and ferrous metals are used to generate new raw materials. This program extends to the non-productive areas such as rest areas, our collaborators classify waste like aluminum cans and plastic bottles for recycling, and we also classify organic and inorganic waste for proper disposal.



Noise and Odor Prevention

We conduct our business with a conscious effort toward minimizing noise and odor pollution in the areas surrounding our factories. We regularly measure noise levels around our factories, making every effort to be a positive members of the local community or odor-monitor-system. As such, any feedback or requests that we receive from local residents at company-sponsored events such as

community round-tables are treated with the utmost priority. We also conduct regular work environment measurements in the factory to protect our employees from excessive noise and other hazardous chemicals.

Environmental Accounting

Nippon Kayaku has tracked and shared all cost data associated with its environmental protection initiatives since fiscal 2000. Also, from fiscal 2003, we began calculating the returns from our environmental protection initiatives. Calculation of environmental costs and returns are made according to Environmental Accounting Guidelines (2005 Version) published by the Ministry of the Environment of Japan, and Environmental Accounting Guidelines for Chemical Companies published by the Japan Chemical Industry Association.

● Environmental Protection Costs (Fiscal 2018)

(Millions of yen)

| Category | | Investment | Total | Main Activities | |
|--------------------------------|----------------------------------|---|----------------|--|--|
| Cost Incurred in the Workplace | Pollution Prevention Cost | Air Pollution Prevention | 85.9 | 98.3 | Odor countermeasures, upgraded exhaust gas treatment facilities, etc. |
| | | Water Pollution Prevention | 40.6 | 223.9 | Expanded waste liquid treatment facilities and upgraded equipment, etc. |
| | | Underground seepage prevention | 52.0 | 6.0 | Dirt floor maintenance, expanded wastewater drains, etc. |
| | | Noise and Vibration Prevention | 4.3 | 6.1 | Soundproofing measures for treatment tower and pumps, etc. |
| | | Other | | 190.6 | Disposal costs of facilities and pollution charges |
| | Global Environment Cost | Global Warming Prevention and Energy Conservation | 102.9 | 8.1 | Upgraded to high efficiency equipment, upgraded pumps, responded to CFC facilities, etc. |
| Resource Recycling Cost | Waste treatment | 3.9 | 565.3 | In-house processing costs and processing outsourcing costs | |
| Up- / Down-Stream Cost | Container Recycling Outsourcing | - | 1.0 | Outsourcing costs for repackaging products | |
| | Sewage Processing Cost | - | 90.9 | Sewerage treatment costs Tank dredging costs | |
| Management Activity Cost | System Maintenance and Operation | - | 100.4 | Internal auditor development cost and ISO14001 renewal costs | |
| | Environmental Stress Monitoring | - | 41.8 | Analysis costs and outsourcing costs | |
| | Information Disclosure | - | 8.7 | Outsourcing costs for preparing information disclosure documents on the environment | |
| | Education, Training and Other | - | 88.6 | Outside lectures, workplace training, etc. | |
| | Greening | - | 97.5 | Added plants and improved some greenery along the roadway Outsourcing costs | |
| R&D Cost | | | 176.1 | Environmentally friendly R&D costs and wastewater treatment technology development costs | |
| Social Activity Cost | | - | 8.7 | Plant tours, community event sponsorship, responsible care, ICCA special committee, LRI research meeting costs | |
| Environmental Damage Cost | | - | 0.0 | | |
| Total | | 289.6 | 1,712.0 | | |

● Return from Environmental Protection Initiatives

(Millions of yen)

| Sources of Return | | Cost Reduction Return | Main Activities | |
|-------------------|-----------------------------|---|--|---|
| Workplace | Pollution Prevention Return | Air Pollution Prevention | 0.0 | Replacement of NOx decomposition facilities and boilers |
| | | Water Pollution Prevention | 0.0 | Raising of drainage bits above the ground and replacement of dikes |
| | | Pollution Load Levy Reduction | 0.1 | |
| | | Noise and vibration Prevention | 0.0 | Installation of sound-proof covers |
| | Global Environment Return | Global Warming Prevention and Energy Conservation | 53.5 | Installation of high-efficiency equipment, switchover to LED lighting, installment of energy-saving equipment |
| | Resource recycling return | Reduction of Waste | 2.1 | Solvent recovery |
| | | Sale of Recycled Resources | 12.8 | Collected valuables, metals, sold paper products outside the group, and sold plastics outside the group |
| Other | | 6.3 | Made changes to in-house recycling and the waste processing provider | |
| Up- / Down-Stream | Container Recycling | 69.6 | Reused plastic drums | |
| Others | | 0.0 | Implemented greening activities | |
| Total | | 144.4 | | |

- Scope: Nippon Kayaku (non-consolidated)
- Investments: Aggregate of all orders placed in fiscal year 2018(April 2018 to March 2019) Capital expenditure: Compilation of capital appropriated for orders in April 2017 to March 2018

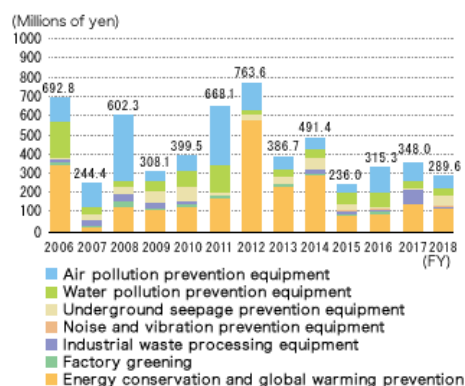
- Management cost: Any cost increase resulting from change in fuel type or change in waste processing method that are deemed appropriate from an environmental perspective are recorded under this category each year for a period of five years from the date the change is first administered.
- From a financial accounting standpoint, earnings realized from environmental protection initiatives are recorded in the fiscal year in which such earnings are realized.
- Earnings such as expense reduction and environmental impact reduction that are not considered from a financial accounting standpoint are reported for five years from the date it is first realized.

Investments Related to the Environment, Health and Safety

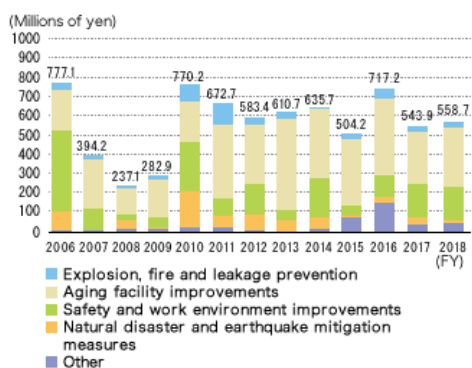
The Nippon Kayaku Group makes well planned and continual investments in environment, safety and health related projects. In fiscal 2018, investments related to the environment totaled at 290 million yen, which is a decrease of about 17% compared to fiscal 2017.

Investments related to health and safety totaled at 558.7 million yen in fiscal 2018, which is an increase of about 3% compared to fiscal 2017. Out of that, investments in equipment renewals accounted for 59% of the total.

● Environment Related Capital Investments



● Safety and Health Related Investments



Environment related data list

| fiscal | Nippon Kayaku (Non-Consolidated) | | Domestic group | | Overseas group | | Total | |
|--|----------------------------------|----------|----------------|----------|----------------|----------|-----------|-----------|
| | 2017 | 2018 | 2017 | 2018 | 2017 | 2018 | 2017 | 2018 |
| Global warming | | | | | | | | |
| Energy input (Crude oil equivalent) | 33,152.0 | 33,669.0 | 5,725.1 | 5,978.6 | 23,283.4 | 30,274.4 | 62,160.5 | 69,922.0 |
| CO ₂ (ton) | 71,336.0 | 69,731.0 | 12,319.2 | 12,864.6 | 50,100.9 | 65,145.1 | 133,756.1 | 147,740.7 |
| Non-energy origin CO ₂ (ton) | 2,017.1 | 2,202.4 | 13.0 | 10.0 | 362.0 | 1,108.4 | 2,392.1 | 3,320.8 |
| GHG : Green house gas (ton) Other GHG (ton) | 360.5 | 973.0 | 0.4 | 0.4 | 87.5 | 2,272.7 | 448.0 | 3,125.4 |
| Emission to air | | | | | | | | |
| NO _x (ton) | 9.2 | 8.2 | | | 0.1 | 0.1 | 9.3 | 8.3 |
| SO _x (ton) | 1.2 | 1.4 | | | 0.0 | 0.0 | 1.2 | 1.4 |
| Dish dust (ton) | 0.5 | 0.6 | | | 3.1 | 3.1 | 3.6 | 3.7 |
| PRTR substance (Emission to air; ton) | 15.9 | 17.1 | 0.2 | 0.2 | | | 16.1 | 17.3 |

| fiscal | Nippon Kayaku (Non-Consolidated) | | Domestic group | | Overseas group | | Total | |
|--|-------------------------------------|----------|----------------|---------|----------------|---------|----------|----------|
| | 2017 | 2018 | 2017 | 2018 | 2017 | 2018 | 2017 | 2018 |
| Emission to water area | | | | | | | | |
| Water resource input (thousand m ³) | 8,486.0 | 8,505.0 | 300.7 | 258.7 | 469.3 | 595.6 | 9,256.0 | 9,359.3 |
| Amount of drainage (thousand m ³) | 9,596.0 | 9,585.0 | 296.6 | 255.2 | 284.5 | 470.8 | 10,177.2 | 10,311.0 |
| COD (ton) | 132.1 | 133.7 | 3.3 | 2.9 | 55.3 | 57.4 | 190.7 | 194.0 |
| Nitrogen (ton) | 75.2 | 93.2 | | | | | 75.2 | 93.2 |
| Phosphorus (ton) | 1.4 | 1.6 | | | | | 1.4 | 1.6 |
| PRTR substance (Emission to water area; ton) | 11.5 | 11.4 | 1.3 | 1.2 | | | 12.8 | 12.6 |
| Waste | | | | | | | | |
| Amount of waste (ton) | 20,552.0 | 21,490.7 | 5,236.7 | 4,150.2 | 913.9 | 1,005.4 | 26,702.6 | 26,646.3 |
| Landfill waste (ton) | 1,148.0 | 869.7 | 44.0 | 38.0 | 1.0 | 29.6 | 1,193.0 | 937.3 |
| Zero emission (%) | 5.6 | 4.0 | 0.8 | 0.9 | 0.1 | 2.9 | 4.5 | 3.5 |
| Recycle rate (%) | 79.7 | 81.4 | | | | | | |

※Blank items do not have corresponding facilities or have no obligation to acquire data

FY2018 Energy saving activity summary sheet of Nippon Kayaku Group

☀ : Solar panel installation ☒ : Unrealized due to lease limitaions — : Non-applicable ※High-load machinery: refrigerators/freezers, blowers, air compressors, steam boilers

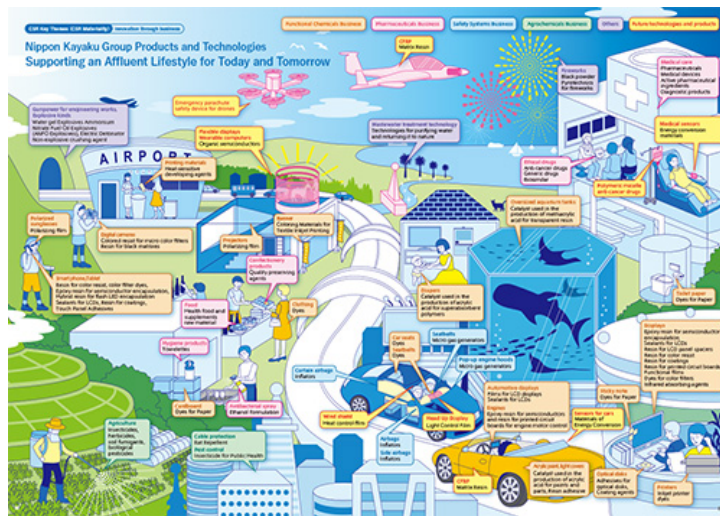
| Business site/Company name | Management of thermostat settings | electricity/water saving and conservation awareness | Reduction of fluorescent lighting ; Switch to LED lighting. | Controlled operation of high - load machinery* | Heat barrier film/paint, water dispersement |
|---|-----------------------------------|---|---|--|---|
| Head Office, NIPPON KAYAKU CO., LTD. | ● | ● | ● | — | — |
| Asa Plant ☀ | ● | ● | ● | ● | ● |
| Takasaki Plant | ● | ● | ● | ● | ● |
| Himeji Plant ☀ | ● | ● | ● | ● | ● |
| Kashima Plant | ● | ● | ● | ● | ● |
| Tokyo business CENTER/ Tokyo P&D Administration Office | ● | ● | ● | ● | ● |
| POLATECHNO CO., LTD. | ● | ● | ● | ● | × |
| MOXTEC, INC. | ● | ● | ● | — | ● |
| WUXI POLATECHNO OPTICS CO., LTD. | ● | ● | ● | — | — |
| Dejima Tech B.V. | ● | ● | ● | ● | × |
| POLATECHNO (HONG KONG) CO., LIMITED | ● | ● | ☒ | — | ● |
| NIKKA FINE TECHNO CO., LTD. | ● | ● | ● | — | ☒ |
| Nippon Kayaku Korea Co., Ltd. | ● | ● | ☒ | — | ☒ |
| NIPPON KAYAKU AMERICA, INC. | ● | ● | ☒ | — | ● |
| Euro Nippon Kayaku GmbH | — | ● | ● | — | ☒ |
| KAYAKU CHEMICAL (WUXI) CO., LTD. | ● | ● | ● | ● | ● |
| MicroChem Corp. | ● | ● | ● | ● | — |
| Wuxi Advanced Kayaku Chemical Co., Ltd. | ● | ● | ● | ● | ● |
| Shanghai KAYAKU International Trading Co., Ltd. | ● | ● | — | — | — |
| NIPPON KAYAKU FOOD TECHNO CO., LTD. | ● | ● | ● | — | ● |
| Tumor Diagnosis Support Co., Ltd. | ● | ● | ● | — | ● |
| NAC Co., Ltd. | ● | ● | ● | — | — |
| Taiwan Nippon Kayaku Co., Ltd. | ● | ● | — | — | — |
| Kayaku Safety Systems Europe a.s. | ● | ● | ● | ● | — |
| Kayaku Safety Systems (Huzhou) Co., Ltd. | ● | ● | ● | ● | ● |
| Kayaku Safety Systems de Mexico, S.A. de C.V. ☀ | ● | ● | ● | ● | ● |
| Kayaku Safety Systems Malaysia Sdn.Bhd. | ● | ● | ● | — | ● |
| Nishiminato Driving School Corporation | ● | ● | ● | — | ● |
| Okiura Golf Center Co., Ltd. | ● | ● | ● | — | ● |
| Kayaky (Shanghai) Co., Ltd. | ● | ● | — | — | — |
| JHMS Co., Ltd | ● | ● | ● | — | — |
| Wako Toshi Kaihatsu Co., Ltd. | ● | ● | ● | — | — |
| Kouwa Sangyo Co., Ltd. | ● | ● | ● | — | ● |
| Gunnan Sangyo Co., Ltd. | ● | ● | ● | — | ● |
| Head Office, Kayaku Japan Co., Ltd. | ● | ● | ● | — | ☒ |
| Asa Plant, Kayaku Japan Co., Ltd | ● | ● | ● | ● | ● |
| Sanko Kagaku Kogyo Co., Ltd. | ● | ● | ● | ● | ● |
| Head Office, KAYAKU AKZO CORPORATION | ● | ● | ● | — | ☒ |
| Asa Plant, KAYAKU AKZO CORPORATION | ● | ● | ● | ● | ● |



Economic Responsibilities and CSR

Current Nippon Kayaku Group Products and Future Technologies and Products Supporting an Affluent Lifestyle

The Nippon Kayaku Group has adopted a corporate slogan called Global "sukima" ideas and is striving to develop Nippon Kayaku into a company that the world truly needs, by developing high value added products with unique technologies that stand out in niche markets and elsewhere.



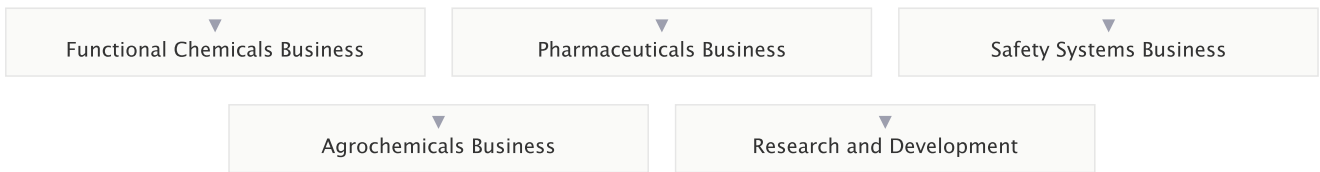
[View larger image](#)

The Nippon Kayaku Group's Businesses

This section will take a closer look at the 4 core businesses of the Nippon Kayaku Group as well as products that they developed with unique technologies that contribute to the betterment of society.

We are committed to promoting innovations by using our technological expertise. It is our goal to contribute to society by consistently supplying high-quality pharmaceuticals to improve patient outcomes, and to achieve more efficient medical spending.

Contribute to the creation of an "Super Smart Society" by providing functional chemical materials that offer special characteristics for the fields of information and communication, and energy and resource conservation.



Functional Chemicals Business

- We will contribute to society by supplying unique functional chemicals for the IT, ICT and resource conservation fields

Many believe that the world is set to become a super-smart society in the future. This is a society where various things are connected to the Internet, making people's lives truly comfortable.

In the field of ICT, the network connecting personal digital devices with home electronics and automobiles is growing, while rapid advancements are also being made in reducing the size and increasing the performance of semiconductor devices and improving the resolution of displays mounted on these digital devices. At the same time, there is growing demand for energy conservation and resource conservation. The Functional Chemicals Business is helping to realize this super smart society by supplying unique products to the fields of IT, ICT, energy conservation and resource conservation using its long-standing technologies in resins, pigments, and catalysts.



> [Functional Chemicals Business](#)

Pharmaceuticals Business

- We are committed to prompting innovations by using our technological expertise. It is our goal to contribute to society by consistently supplying high-quality pharmaceuticals to improve patient outcomes, and to achieve more efficient medical spending.

The Pharmaceuticals Business engages in research and development specializing in anti-cancer drugs and peripheral fields, focusing on polymeric micelle anti-cancer drugs that utilize nanotechnology as well as antibody drug, biosimilars and generic pharmaceuticals in the cancer field.

We aim to contribute to society with innovations that are backed by our technological expertise and by consistently supplying high-quality pharmaceuticals to improve the level of treatments patients receive, and to achieve more efficient medical spending.



> [Pharmaceuticals Business](#)

Safety Systems Business

■ Through explosives technology applications, we help protect lives during auto collisions throughout the world

Although automobile production declined somewhat in China in 2018, on a global basis, the total number of units produced is expected to continue growing. In addition, safety components that protect passengers and pedestrians involved in auto collisions are rapidly spreading beyond the developed countries to the developing countries as well. The Safety Systems Business manufactures and markets uses explosives technology, on which the Company was founded, in its automotive safety components, providing such product that employ explosives technology as inflators and micro gas generators, which are incorporated in such automotive safety components as air bags, seatbelt pretensioners, and hood-opening devices that protect pedestrians. The Safety Systems Business's products are manufactured not only in Japan, but also in the Czech Republic, China, Mexico, and Malaysia, and are used by auto manufacturers almost worldwide. The Safety Systems Business's products are helping to save people's lives in auto accidents everywhere.



[> Safety Systems Business](#) 

Agrochemicals Business

■ We will contribute to society by supplying safe agrochemical preparations technology that are compatible with the environment and indispensable to stable food production

The environment surrounding agriculture is becoming more severe with each passing year, marked by food supply issues caused by the rising world population, issues with food self-sufficiency rate, and increasing crop damage from disease and pests. Such an environment requires that safe and secure agricultural crops be grown consistently and brought to market in a stable manner.



In June 2018, we launched our new insecticide, FINESAVE®. It is receiving rave reviews from the market as an insecticide that works on thrips and other pesticide-resistant insects, along with our spiracle-blocking agent, Fumon®, which is effective in overall pest control and does not rely only on a chemical pesticide.

[> Agrochemicals Business](#) 

Research and Development

The Nippon Kayaku Group engages in proactive R&D activities, knowing that R&D is a driving force behind its business growth. Since marking its 100th anniversary, Nippon Kayaku continues to further deepen its long-standing elemental technologies and core technologies for new technological development. We will contribute to society, safeguard the life and health of the public, and support a comfortable life by executing R&D to consistently deliver the best products.

At each of the research laboratories directly run by the Functional Chemicals Group, the Pharmaceuticals Group, the Safety Systems Group, and the Agrochemicals Group, R&D activities are taking place aimed at the creation of new products only possible by Nippon Kayaku in each of these respective business domains. In addition, as part of the R&D aimed at the creation of new products and new businesses, we also actively pursue corporate research utilizing our strengths by allocating company-wide management resources strategically and combining technologies, products and intellectual properties from inside and outside the company.

■ R&D that takes the Nippon Kayaku Group's proprietary technologies to new heights – R&D of light control films

The Research and Development Group will contribute to society, safeguard the life and health of the public, and support a comfortable life by executing R&D investments to consistently deliver the best products.

Automobiles are set to undergo a major transformation with advancements in electric vehicles and autonomous driving technologies. A large number of sensors are now fitted to automobiles to support safe driving. One of these is the head-up display that displays various forms of information on the windshield. Head-up displays use special films that control light in order to display this information clearly. Light control



Head-up displays

technology is used in a very wide range of fields, including not only head-up displays, but also LCD and organic EL displays, projectors, transparent displays, heat shield windows, and sunglasses, to name a few.



Eyewear

Nippon Kayaku is examining the use of the group's light control technologies such as polarizing films and retardation films to develop highly advanced and specialized light control films as one of its corporate research themes. For example, we are examining together with group companies the possibility of using these films to develop automotive head-up displays using our unique technology that makes images clear in wide viewing angles and to develop eyewear such as sunglasses and goggles with a completely new metallic-like finish despite being made from organic materials.

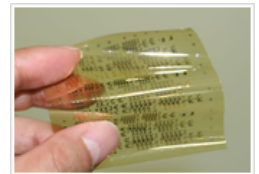
■ Researching the Needs of Tomorrow: R&D for Organic Semiconductor Materials

The Research and Development Group will contribute to society, safeguard the life and health of the public, and support a comfortable life by executing R&D investments to consistently deliver the best products.



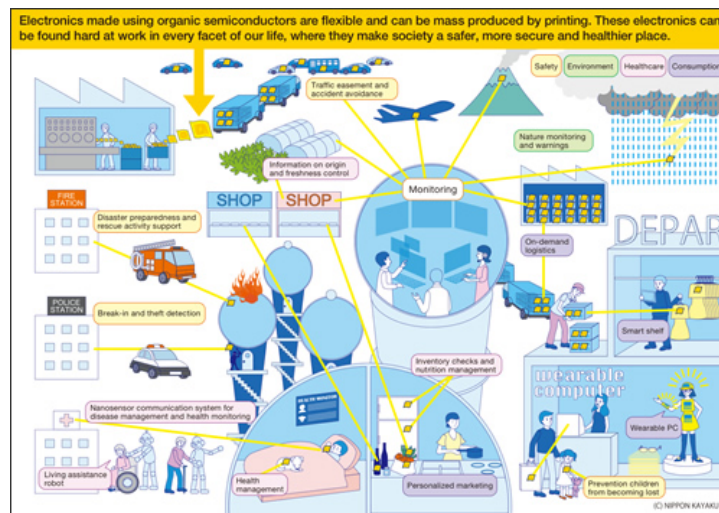
Inorganic semiconductor

Additionally, the Research and Development Group is implementing R&D strategy with a medium- to long-term perspective to create new products and new business through open innovation inside and outside the company and by combining the intellectual properties and technologies of the Nippon Kayaku Group. The Kita-ku, Tokyo is one of the Nippon Kayaku Group's largest R&D hubs and considered a critical area for R&D and new business creation. We will concentrate resources here including researchers from each business field and facilities to achieve collaboration and integration of technologies and people.



Organic semiconductor

[> Learn more about our research laboratories](#) 



[> View larger image](#) 

■ Para Safe® emergency safety parachute device for drones

The use of drones (unmanned aircraft) for logistics, surveying, inspections, disaster assistance, and the like is spreading through the world. At Nippon Kayaku, we are using the explosives technology we developed for air bag inflators, gas generators for seatbelt pretensioners, and other automotive safety components to develop safety device for drone parachutes. When a drone is falling, this safety device will remotely turn on an ignition device, so that a parachute can be quickly deployed to bring the drone safely to earth. This device will broaden the scope of our drone business, protecting the drones themselves, their payloads, and human lives. To help us improve the reliability of our safety devices, we are giving samples to drone makers to get their feedback. We plan to launch this product in 2021 or later.



■ The Meeting of the Movement for Tomorrow

Meeting for the 59th time in 2018 is held annually as a company-wide venue for sharing achievements in terms of operational improvements, improving productivity, human resources development, and new product development.

It has become the largest annual event to participate not only from Nippon Kayaku but also from domestic and foreign group companies.

In the Meeting, each department makes a presentation, and among them we select excellence awards and special awards to recognize excellent themes.

Evaluation of daily activities increases employee motivation for work.

By attending presentations of various workplaces, we can obtain hints for new ideas and task solving.

In addition, at the social gathering after the presentation, we are deepening collaboration laterally by communicating with people beyond occupations, generations, and countries, and expanding our horizons of business.

We will continue holding this meeting so that Nippon Kayaku Group employees can continue to raise their ambitions and take the next step in their careers.

■ KAYAKU spirit Dream and Drive("Kaizen")Activities*The exchange meeting

Meeting for the 7th time in 2018 is a field to talk about "KAYAKU spirit Dream and Drive"("Kaizen") Activities frankly. It is a small-scale meeting mainly plant departments and every participant can speak frankly and actively.

In this exchange meeting for two days, the presentations were carried out on the first day and had open discussions on the second day. During the open discussion, participants talked freely about how to lead **D&D** activities, evaluation method of the result, and troubles and ingenuities of activities.

The small group size made it easier for participants to talk amongst themselves, resulting in active discussions. So it is popular among participants because it allows active exchange of opinions and information sharing. Through discussions with people in multiple workplaces, we receive stimulus from other workplaces, lead to improvement of problem awareness and promotion of **D&D** activities at our own workplace.

We will continue this exchange meeting and will do it for more active **D&D** activities in future

* **KAYAKU spirit Dream and Drive("Kaizen")Activities**: A form of improvement activities that focus on the ingenuity and innovations of all employees in order to resolve tasks in the workplace independently under the banner of CSR management)

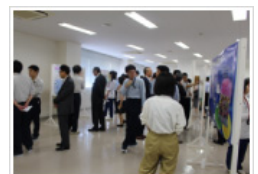
■ Company-wide Research Presentation Conference

The annual Company-wide Research Presentation Conference brings together researchers from the Research and Development Group engaged in R&D at four laboratories in Japan as well as officials from the head office including the President for oral and poster presentations of research outcomes. The event also features oral presentations and awards for patented inventions that greatly contribute to the company's businesses or technological development.

In fiscal 2018, we organized oral presentations and postal displays on the theme of "A new world spun out of horizontal threads" so as to explain how our technologies are derived, what kind of future these technologies will bring to us, and which technologies are needed to realize this future.

Nippon Kayaku highly values opportunities for management and researchers to directly engage one another to share research outcomes in a multifaceted manner and to enable researchers to promote themselves.

Researchers are also able to create company-wide networks among themselves, while being asked questions and given advice after their oral presentations and poster presentations. This allows for the linkage and fusion of the many excellent technologies developed by Nippon Kayaku over the years, and contributes to problem solving and the creation of innovation.



Following the policy of Nippon Kayaku's global management, the Research and Development Group is in the process of building a global R&D structure inclusive of overseas Group companies. While promoting greater interaction among researchers working for overseas subsidiaries, the Research and Development Group is carrying out the following activities from the perspective of CSR.



Hosting International Internship Students

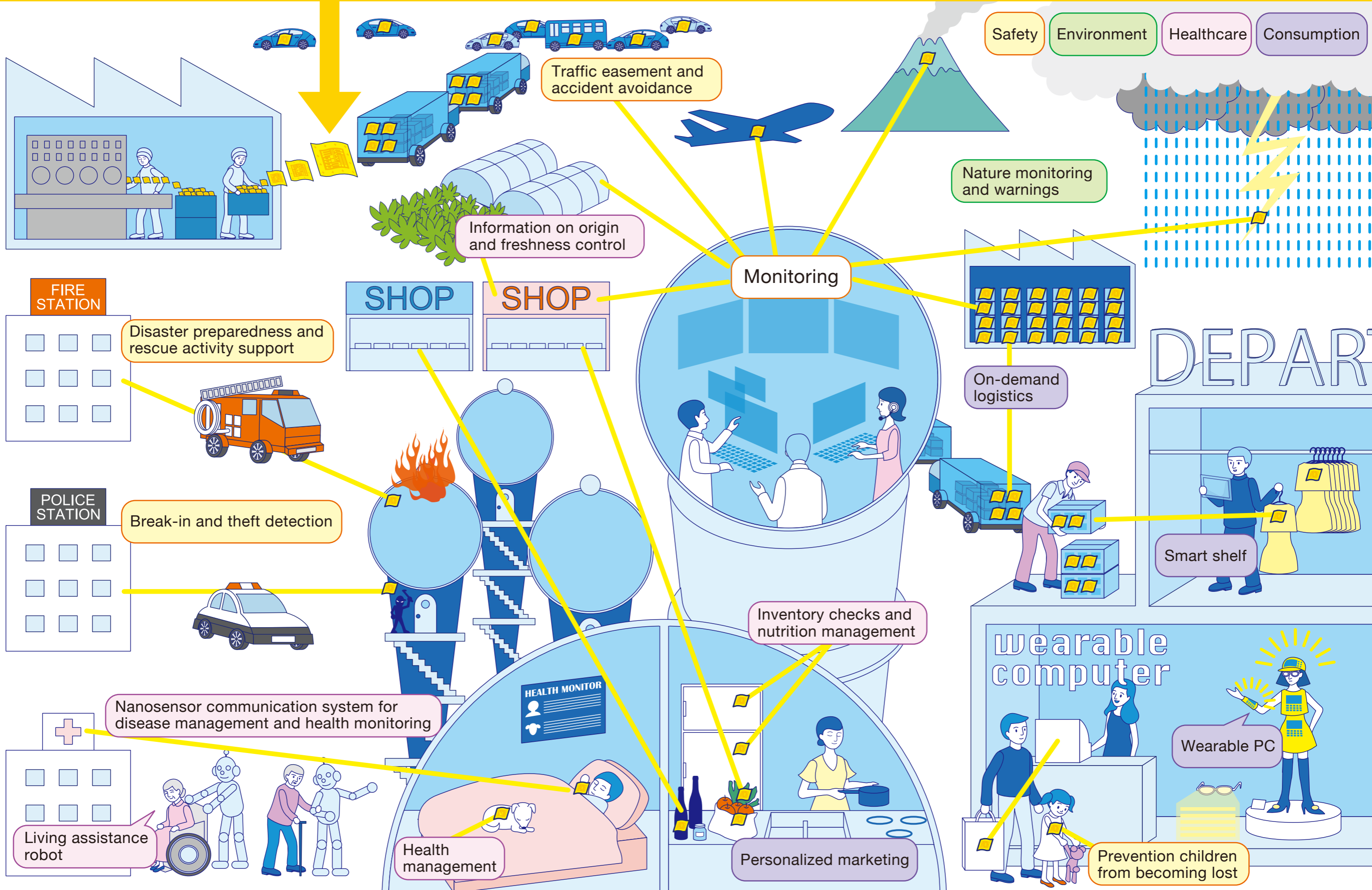
Nippon Kayaku hosts interns from both domestic and overseas universities. Interns engage in various activities at Nippon Kayaku's laboratories with a focus on research and development, while also learning about corporate activities and Japanese culture. At the same time our employees receive a boost in terms of motivation and stimulation by working together with these young interns. Going forward, through these internships, we will continue to globalize our corporate culture and contribute to international exchange as well as the education of overseas students.

Joint Collaboration with Overseas Research Institutes

Nippon Kayaku actively engages in joint research with research institutes located outside of Japan. We utilize web conferencing during joint research with overseas group companies to share information in a timely manner and speed up the R&D process. Also, we are among the first to adopt cutting edge technologies and materials, while utilizing industry-academia collaboration programs with overseas universities, to ensure that we can help create a sustainable society.

The collaboration and integration of our long-standing excellent technologies help promote problem solving and the creation of innovation.

Electronics made using organic semiconductors are flexible and can be mass produced by printing. These electronics can be found hard at work in every facet of our life, where they make society a safer, more secure and healthier place.





With Our Customers

The Nippon Kayaku Group conducts company-wide quality activities under its quality system in order to supply the best products to customers. We are mindful that product quality improvements, safety and reliability, as well as the provision of technical services and information are paramount to improving customer satisfaction.

Quality Initiatives

The Nippon Kayaku Group has established a basic policy called The Declaration on Environment, Health and Safety, and Quality and has built a quality management system to continually deliver the best products that satisfy customers. We deploy various initiatives for quality across the entire company and work on quality assurance and quality improvement activities to increase customer satisfaction.

The Declaration on Environment, Health and Safety, and Quality

The Nippon Kayaku Group, under the spirit of its CSR philosophy and Responsible Care, has formulated The Declaration on Environment, Health and Safety, and Quality, in order to maintain and enhance its environmental protection, health and safety and quality assurance practices. We are also implementing this declaration using organized activities.

The Declaration on Environment, Health and Safety, and Quality

Enacted November 7, 1995
Amended May 22, 2017

The Nippon Kayaku Group, under its corporate motto of "KAYAKU spirit", which calls for continuously providing society with the best products through ceaseless progress and the combined forces of our consciences, we will contribute to the realization of a sustainable society that safeguards the life and health of consumers, and supports a comfortable life.

Fundamental Policies

1. We will strive to maintain and improve the environment, people's health and safety across the entire product lifecycle, from R&D to production, distribution, sales, recycling, and disposal.
2. We will strive to conserve the environment by introducing and developing technologies that are useful toward reducing waste, carrying out the appropriate disposal of waste, conserving resources, conserving energy, and implementing global warming prevention measures.
3. We will actively provide business partners with information needed for the safe usage and handling of our products and for conserving the environment.
4. We will enhance the quality of not only products, but operating processes as well, and also work to enhance customer satisfaction.
5. We will heighten employee knowledge and skills through education and training and achieve our goal of zero pollution, zero injuries, zero accidents and enhanced quality.
6. We will disclose information so that stakeholders correctly understand our business activities and also strive to engage in dialogue with local communities and government authorities.

June 25, 2019

President & Representative Director
Nippon Kayaku Co., Ltd.

Quality Assurance System

Quality assurance at the Nippon Kayaku Group is carried out through a control system headed by the Environment, Safety, and Quality Assurance Management Committee, which is chaired by Nippon Kayaku's President.

This Committee is dedicated to strengthening the Company's quality efforts by discussing and making decisions about the problems and steps involved in the Company's quality assurance policy and quality assurance activities.

In addition, each business group is strengthening its quality control by establishing the necessary quality assurance divisions for assuring quality in each of our businesses.

Quality Assurance and Quality Improvement Activities

The Quality Management Division of the Technical Operations Group heads up the Nippon Kayaku Group's quality assurance and quality improvement activities.

Quality assurance activities aim to mitigate quality process failures, cut back on customer complaints, and carry out various training to enhance and reinforce quality control skills in order to stabilize quality.

To verify that the Nippon Kayaku Group's quality management system is operating effectively, we conduct quality assessments of business sites in Japan and group companies, including those outside Japan.



The "Field Data Analysis - Enjoying Learning Through Experiences" workshop in progress. Participants logically discuss complex cause-and-effect relationships at their desk and then carry out experiments to test out their theories.

Quality Assurance and Quality Improvement Activities at each business site

Each business site of the Nippon Kayaku Group deploys various types of quality assurance activities. Also, we are building a database of quality process mishaps so that it can be shared horizontally at other business sites as well.

Quality assurance activities

- Quality patrols
- Trend management (visualization)
- Activities to prevent reoccurrences of quality troubles (why-why analysis, etc.)
- Reinforcement of quality management technologies

Quality improvement activities

- Quality risk assessments
- Improvement of design and development capabilities
- Statistical analysis method ("Field Data Analysis - Learning Through Experience")
- Activities to prevent reoccurrences of quality troubles (why-why analysis, etc.)

Quality Risk Assessments

Whenever changes are made to production process, such as the installation of a new machine that will take the place of a new worker, for example, (whenever so-called 4M changes are made), we conduct a quality risk assessment to prevent quality troubles before they occur. The term "4M changes" refers to changes related to man, machine, material and/or method.

The educational activities for the quality assurance and the quality improvement

As the educational activities for the quality assurance, We offer "Field Data Analysis - Learning Through Experience" program geared toward researchers and developers and plant employees for practical training on statistical analysis methods, send employees to take part in outside quality training, and provide outreach teaching at plants as part of internal auditor training.

Here, we will take a look at measures to reduce customer complaints and curb quality process failures.

At each of our plants, we utilize quality control methods such as management diagrams as well as carry out quality patrols and QYT activities (quality hazard detection training), as part of our daily quality control activities.

The activities to prevent recurrence of the quality process abnormality

For customer complaints and quality process failures we encourage the use of why-why analysis by the workplace using Nippon Kayaku's why-why analysis manual in order to reinforce preventive measures. Furthermore, we use a version of this manual translated into the Chinese language to conduct training on why-why analysis at our group companies in China.

Creation of Our Own "Why-Why Analysis" Manual

An analysis by the Quality Management Division found that many similar incidents had occurred in the past but there were insufficient resources to find the causes of these incidents. Therefore, we decided to implement why-why analysis in an effort to correctly identify relationships between cause and outcome, determine the fundamental cause, and prevent similar events from happening again. Each plant selects members to promote these efforts and we have also compiled our own "Why-Why Analysis" Manual (made available in both Japanese and Chinese language versions). This manual is used by every workplace for why-why analysis.



Quality Improvement Promotion Activities

Nippon Kayaku's initiatives for improving quality began with the voluntary introduction of statistical approaches to QC* activities by plant engineers in 1948.

After receiving the Deming Prize in 1963, Nippon Kayaku organized its very first In-house QC Circle Conference in 1966 as a venue to present the results of its QC activities. Since then, we have expanded the scope of these activities into "Small Group Activity Meetings" open for all employees, with this name later changed to the "Meeting of the Movement for Tomorrow." The scope of these activities has expanded from quality improvement to operational reform, cost reductions, 5S activities, next-generation development, energy conservation, health and safety improvement, and environmental conservation.

Starting in 2014, these small group activities were revamped exclusively for Nippon Kayaku with a focus not only on improvement, but also on human resources development and CSR activities.

Global Quality Control and Human Resources Development within the Safety Systems Group

The safety systems group supplies automotive safety components to customers around the world. This requires that it provide and guarantee the same standard of quality. The group has production facilities worldwide and so the Himeji mother plant has implemented the Robust design* resilient in the face of numerous variations given the requirements of differing production sites in terms of culture, language and technologies. This approach has enabled it to provide the same level of quality worldwide.

At its global production sites, locally hired managers and line workers are selected to take part in extended trainings at the mother plant to obtain essential knowledge and skills. After completing their training, they return to their workplaces and serve as instructors to pass on their knowledge and skills to others.

* Robust design: A design in which product performance and quality does not vary and is not affected by interference or measurement errors.



Technical interns from Malaysia and members of the Himeji Plant's Quality Assurance Department

Aiming to Create Products that Satisfy Customers

The Nippon Kayaku Group is undertaking various research and development for new products and services in order to supply products that support the enriched and healthy lifestyle of its customers.

Head-up display related products for automobiles (under development)

Nippon Kayaku is developing products that can contribute to the safe driving support systems. Head-up displays, which display information on the windshield or clear screen of cars, allow the driver to access information without averting their line of sight. These displays are anticipated to become more popular going forward in place of conventional car navigation systems.

However, as windshields are made up of two plates of glass, there is the issue with head-up displays showing double images if simply projecting an image onto the glasses, while the display is difficult to see when wearing polarized sunglasses.

To address this issue, we developed a new product called Freelix[®] HUF^{*} using our proprietary optical design expertise.

Freelix[®] HUF is a breakthrough film that eliminates double image of a projected image as well as allows images to show up vividly to the eyes even when wearing polarizing sunglasses by inserting this film between the two plates of glass of a windshield. This was exhibited as a conceptual sample at the 2017 Highly-functional FILM EXPO, which attracted many visitors who were able to experience its effects. Currently, we are working on development aimed at commercialization.

Together with our group companies, we will continue to propose new products with features that will contribute to the "Environment, Energy Conservation, and Safety."

* [Freelix[®] HUF] Light control film for head-up displays.



HUD using Freelix[®] HUF

Medical Information Service Center and Securing Customer Trust

The Medical Information Service Center receives toll free calls from patients and medical professionals with various questions relating to our pharmaceuticals and medical devices, such as anti-cancer drugs, treatments for autoimmune diseases and intravascular embolic materials. Staff at the Medical Information Service Center carefully and accurately respond to each inquiry to ensure that all of the products supplied by Nippon Kayaku are of the highest possible quality. We also conduct surveys to check whether our response meets the expectations of the customer as part of our continual improvement initiatives. Additionally, staff work with medical representatives (MRs) that visit medical facilities to ensure they can provide information that is beneficial to patients, while customer requests and opinions are proposed and reported to each relevant department in charge within the company. The Medical Information Service Center is committed to improving medical care under the slogan "provide proper usage information and improve customer satisfaction in all situations."



Medical Information Service Center

Information Site (Note on Uterine Fibroids)

In October 2018, we launched a comprehensive information site on Uterine Fibroids for the general public.

Filled with helpful information on what Uterine Fibroids are and their symptoms and treatment, the site provides easy-to-understand information for women who are busy with work, child-reading, care-giving, hobbies, and the like.

[> Note on Fibroids](#) 



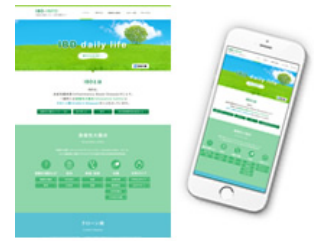
Launch of IBD-INFO

In April 2015, we launched IBD-INFO as an informative microsite for IBD patients.

IBD stands for Inflammatory Bowel Disease. Generally, IBD refers to Ulcerative Colitis and Crohn's Disease. The microsite IBD-INFO provides easy-to-understand commentary from a healthcare

professional about the symptoms of Ulcerative Colitis and Crohn's disease as well as exams, diagnosis, treatment and daily care, among other topics.

The microsite features a host of different content about causes and symptoms, treatment methods, daily care, and public subsidies for defraying healthcare costs, so as to provide patients with an extensive resource of need-to-know information. Additionally, articles on the latest in IBD treatment and care featuring interviews with specialist physicians are regularly published on the microsite as well.



The goal of this microsite is to broaden patient understanding and empower them with the correct knowledge so that they will be more motivated during the treatment process.

[> IBD-INFO](#)

Launch of Informational Microsite "RHEUMATISM RA · RA · RA"

The microsite "RHEUMATISM RA · RA · RA" was launched in February 2015 to educate people living with Rheumatoid arthritis. This site was created with a commitment to serve as a close, everyday partner for people with Rheumatoid arthritis by providing emotional support.

The site, which is also compatible with smartphones, offers an easy-to-use platform that is user friendly, including oversized icons that are easy to touch. The site offers various content covering the topics that patients want to know about, including the causes of Rheumatoid arthritis, symptoms, and treatment options, a long with medical costs involved, care services and a hospital search function.



Additionally, the site provides information about Japan's high cost medical care benefit system accessible for the treatment of Rheumatoid arthritis and also a medical cost reimbursement calculator. The video collection of exercises for Rheumatoid arthritis patients selected by the editorial supervisor, who is a specialist in rheumatology, can be watched at home where patients can also try them out at their convenience.

The phrase "Feeling Happy" and the four leaf clover mark form the logo used by Nippon Kayaku's immunology business. Like a four leaf clover, we hope to play an integral role in patient's lives and provide emotional support. New perspectives play an important role in the treatment process and making life more enjoyable. Our hope is to contribute to each and every patient "Feeling Happy."

[> RHEUMATISM RA RA RA](#)

Initiatives at the Himeji Plant

■ New Dojo Set up as an Education and Training Venue

In fiscal 2018, the Safety Systems Group started offering education at the Himeji Plant's new Dojo (Educational Center), which will serve as an educational and training venue for employees.

The Dojo is divided into zones for educating new hires about the Company's safety and quality rules and prohibitions (dos and don'ts) in an easy-to-understand format and zones for providing hands-on experience. Also, incorrect judgments made during emergencies by plant or research lab on-site supervisors will result in a spate of defective products. We have therefore launched courses about our products and processes and that review past problems with products and processes, which are led by veteran employees selected from the plant and research groups to enhance the skill levels of mid-range employees (120 people).

Furthermore, the Safety Systems Group's overseas subsidiaries are also setting up Dojos to offer similar education.



Agrochemical Business Initiatives

■ Contributing to Agricultural Production with Our New Insecticide (FINESAVE®)

Launched in June 2018, FINESAVE® is new type of insecticide that is highly effective in killing thrips, silverleaf whiteflies, rust mites, cabbage moths, and other pests that plague leeks, onions, tomatoes, strawberries, white radishes, cabbage, and other types of produce.

Because FINESAVE® is a new kind of agent that does minimal harm to useful insects and the natural enemies of these pests, it can be used during the growing season, when the use of agricultural chemicals had to be restricted in the past. We are holding discussions with local instructional organizations regarding crop systems, usage of agrochemicals, etc., so that we can suggest ways to use this product efficiently and skillfully while taking maximum advantage of its attributes. We are working so that this agent can contribute to actual agricultural production in the future.



■ Initiatives for Improving Crop Quality

For higher-quality crops and the production of safer crops, the Agrochemicals Division is proposing ways to use our existing products, Leaf Guard® and Fumon®, along with our new product, FINESAVE®, which went on the market in June 2018 and is effective in killing such pests as thrips, rust mites, and cabbage moths.

We are conducting marketing and sales promotion activities that propose using FINESAVE® with Leaf Guard® (which is effective on a broad range of eggs, larvae, and adult insects) on such major cabbage and Chinese cabbage pests as cabbage moths, which have thus far been fairly resistant to existing agrochemicals, and that propose using FINESAVE® with Fumon® (which has the capabilities of spiracle-blocking agents plus spreading agents and is safe enough to use over and over until harvest time) on strawberries and the like.

We will continue our untiring efforts to improve crop quality in the future.



[> Agrochemicals Business](#) 



With Our Business Partners, Stockholders and Investors

The Nippon Kayaku Group engages in proactively communication with our valued Business Partners and Investors.

Initiatives for CSR Procurement

The Nippon Kayaku Group has established Basic Procurement Principles and Basic Procurement Policies governing purchasing activities that are appropriate for CSR management. They are published on our website. We are now working with every one of our business partners on CSR procurement.

Basic Procurement Principles

In order to realize the **KAYAKU spirit**, Nippon Kayaku Group will pursue mutual and sustainable growth with suppliers based on the understanding they are important business partners who help us produce products of the best quality.

Based on our basic procurement policy, we Nippon Kayaku and our affiliates conduct our transactions with fair, just and sincere attitude following with the laws and the social norms all the time.

Basic Procurement Policies

At Nippon Kayaku Group, all procurement operations will be carried out in accordance with the Basic Procurement Policies as set out below.

Compliance with Relevant Laws, Social Norms, and the Nippon Kayaku Group Charter of Conduct

1. We will comply with all relevant laws and regulations when conducting procurement operations.
2. We will judge the propriety of procurement activities based on Nippon Kayaku Group Charter of Conduct and the Nippon Kayaku Group Code of Conduct and Group Action Guidelines.

Open-door Policy, Fairness, Impartiality, and Transparency in Business Transactions

3. We will conduct procurement-related business transactions in a fair, impartial, and transparent manner, and follow an open-door policy with respect to businesses at home and abroad.
4. We will build partnerships with suppliers based on mutual understanding and trust, and pursue mutual sustainable growth.
5. In order to ensure transparency in all our procurement activities, we will undertake due procedures based on written documentation or electronic purchasing systems in accordance with the procurement operations standards.

Protection of Information

6. We will protect supplier-related information obtained in the course of our operations, and strive to prevent any information leakage.

Concern for the Environment

7. We will promote the procurement of eco-friendly goods and materials.

Basic Criteria for Selecting Suppliers

8. When selecting goods and materials, we will give due consideration to economic factors such as quality, price, and date of delivery. We will also consider other factors such as the supplier's operating foundations, technological competitiveness, and stability of supply.
9. When selecting suppliers, we will give due consideration to their commitment to corporate social responsibility (CSR), including their observance of relevant laws and regulations, respect for human rights, concern for the working environment, disaster preparedness and safety measures, efforts toward environmental conservation, and other efforts designed to fulfill their CSR.

BCP Initiatives

10. In addition to the above, we will give due consideration to whether or not the potential supplier has a risk management system such as BCP (Business Continuity Plan).

Initiatives for CSR Procurement

To fulfill its social responsibility, the Nippon Kayaku Group has set forth its procurement guidelines in a CSR Procurement Guidebook, which includes the Nippon Kayaku Group Charter of Conduct, the Nippon Kayaku Basic Procurement Principles, and the Nippon Kayaku Basic Procurement Policies.

Our CSR procurement policy takes into consideration respect for human rights, environmental preservation, work health and safety, and fair business practices vis-à-vis all of the business partners in our supply chain, from research and development, to the procurement of raw materials, production, marketing, and distribution.

We hold briefings so that our suppliers will understand our practices, and we are using daily communications and business meetings to gain their support for our CSR procurement policy.

Our goal is to meet our social responsibilities throughout the supply chain and to improve ties with our business partners so that we will gain the respect of our customers.

Safety Systems Group Annual Purchasing Conference

The Safety Systems Group organizes annual purchasing conference for its key suppliers. At these meetings, we provide information on our earnings forecast for the current fiscal year; business plan for subsequent fiscal years; status of the production system; development plan; medium- to long term business vision; as well as Basic Procurement Policies with the interest of helping our partners formulate their business plans.

Also, we presented one partner company which responded to our quality, costs, and delivery requirements in a model manner with Outstanding Partner Company Award.



Purchasing Conference

Polatechno Co., Ltd. and Moxtek, Inc. host booth at Finetech Japan

Polatechno Co., Ltd. and Moxtek, Inc. jointly hosted a booth at the 28th Finetech Japan – LCD/OLED/Sensor Technology Expo held at Tokyo Big Sight from December 5 to 7, 2018.

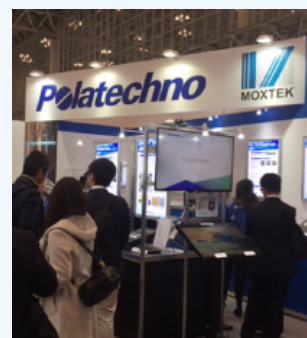
Finetech Japan is the world's largest expo specializing in display, lighting, and sensor devices that draw together the latest technology of LCD, OLED, and sensor technologies at one place.

Polatechno and Moxtek showcased products and technologies using achromatic polarizing plates^{※1}, high contrast, high durability dye-based polarizing plates^{※2}, and ProFLux[®]^{※3}, and provided detailed information using samples, demonstration equipment, and panels.

Many people visited the companies' booth including those representing domestic and international automobile and display manufacturers, material manufacturers, and university research institutes. The booth introduced the development and manufacturing technology of dye-based polarizing plates as well as inorganic polarizing plates of the Polatechno Group.

Polatechno Group's polarizing plates with a higher durability and visibility contribute to more convenient lifestyles while saving energy.

- ※1 Achromatic polarizing plate: A polarizing plate used in full color reflective LCD with a rapidly improved contrast (over ten times improvement compared to the company's conventional polarizing plates).
- ※2 High contrast, high durability dye-based polarizing plate: A high performance dye-based polarizing plate with a very high contrast while maintaining high durability performance using high performance pigments and orientation technology.
- ※3 ProFLux: Inorganic polarizing plate.



Communicating with Investors

Nippon Kayaku strives to earn the trust of all stakeholders and to continue to be an essential part of society. To achieve these goals, we disclose information to all of our shareholders, investors, and other stakeholders in a timely, impartial, and fair manner.

Communication with Shareholders

The Nippon Kayaku Group holds its ordinary general meeting of shareholders every year in June as a venue for communicating with its shareholders.

To provide our shareholders with business reports and voting resolutions in a more timely and easy to understand fashion, we are digitizing meeting notices and providing English-language meeting notices on our Company website, and are moving up the dates that we send out meeting notices and provide electronic disclosure.

Also, we are trying to make it easier for our shareholders to exercise their voting rights by installing an electronic voting system whereby shareholders may cast their votes on the internet if they are not



submitting a voting form.

We send out a business report every six months so that our shareholders can stay informed about our businesses and other topics.



General meeting of shareholders

Communicating with Investors

■ Earnings Presentations

We host earnings presentations for institutional investors and securities analysts in Japan following the announcements of our interim and fiscal year-end results. Nippon Kayaku's entire executive team, including the president, attends these presentations where we provide information on our financial results, earnings forecast and future management strategies. We also hold teleconferences during the first and third quarters to provide mid-term updates.



Earnings Presentations

■ One-on-one Meetings

We hold one-on-one meetings to communicate directly with institutional investors and securities analysts.

■ Open House Tours at Plants and Round-table Conferences with Investors

Nippon Kayaku host open house tours of our plants and round-table conferences for institutional investors and securities analysts every year, to promote better understanding of Nippon Kayaku's business activities.

Website development

The Nippon Kayaku website has business and solution, product, IR information, CSR information, company information, etc. We quickly post information especially about investor relations, including management policy, financial, quarterly financial results briefings, integrated reports for our shareholders and investors 's solid understanding.

[> Investor relations](#) 



With Our Local Communities

The Nippon Kayaku Group aims to be a company closely rooted in communities through its involvement at the local level, proactive engagement with all stakeholders and support for the educational needs of the next generation.

For society built on a healthy and productive life

The Pink Ribbon Campaign

The Pink Ribbon Campaign was launched by Nippon Kayaku in 2004 to convey the importance of early detection, early diagnosis and early treatment of breast cancer. Fiscal year 2018 marked the 15th year of these activities.

The campaign includes running a breast cancer awareness website, employees wearing Pink Ribbon Badges, and handing out items that help raise awareness such as bumper stickers. At first these items were handed out at the closer station nearest to our corporate head office, but starting in fiscal 2012 we handed items out at the railway stations closest to all of our business sites in Japan (Fukuyama Plante, Tokyo plant, Asa Plant, Takasaki Plant, Himeji Plant, and the Tokyo), where we also lobbied passersby about the importance of breast cancer screenings.

Furthermore KSM and KSE of overseas group companies also have carried out the Pink Ribbon Campaign, Nippon Kayaku's Pink Ribbon Campaign are expanding worldwide.



Kayami – the Nippon Kayaku Pink Ribbon campaign character



Breast Cancer Info Navi

Breast Cancer Info Navi was launched in 2006 as an informative website for breast cancer patients. This Navi aims to provide information from specialist physicians and pharmacists to all women, not just breast cancer patients and their families.

> [Breast Cancer Info Navi](#) 



Kayaku Safety Systems Europe a.s. (KSE)

Theme for this year's campaign: Prevention is critical!

KSE held its 4th pink ribbon day campaign on Oct 12, 2018 with ZO ONKO-DUHA Vsetin.*1 This year, students from the medical secondary school in Vsetin took part in the campaign. These students, along with experienced ZO ONKO-DUHA members, provided participants with information about the importance of breast cancer detection, how to carry out a self-examination, and how to prevent breast cancer. At the end of the campaign, ZO ONKO-DUHA gave a pink reflector in the shape of a flower and a pamphlet to all participants.

*1 ZO ONKO-DUHA Vsetin is the Vsetin branch of SPCCH (an organization for breast cancer patients in the Czech Republic), which in turn is an organization to which KSE has been providing financial assistance since 2015.



KSE's employees also showed their support for the campaign by wearing pink.

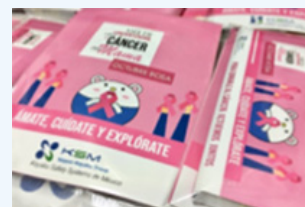
Kayaku Safety Systems de Mexico, S.A. de C.V. (KSM)

The Pink Ribbon Campaign

October is Breast Cancer Awareness Month.

KSM held an in-house pink ribbon campaign, which taught all employees about the importance of early detection of breast cancer and how to conduct a self-examination and urged employees to share that information with their families.

In 2018, Vanessa Martínez and Beatriz Montemayor of the Cruz Roja Mexicana were invited to lecture on the importance of early breast cancer detection, how to conduct a self-examination, the characteristics of breast cancer, and the importance of living a healthy life. Also, in addition to their lecture, they taught actual self-examination techniques using silicon samples and exchanged ideas with employees, thus deepening employees' knowledge of breast cancer. Following the lecture, everyone who attended received chocolate and a pamphlet containing the text of their talk.



Asunaro House – Let's Assist Children with Intractable Diseases and Their Families

The Nippon Kayaku Group, as part of the commemorative projects marking its 80th anniversary and under the motto of "Let's assist children with intractable diseases and their families," owns and operates Asunaro House, an extended-stay facility for caregivers in Saitama City, Saitama Prefecture.

This facility safeguards users' privacy and provides parents with a child fighting an illness an opportunity to meet others like themselves, which helps to alleviate the mental burden placed on parents.



Message

I have been working as the House Manager at Asunaro House since 2017. This facility has hosted over 3,000 families since it was established in 1998. After the Saitama Children's Medical Center relocated to Saitama Shin Toshin in December 2016, we have seen an increase in users of the facility.

As the time changes, the demands for our facility is also gradually changing. Asunaro House aims to constantly evolve in anticipation of the ever-changing needs of the families choosing our facility to stay a safer, more secure and comfortable environment.

There is no better recognition than the simple words "thank you" as the children are discharged from the hospital and ready to move back home as a family.



Providing Support for LRI Activities

The Long-range Research Initiative (LRI) is a joint initiative of the chemical industries of Japan, the United States and Europe. Part of the voluntary activities of International Council of Chemical Associations (ICCA), LRI supports long-term research into the effects of chemicals on human health and the environment, with focus on endocrine disrupting effects, neurotoxicity, chemical carcinogenesis, immunotoxicity and elaborating risk factors.

Nippon Kayaku has actively supported LRI from its start in 1999 by offering financial support for LRI activities. and attending the committee.

Supporting the Development of the Next Generation

CSR Educational Initiatives

Three approaches including outreach classes, events, and site visits.

Outreach Class

Outreach classes are developed based on our own educational program that are in line with elementary schools' guidelines with and implemented in schools around plants.

■ Outreach class: "Discovering the body! Mechanisms of the body and its relationship to medicine"

A curriculum to learn the following four concepts through experimentation developed based on "Constitutions of the Human Body and Functions" as a science subject related to the pharmaceutical business.

- (1)How are nutrients absorbed into the bloodstream after being digested; how do they circulate throughout the body?
- (2)How do medicinal ingredients become absorbed into the bloodstream from the small intestine; how do they circulate throughout the body?
- (3)The deep relationship between the efficacy of medicines and the body's mechanisms.
- (4)Pharmaceutical companies making various efforts.

Takasaki Plant

Class for Grade 6 students at Takasaki Municipal Iwahana Elementary School

An outreach class was hosted for grade six students at Takasaki Municipal Iwahana Elementary School on June 20, 2018. Employees from the Takasaki Plant with highly specialized knowledge acted as the teacher and teaching assistants. While these teachers were somewhat nervous, they strived to get closer to the students to promote clear understanding and share their advice. We will continue to hold outreach classes like this one in order to instill interest in chemistry among school children and enable them to feel more comfortable as a member of society.



Tokyo R&D Administration Office

Class for Grade 6 students at Kita Ward Nadeshiko Elementary School

An outreach class was hosted for grade six students at Kita Ward Nadeshiko Elementary School on June 29, 2018. Researchers from the Pharmaceuticals Research Laboratories and Functional Chemicals R&D Laboratories served as teacher and teaching assistants. The students were captivated by the experiments held in class and gave their undivided attention. The outreach class experience was also appreciated by the school teachers. Through this event, students were encouraged to learn more about chemistry as well as to understand more about Nippon Kayaku.



Site Visits

Himeji Plant

Initiatives to Cultivate the Next Generation

The two programs of "Creating Fizzing Tablets" and "Plant Tour" launched in commemoration of the 100th anniversary of the company's founding were hosted for grade six students at Toyotomi Elementary School located near the Himeji Plant. These programs were held for the 4th year in fiscal 2018 with a total of 24 participating students.

In order to encourage active participation, the students were given a quiz on knowledge of gunpowder. As well, the students tried their hand at creating fizzing tablets as bath bombs resembling gas forming agents manufactured at the Himeji Plant, which aimed to spur interest in chemistry and manufacturing.

The children not only viewed the production line but also observed instantly inflating air bags up close, which is not something that can normally be experienced.



Event-based Educational CSR

Asa Plant

Science Expo hosted by the City of Sanyo-Onoda "Make Your Own Original Piece of Stained Glass" Event for Elementary and Junior High School Students

Asa Plant has participated in the annual Science Expo hosted by the City of Sanyo-Onoda. They had fun with light variations and made an original piece of stained glass based on the theme, "Let's play with light on a magic board!" which lets them experience the wonders of light using polarizing plates.



Kashima Plant

Customer living expo as Kamisu Festa hosted by the City of Kamisu in Ibaraki Prefecture Experience-based Event for Elementary School Students

Kashima Plant and Agrochemicals research laboratories participate in Customer living expo as Kamisu Festa hosted by the City of Kamisu in Ibaraki every year in October with the goal of giving back to the local community by conveying and fostering interest in science and chemistry among youth.

The Nippon Kayaku booth hosted a hands-on event called "Let's play by making bead-like capsules," which utilizes the technology and products of Kashima Plant and the Agrochemicals Laboratories. Students took part in the simple chemical experiment of creating artificial salmon roe.



Tokyo R&D Administration Office

Held class for elementary school children during summer vacation

A summertime class for elementary school students between grades three and six was held at Tokyo's Kita Ward Nadeshiko Elementary School on August 24, 2018.



Members from all research laboratories as well as Tokyo R&D Administration Office worked together in hosting an experiment using polarizing plates.

The children were fascinated to see that polarizing plates could make what appeared to be a wall in an empty space. They also got an explanation of how this happens, so that they could better understand the concept.

Going forward the Tokyo Business Office will continue to host events such as this for students to engage their interest in chemistry while learning more about Nippon Kayaku.

Tokyo R&D Administration Office Head office

Hosted by Japan Chemical Industry Association (JCIA)

~The Summer Children's Science Experiment Show~ Experience-based Classroom

Nippon Kayaku participated in the Summer Children's Science Experiment Show for elementary school students held for two days between August 4 and 5 at the Science Museum (Kudanshita, Tokyo) and more than 200 children took part.

The show's theme was, "You too can be a magician, using a magic cylinder made from a polarizing plate!" and the children did crafts and were shown how to do magic tricks using polarizing plates. Nippon Kayaku staff members demonstrated a magic trick in which the power of a polarizing plate was used to penetrate a black wall. Then, they had the children actually make a black wall (cylinder) with a polarizing plate and let them play around passing straws and balls through it. They let out a big cheer when the black wall was finished.



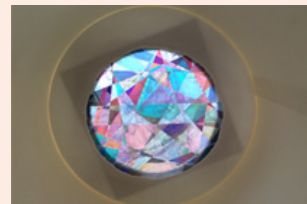
Polatechno Co., Ltd

Joetsu Science Museum in Joetsu City, Niigata Prefecture

Held a science class using polarizing film

The Joetsu Science Museum in Joetsu City, Niigata Prefecture, where Polatechno Co., Ltd. is located, is hosting an exhibit where patrons can experience and enjoy the themes of human science and the science of snow through nine zones involving seeing, touching and checking.

During this event, Polatechno provided polarizing film so children could enjoy science handicrafts at its paper cup kaleidoscope booth as part of the Science Plaza held in May 2016.



KSM

Continuing educational support at KSM

KSM* values the welfare of its employees, so it started up an educational assistance program for employees' children.

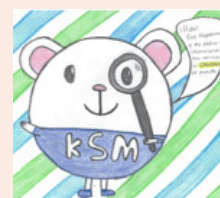
The program was begun to increase children's motivation to continue their studies. The first initiative, in 2014, was to provide stationery for school use to employees' children (those with grades of 8.0 and higher).

In fiscal 2018, the program gave assistance to 26 children (of 26 employees) by providing them with the school supplies that they would need the following school year. They colored a picture of Kayakuma the Bear after hearing from the KSM staff person and their parents about the high-quality safety activities that Kayakuma is involved in.

* KSM is a group company in Mexico that manufactures automotive safety components.



Children and their families



Initiatives in Local Communities

The Nippon Kayaku Group strives to foster understanding in its business activities among local residents through plant festivals, opening its sites to the public, cleanup activities and round-table talks.

Going forward, we will organize various platforms to proactively engage with the local residents as part of our goal of becoming a company that is closely rooted in the local community.

Nippon Kayaku's Agreements with Local Authorities

| Business Site | Agreement | Local Authority |
|-----------------------|---|--|
| Fukuyama Plant | Agreement on environmental pollution control | Hiroshima Prefecture and Fukuyama City |
| Asa Plant | Agreement on water pollution control | Yamaguchi Prefectural Fisheries Cooperative |
| | Agreement on environmental protection | Sanyo-Onoda City |
| Tokyo Plant | Green agreement | Adachi City |
| | Agreement on establishing Colored Effluent Issue Council | Tokyo Metropolitan Bureau of Sewerage No. 2 Control Office |
| | Agreement on mutual disaster relief support in case of an earthquake | Shinden Neighborhood Association and Shinden 1-chome Residents' Association in Adachi City |
| | Agreement to provide the general public with access to a small water pump storage facility | Senju Fire Department |
| Tokyo Business Office | Provision of fire fighting facilities 1. Provision of water for firefighting 2. Deployment of a boat for rescues 3. Fire fighting group cooperation site 4. Use of rooftop as a lookout | Tokyo Fire Department Akabane Fire Station |
| Takasaki Plant | Agreement on assistance from voluntary fire fighting brigade | Regional fire departments including Takasaki City |
| Himeji Plant | Memorandum on effluent control | Himeji City |
| Kashima Plant | Agreement on environmental pollution control | Ibaraki Prefecture, Kashima City, Kamisu City |

Interaction with local communities (2018th) and Activity examples

Exchange results

| Business site | Social gathering with community | Education and traffic safety education | Donation / Sponsorship / Contribution(service) to society | Health* | Cleaning | Open of facility |
|---------------------------------|---------------------------------|--|---|---------|----------|------------------|
| Head Office | | 2 | 6 | 2 | | |
| Fukuyama Plant | 5 | 3 | 5 | 1 | 1 | 3 |
| Asa Plant | 1 | 1 | 12 | 2 | 1 | 1 |
| Tokyo Plant | 0 | 1 | 3 | 1 | 1 | 1 |
| Takasaki Plant | 2 | 3 | 6 | 2 | 1 | 3 |
| Himeji Plant | 2 | 1 | 1 | 1 | 1 | 1 |
| Kashima Plant | 2 | 1 | 1 | 1 | 2 | |
| Tokyo R&D Administration Office | 2 | 3 | 5 | 1 | 2 | 1 |

| Business site | Social gathering with community | Education and traffic safety education | Donation / Sponsorship / Contribution(service) to society | Health* | Cleaning | Open of facility |
|---|---------------------------------|--|---|---------|----------|------------------|
| POLATECHNO CO., LTD. | 5 | 1 | 1 | | 1 | |
| Moxtek, Inc. | | 1 | 2 | | | |
| Wuxi Polatechno Optics Co., Ltd. | | | 5 | 1 | | 1 |
| Dejima Tech B.V. | | | 2 | | | |
| NIKKA FINE TECHNO CO., LTD. | | | 1 | | | |
| Euro NIPPON Kayaku GMBH | | | 1 | | | |
| KAYAKU CHEMICAL (WUXI) CO., Ltd. | | | 5 | | | |
| MicroChem Corp. | | | 5 | | | |
| Wuxi Advanced Kayaku Chemical Co., Ltd. | | | 5 | 1 | | |
| Shanghai KAYAKU International Trading Co., Ltd. | | | 1 | | | |
| NIPPON KAYAKU FOOD TECHNO CO., LTD. | | | 5 | | | |
| Taiwan NJC Corp. | | | 4 | | | |
| Kayaku Safety Systems Europe a.s. | | 5 | 31 | 1 | | |
| Kayaku Safety Systems (Huzhou) Co., Ltd. | | 1 | 2 | | | |
| Kayaku Safety Systems De Mexico S.A. de C.V. | 1 | 1 | 9 | 1 | | 1 |
| Kayaku Safety Systems Malaysia Sdn. Bhd. | | | 2 | | | |
| NAC Co., Ltd. | | 1 | 1 | | 1 | |
| Nishiminato Driving School Co.,Ltd. | | 1 | | | | |
| Okiura Golf Center Co., Ltd. | | | 4 | | | |
| Kowa Sangyo Co., Ltd. | | | 1 | | | |
| Gunnan Sangyo Co., Ltd. | | | 3 | | | |
| Kayaku Japan Co., Ltd. | 1 | 5 | 3 | | 1 | 1 |
| Sanko Kagaku Kogyo Co.,Ltd. | 8 | | 7 | | 3 | |
| KAYAKU AKZO CORPORATION | 1 | | 1 | | | |

* Healthcare includes blood donations, the Pink Ribbon Campaign, and so on

■ Piece of our activities

Click below tabs to see the detail

■Nippon Kayaku

Fukuyama Plant Opening up tennis courts to the public ▼

Tokyo Plante Hosting internships for High School Students ▼

Fukuyama Plant Internships ▼

Takasaki Plant and Gunnan Sangyo Co., Ltd. ▼

■Group companies

Polatechno Co., Ltd. Wrap Advertising on a Train ▼

Kayaku Safety Systems Europe a.s. (KSE) Safety Days ▼

Nikka Fine Techno Co., Ltd.
Activities to deepen interaction with the local community ▼

Kowa Sangyou Co., Ltd.
Supporting activities of local fire company ▼



With Our Employees

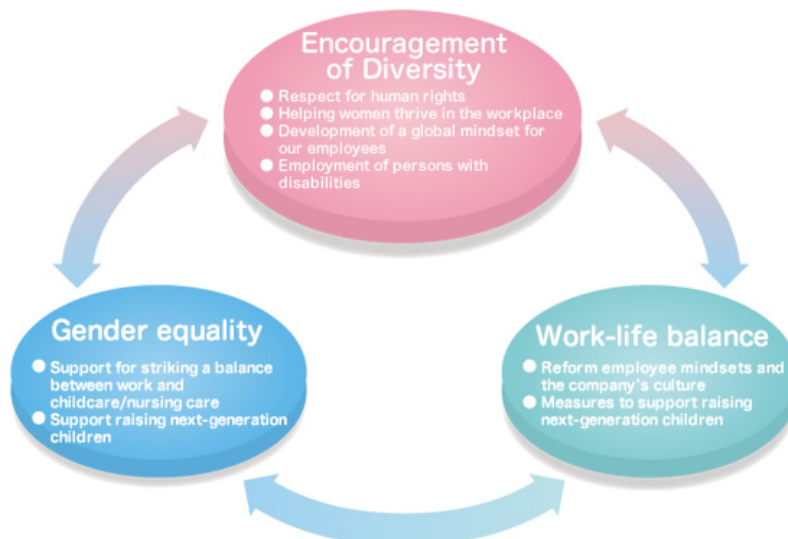
A company is nothing without its people. Nippon Kayaku respects the human rights of each and every employee, and strives to offer a workplace environment that offers peace of mind to employees. Our goal is to be a company where employees can grow personally and professionally through work and feel a sense of motivation in what they do.



Message from the Head of Administration Group

In order to realize the **KAYAKU spirit**, the Nippon Kayaku Group has developed a number of innovative systems and programs so that all employees can fulfill their individual responsibilities and roles with a sense of pride and self-confidence as key implementers of this vision. Our position class system, implemented 20 years ago, makes it possible to deploy and compensate human resources without focus placed on age, gender or academic history. The number of females promoted to manager positions also continues to increase with each passing year thanks to our appointment system that encourages a self-starter spirit and desire to take on challenges, and does not consider gender. Moreover, we are actively promoting diversity. This includes the re-hiring of nearly 100% of our employees who reach mandatory retirement age since the start of our senior partner program and supporting the employment of persons with disabilities through partnerships with schools for the disabled. Meanwhile, our business continues to become more global in nature. In line with this growth, we provide pre-departure and post completion training for expatriate employees and systemically carry out training for locally hired staff.

Moving forward, we will continue to develop systems with new, innovative thinking, unbound by conventional approaches or practices respecting human rights, so that we can respond flexibly to the changing business climate.



Diversity & Inclusion

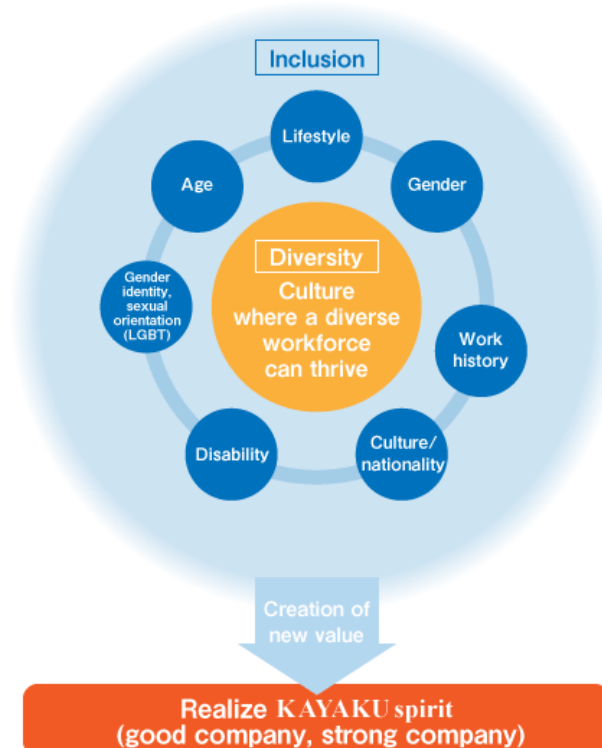
Approach to Diversity & Inclusion

The Nippon Kayaku Group aims to be a company with a work environment and atmosphere that can maximize people with differing personalities and values and where every employee can work enthusiastically with a feeling of fulfillment and that work is a worthy pursuit.

This means bringing about the sustainable growth of CSR management (i.e., the **KAYAKU spirit**) by creating a virtuous cycle of productivity improvement through human resource development and the creation of new corporate value through SDGs for our business.

Diversity and inclusion means a revolution in the way we work. With these initiatives as an impetus, we will succeed in becoming a company that is trusted by society and a company that is strong and good.

Approach to Diversity and Inclusion



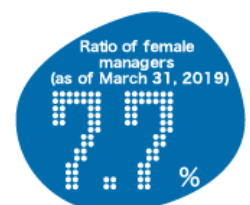
Encouraging Diversity

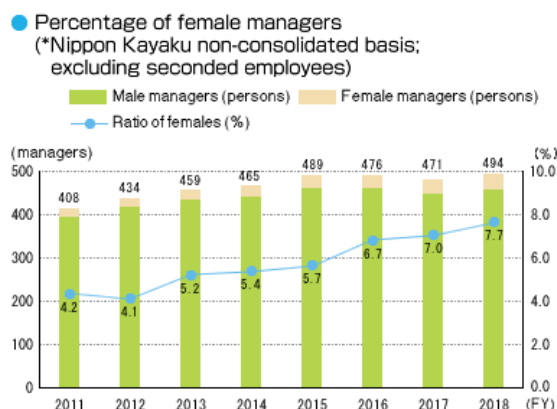
■ Nippon Kayaku Group's Personnel System

We have adopted the position class system as our personnel system which enables assignments and compensation not tied to age, gender, career or academic history. This system marks the 20th year. This system focuses evaluations on a person's roles and responsibilities. The same system is also used for managerial employees. Therefore, promotions to the managerial level can be achieved regardless of age, gender, academic history or career. As a result, the number of female managers continues to grow with each passing year.

Helping Women Thrive in the Workplace

The appointment of female managers is one aspect of the results of our initiatives to encourage diversity in the workplace. The ratio of our female managers increased to 7.7% as of the end of March, 2019 (7.0 in previous year). We will continue with our efforts to encourage the greater involvement of women in the workplace, with a goal to increase the percentage of female managers to 8% by the year 2020.





Employment of Persons with Disabilities

Nippon Kayaku employs people with disabilities. As of the end of March, 2019, 55 people* with disabilities are working with us (1.9% of total employees). Society demands that we move swifter in hiring persons with disabilities and so in the future we will strengthen our efforts and continue to actively hire persons with intellectual disabilities wherever possible.

* One part time employee is included.

Re-employment of Employees after reaching Mandatory Retirement Age (senior partners)

In April 2006, we launched the Nippon Kayaku Senior Partner Program as a way to rehire employees who reached their mandatory retirement age. This program is intended to provide a place of work after retirement for former employees who are in good mental and physical health, are motivated to continue their career, and who can contribute their past career experiences and know-how. Participants are asked about their requested workplace, work duties and employment format, and since adopting this system we have been able to meet the requests of nearly 100% of participants who are rehired. Most of these participants continue on working until the age of 65. There are 153 reemployed persons working for Nippon Kayaku as of March 31, 2019.

Development of Global Human Resources

As one of our efforts to promote diversity, we provide employees in Japan as well as at our overseas group companies with opportunities to thrive in a global environment. We also strive to develop our employees' language abilities by offering study-abroad programs, short-term intensive English programs and company-wide TOEIC test. Moreover, we provide employees assigned overseas as expatriates with training programs on various subjects including cross-culture training. In addition to the training programs, we will keep making efforts to develop global talent by means of promoting personal interactions between business units in Japan and overseas group companies and also enhancing our support to experience various cultures and business environments.

In fiscal year 2017, Nippon Kayaku had foreign staff transferred from our overseas group companies to the head quarters. In order for the transferees to accustom to the Japanese lifestyle and culture smoothly, we held various orientations and prepared English version of the related regulations. This has been one of our efforts aimed at our commitment to further develop global human resources.

More active role for women in the workplace

I joined Kayaku Safety Systems Europe a. s. as an HR Specialist in 2000.

At that time, KSE* had 107 employees, and there were only two female managers at the company. The company currently employs 1,076 people, of whom 539 are women, and 4 women are in management positions, including me. In addition to these management positions, 10 women hold Group Leader positions in Administrative Division and Team Leader positions in the production department. The diversity of the work teams is key to the balance and healthy development of the company.

We know that working in the production area with continuous shift operations is strenuous for women; however, we regularly hear from our women that they value the stability and personal development care that our company offers. What our female employees



Kayaku Safety Systems Europe a. s.
Jitka Simarova

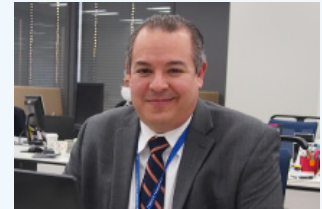
mainly want are good working conditions and work–life balance. In HR, we support the integration of women returning to work from maternity leave, so we currently offer part–time positions at selected workplaces for women with young children. Personally, I think that there are still not enough women in leadership positions. That is why I am pleased every time one of my female colleagues is promoted to a leadership position.

The world is full of strong and independent women who motivate us. In my opinion, being strong does not mean being flawless, unafraid, and without any self–doubt. I think it means being able to deal with and accept one’s own shortcomings and being aware of one’s own value and expectations of life.

※ KSE: Kayaku Safety Systems Europe a.s.

Global exchanges

My name is Jorge Montes. After my involvement in setting up the plant of Kayaku Safety Systems de Mexico., S.A. de C.V. (KSM), I spent ten years on continual improvement activities with regards to quality and manufacturing. In June 2017, I was assigned to the Nippon Kayaku head office as a member of the Global Quality Project Team led by the Quality Assurance Division of the Safety Systems Group.



Jorge Montes, Safety Systems Group

Outside of work, my family and I have opened our hearts to the totally new world of Japan and its completely different living environment. We are learning Japanese as well as visiting various places, and our interactions with people’s kindness along the way is an experience we cherish above all else.

I’m often asked, “What is your staple food? Can you buy it in Japan?” I always answer “Tortillas, and yes I can buy them in Japan.”

In closing, we have the chance to make the Nippon Kayaku Group better on a daily basis. Let’s be drivers behind change in each of our positions under the motto, “Everyone has a place in the driver’s seat”※.

※ “Everyone has a place in the driver’s seat”: take the lead in taking action from the driver’s seat(D–seat)

Expanding Programs for Gender Equality

The Nippon Kayaku Group is expanding in–house programs for gender equality and encouraging their utilization. In terms of our Next Generation Childcare Support measures, we have rolled out various programs that exceed legal requirements, beginning with our childcare leave program. While percentage of childcare leave use for female employees was 100%(26 employees), that for male employees was 9.3%(4 employees) from April 1, 2017 to March 31, 2018.

Also, percentage of reinstatement after childcare leave was 100% for both male and female employees, we will seek to develop a workplace culture that encourages male employees to participate in childcare.

Special Paid Leave Program

The Special Paid Leave Program enables employees to set aside annual paid leave that will expire if not taken within a two year period and use it for nursing care obligations, training, volunteer work, infertility treatments, or to donate bone marrow. No complicated procedures are required to use this program, as employees simply have to apply by providing supporting proof for their activity. In addition, even after using the program once, employees can continue to accumulate paid leave to the maximum number of days for employees’ convenience.

Also, starting this fiscal year, in response to childcare and nursing care needs, employees are now allowed to take half–day leave as part of nursing care leave for adults or children.

※1 Nursing care for a spouse, relative within the second degree, and uncles or aunts: employees permitted to take up to 10 days in half–day increments

※2 Nursing care for a child: employees permitted to take in half–day increments (up to 10 days)

| ●Special Paid Leave Program | |
|---|---------------------|
| Applicable Uses | No. of Days Allowed |
| To receive treatment of an injury or illness that requires at least 4 consecutive days of care To receive outpatient services for rehabilitation or aftercare (within the stated period on the physician-issued medical certificate) | Up to 60 days |
| To provide nursing care to an immediate family member, aunt or uncle | 45 days |
| To participate in a training program or volunteer activities | 30 days |
| Leave in conjunction with the use of active points from the Nippon Kayaku Cafeteria Plan | 5 days |
| To take leave in order to receive a vaccination or medical exam for a child of preschool age | 5 days |
| To receive fertility treatments | 60 days |
| To allocate additional days to childcare leave | 10 days |
| To allocate additional days to leave for providing care to a sick child | 10 days |

Better Management of Employee Work Hours

With regards to compliance and mental health, the Nippon Kayaku Group strives to properly ascertain employee work hours and conditions, to take action where needed, and to manage working time properly by cooperation between employees and management. Additionally, from the perspective of enhancing work-life balance, starting last fiscal year we have reduced the total working hours by 7.5 hours and implemented work-style innovations to change the way employees think in an effort to increase productivity and create added value. We will now look to further reduce overtime hours and increase the percentage of paid leave taken.

To increase the rate at which paid leave is taken, we have established the new anniversary paid leave system and taken other measures to encourage employees to use their paid leave days. To reduce overtime, we need to change our workplace culture and change the way employees think (work-style innovation). As a result, we are improving work-life balance along with aiming to increase operational productivity and create added value. Additionally, the Nippon Kayaku Group employs workers in various formats, including rehired seniors (senior partners), contract workers, and part-time workers. We are now working to develop various training and systems for these different formats in response to the growing diversity of our workforce.

Work-life balance
(Nippon Kayaku non-consolidated basis)

| | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 |
|--|---------|---------|---------|---------|---------|
| Total working hours | 1852.25 | 1852.25 | 1844.75 | 1844.75 | 1844.75 |
| Overtime hours *Average monthly hours per employee | 12.8 | 12.4 | 12.3 | 12.8 | 13.3 |
| Number of paid leave days taken | 10.5 | 10.6 | 11.5 | 11.0 | 11.3 |
| Ratio of paid leave days taken | 55.1% | 58.6% | 62.7% | 59.2% | 61.1% |
| Employees taking childcare leave (males) | 1 | 0 | 4 | 4 | 13 |
| Employees taking childcare leave (females) | 17 | 20 | 27 | 26 | 37 |

On Taking Childcare Leave, "What I Realized By Stepping Away from Work and Concentrating on Childcare at Home"

We don't have any relatives nearby that we can ask for help, so in September 2017, I took a half-year of childcare leave so that I could relieve my wife, who was busy with our newborn second child, and help keep our first child (then three years old) happy. During this time, I was able to spend quality time with my wife watching our second child grow (and cry) on a daily basis, and our first child getting used to and growing up in a new and perplexing environment. These days with my family were even happier than ever before, and at the same time, made me realize how much work it is to spend 24 hours a day with children. In addition, I also realized that our older child has been supporting us as well, by doing his best at daycare and allowing the both of us to go to work. By allowing me to step away from my job and focus on childcare and housework, childcare leave has given me new insights and was a very valuable life experience for me. Although I realize that my work colleagues were very inconvenienced by my absence, I deeply appreciate their support during my absence and warm acceptance upon my return.



Koji Mazaki, Planning & Coordination Division
Functional Chemicals Group

Taking Childcare Leave

I returned to work in July 2017 after taking childcare leave for the second time. I am currently working reduced hours so that I can drop off and pick off my children from daycare. This enables me to pursue my career seamlessly while still spending time with my children.

After giving birth, I was worried about whether I could continue working. However, during the course of my approximately one-year leave, my workplace contacted me to update me on the latest situation, which made the transition back to work smooth. The company offers a wide range of leave programs, so my husband was able to take a short child-care leave. It was really encouraging for us to be able to share the workload so to speak during the really difficult phase of childcare. I feel like the environment is gradually changing so that men, too, can take childcare leave. Sometimes I feel like I'm inconveniencing my workplace when I have to take a day off because my children aren't feeling well. I'm really grateful that everyone at work accepts this and kindly asks how my children are doing.

Since taking childcare leave and returning to work, I'm once again keenly aware that balancing work and childcare everyday with a smile is only possible with not only a wide range of leave programs, but also the understanding and support of people in the workplace and the support of family. I hope to grow as a member of society and as a mother, always remembering to appreciate those around me.



Hiromi Takimoto, Administration Department, Fukuyama plant

Development of Human Resource

Training Programs

Various training programs are provided to employees according to their jobs positions. These comprehensive training programs are conducted so as to develop the skilled workforce that will lead Nippon Kayaku in the next generation.



Training programs

Mandatory Programs

In order to systematically develop the skills of the employees, training is imparted to the employees start immediately upon their joining the company. This is followed by mandatory programs after durations of one year and three years. Training programs are also conducted for mid-level employees in accordance to their job types and positions and matching their job work performance. We support our employees to make new steps forward to develop practical skills based on the changes of their roles and competences.

Voluntary Programs

A wide array of voluntary training programs is also available. These voluntary programs are tailored to specific employee characteristics and jobs. They facilitate self-improvement and boost the job-related problem-solving abilities and business skills of the employees.

Selective Program

A program providing special leadership and management training is also available for the next generation promising candidates who are recommended by the superiors.

| | By level | | By job type | | Elective programs | | |
|---------------------------------|---|--------------------------|---|-----------------------------------|--|------------|---|
| | University graduates | High school graduates | MR | Researchers & Engineers | Technical | Managerial | Global |
| Junior and mid-career employees | New employee orientation | | Pharmaceuticals training Part 1 and 2 | Introductory information research | Introductory information research | | International business managers support |
| | Post first-year training | | Follow-up | Introductory patents | Introductory patents | | Introductory English |
| | | | | Intermediate patents | Intermediate patents | | Intermediate English |
| Leaders and managerial staff | Third year training | Post third-year training | | Documentation | Documentation | | Advanced patents |
| | Career presentation | | Interpersonal skills MR | Marketing | Marketing | | Short-term study abroad |
| | | | | R&D Training program | Logical communication | | |
| | Mid-career employees training | | Cancer specialist MR training | | Problem solving methods | | |
| | Networking with other industries | | Training for new managers and group leaders | | Management simulations | | |
| | Self-improvement seminar | | Training for managers and group leaders | | Interpersonal skills | | |
| | Business leader development | | | | Mandatory programs | | |
| | Newly appointed E-class employee training | | | | Elective programs | | |
| | Senior manager training | | | | Medical Representatives Training & Education Dept. | | |

Passing down Technologies from Veteran Senior Employees to Junior Employees Initiatives of Fukuyama Plant

The Fukuyama Plant is manufacturing of functional materials and pigment materials. As of October 2014, some 70% of its workforce was under the age of 40, and when many of its core employees reach retirement age five years from now the company's employees in their 20s and 30s will need to take the reins and drive the company forward. For this reason, Fukuyama Plant



Workshop about the basics of cost price as well as profit and loss

faced the urgent task of passing down its technologies and establishing a solid foundation of knowledge among its young employees before its veteran senior employees reached retirement.

To overcome this issue, the Fukuyama Plant worked on developing a new training program that would allow younger employees to obtain a comprehensive overview of the plant's functions. This in-depth three-year program consists of 49 curriculums and administered to employees based on their career stage. The company set up an effective organizational structure for this program involving the entire plant by establishing a cross-functional working group to come up with the curriculum and instructors.

The program was launched in 2014. Section heads, team leaders and other mid career employees headed up efforts to create the curriculum so that newly hired employees can learn a broad range of skills over a period of time. Through this training, the plant's vertical threads and horizontal threads are able to mesh, creating a sense of solidarity that transcends age. The program is now being implemented under a new three-year plan established for fiscal 2017 and beyond. The know-how gained from the program will be shared with other business sites as a way to develop the human resources who will underpin the Nippon Kayaku Group in the future.



Members of the training system development team at the Fukuyama Plant

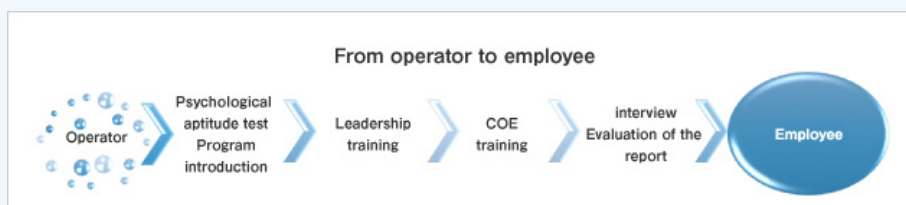
Kayaku Safety Systems de Mexico, S.A. de C.V. (KSM) COE 2nd Generation* (Change from Operator to Employee)

KSM launched the COE 2nd Generation Program in September 2017. COE is a program in which the operator is trained to become a supervisor (employee level).

Since September 2017 we carry out trainings based on leadership skills. The purpose of the program is to make those program members aware of their new responsibilities and how to supervise the operators. The subjects included in the program are: teamwork, effective supervision, labor union, emotional intelligence, communication and conflict management. Now we are in the final process of the program, which is internal training on different topics (safety and human resources). We plan to finish on May 2019, evaluating all the participants to know their performance and effort made in the program and in their daily work at KSM. At the end of the program a graduation ceremony will be carried out.



- * COE 2nd Generation Program participants
- COE: change from operator to employee
- Operator (day worker; format of employment in Mexico)
- Employee (monthly worker; format of employment in Mexico)



General Business Operator Action Program under the Act for Measures to Support the Development of the Next Generation

We submitted our Action Plan for Measures to support the Development of the Next Generation action plan (from April 1, 2018 to March 31, 2020) to the Tokyo Labor Bureau for approval on April 1, 2018.

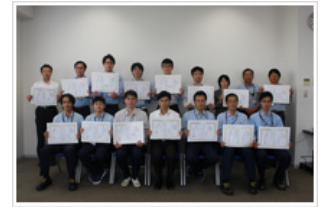
We will now work to obtain Platinum Kurumin certification as quickly as possible.



Kurumin logo

Encouraging the Creation of Intellectual Properties

Nippon Kayaku develops its businesses and contributes to society by producing useful products through the creation and utilization of intellectual properties. To encourage the creation of intellectual properties, we have established several programs to reward employee inventions, with both monetary awards and commendations presented annually.



■ 1. Performance Award Program and Invention Award Program

Our performance award program provides remuneration to employee patents that have contributed to sales. This program was initiated under the company's rule on the handling of employee inventions first prepared in 1963. This rule was created based on the provision of Japan's Patent Act and hence has been changed over the years with each modification to this law.

Researchers receive a certain percentage of the sales and licensing fees for each business year and retired employees, too, are eligible for such payments.

Employees responsible for inventions or patents that contribute particularly to society and sales are eligible to receive a lump sum payment, which incentivizes the creation of intellectual properties.

■ 2. Early Performance Contributions

Even for patents pending, if an invention has already made contributions to the performance of the Nippon Kayaku Group, the employee can receive remuneration known as an early performance contribution. This particular program was initiated in 2005 to properly recognize product inventions with a comparatively shorter lifecycle. This program serves to complement the previously mentioned Performance Award Program, and the fact that employees are eligible to receive payments based on sales for patents not yet registered makes for a very advanced program in the corporate world.

■ 3. In-house Commendation for Excellent Technologies

At the Company-wide Research Presentation Conference held every year in July, a commendation ceremony is held for employee inventions that have been patented or are patent pending during which time talented inventors are presented with monetary prizes and awards. These awards include the R&D Director's Award, presented at the recommendation of each laboratory head, Patent Pending Award, for inventors with many patents pending, and the Best Invention Award, recognizing highly advanced technological innovations. Recipients of the Best Invention Award are asked to present a lecture.

Promoting Health Management

The Nippon Kayaku Group reviewed its Declaration on Environment, Health and Safety, and Quality in 2017 and as a result, decided to add an item on health. Employee health is an essential element in any company's prosperity and helps to enhance stakeholder satisfaction at the same time. For this reason, we are implementing various activities for not only preventing exposure to chemical substances handled during work, but also aimed at mental health care and reducing lifestyle diseases.

Promotion of Health and Productivity Management

All employees of the Nippon Kayaku Group receive regular health exams, which form the basis for the health and productivity management. After undergoing an exam, employees meet with an industrial physician to receive advice and guidance on how to manage their health.

In addition, employees who handle designated chemical substances receive special health exams. Furthermore, we have created a database of hazardous chemical substances handled in the workplace, which is utilized to help prevent occupational diseases.

Each workplace implements a THP* for building mental and physical health in order to maintain and improve employee health. The goal is to encourage employees to review their lifestyle habits and promote continuous and systematic health improvement from a young age to ensure a healthier lifestyle. Specifically, physical fitness measurement, health management contests, walk rallies, hiking and other programs are being organized.

In February 2019, Nippon Kayaku Co., Ltd. was recognized in the large enterprises category of the 2019 Certified Health & Productivity Management Outstanding Organizations Recognition Program(White 500) after undergoing an evaluation of its employee health promotion initiatives.

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

Receiving Recognition under the 2019 Health & Productivity Management Outstanding Organizations Recognition Program (White 500)

Nippon Kayaku has been evaluated as a company that takes strategic initiatives for managing employee's health from a business standpoint, and it has been recognized in the large enterprises category of the 2019 Certified Health & Productivity Management Outstanding Organizations Recognition Program (White 500[※]).



The company has traditionally offered many programs to maintain and promote employees' health, including stress checks, training sessions on mental health, and maintaining 100% participation in health exams. For this recognition, the Company was evaluated for its health promotion programs, including how it determines which initiatives to take, its initiatives for improving the results of health examinations, measures dealing with passive smoking, and health promotion events for all employees. In particular, our initiatives to improve the results of health exams include having everyone with a diagnosis consult with an industrial physician, and the Health and Safety Committee is getting advice from industrial physicians on how to link health improvements with items for which diagnosis ratios are high. We believe that promoting employees' health is indispensable to the company's prosperity and to increasing our stakeholders' satisfaction, and we will remain proactive about health management going forward.

- ※ White 500 is a nickname for certified companies in the large enterprises category, which includes large corporations and medical institutions, of the Certified Health & Productivity Management Outstanding Organizations Recognition Program, a recognition program set up by the Ministry of Economy, Trade and Industry in 2016.

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.

As a concrete example, we invited a speaker from our contract EAP[※] to lead a mental health care training program mandatory for all employees to take part in at least once that was set up on five occasions – in fiscal 2005, between fiscal 2006 and 2008, between fiscal 2009 and 2011, between fiscal 2012 and 2014 and between fiscal 2015 and 2017.

And we formulated a new three-year plan in fiscal 2018 and all employees are currently undergoing necessary training.

In addition, with regard to obligations under the "Stress Check System" of the Occupational Safety and Health Act implemented on December 1, 2015, we already established the "Stress Check System", which is scheduled to once every year for all the employees.

- ※ EAP is an acronym for Employee Assistance Program.

Health Improvement Initiatives at Business Sites

Responses at Business Sites without a Statutory Industrial Physician

Nippon Kayaku employee working at branches and business offices not required to appoint an industrial physician[※] were unable to receive follow-up by an industrial physician after undergoing statutory health exams or adult disease exams of the KAYAKU Health Insurance Association administered at the main business hub for each region. As a result, in fiscal 2013, after examining how to provide follow-up at branches and business offices without an appointed industrial physician, we decided to dispatch the industrial physician of the head office to meet with these employees directly. Starting from fiscal 2014, the head office's industrial physician began annual visits to branches and business offices nationwide, from Sapporo in the North to Fukuoka in the south. The industrial physician reviewed the results of health exams before visiting and then selected certain employees for follow-up interviews. These employees meet with the industrial physician at a nearby location or by telephone conference. Because one year was spent covering all of Japan, on some occasions the health



exam results of the previous year were used as a basis for interviews, instead of the results of the health exam taken in the same fiscal year of the visit. As a result, we determined an annual itinerary for industrial physician interviews and adjusted the timing of health exams accordingly to ensure that interviews are based on the latest health exam results.

※ Branches and business offices not required to appoint an industrial physician: Business sites that employ less than 50 workers are not required to appoint an industrial physician as per the provisions of Article 13 of the Industrial Safety and Health Act and Article 5 of the Order for Enforcement of the Industrial Safety and Health Act.

Kowa Sangyo Co., Ltd. Health Promotion Project

Kowa Sangyo Co., Ltd. has been implementing a health improvement project since 2015 aimed at maintaining and improving employee health. The project team comprises representatives from each department and members from the Environment and Security Department. Its activities focus on support based on the fundamental precept of "health equals safety" indicating employee health is an important component of safe work.

The main initiative involves monthly self-assessments based on a health improvement challenge established by all employees for taking action to reduce or prevent certain lifestyle habits found in regular health exams. In addition, the project also held lectures called health outreach classes on lifestyle diseases and smoking with the cooperation of the city's Health Improvement Section, and organized events for employees including health checks (vascular age and 7 other items) and a walking event. The project also raised awareness through a regular article in the company newsletter about health. In the three years since the start of the project, employee awareness of health has increased and employees are now taking voluntary actions, with health exam results improving, too.

Specific results from this project include a 4.1% reduction in employees requiring follow up and a 2.0% reduction in employees that smoke.



Kayaku Safety Systems de Mexco, S.A. de C.V.(KSM) 1kg Weight Loss Program

KSM started the program "Bájale 1 kilo menos" in 2014, due to the "Chécate, Mídete, Muévete" campaign promoted by the Mexican Institute of Social Security, which promoted physical activity and a balanced diet to avoid overweight, obesity and other health problems.

The "Bájale 1 Kilo Menos" program promotes a healthier lifestyle in nutrition. The tenth season was held during 2018, in order to continue improving the habits of the participants, preventing diseases related to lifestyle and generating health and emotional well-being.



| "1 Kilo Menos" Program | 2017 | | 2018 | 2019 |
|-----------------------------------|--------|--------|-------------------|-------------------|
| | 8th | 9th | 10th Feb - Jun | 11th Feb - Jun |
| Target weight (kg) | 629.40 | 573.40 | 678.50 | Undergoing |
| Number of participants (persons) | 100 | 91 | 91 | // |
| Participation rate (%) | 25% | 22% | 22% | // |
| Number achieving target (persons) | 7 | 12 | 10 | // |
| Participant achievement rate (%) | 7% | 13% | 11% | // |
| Total weight loss (kg) | 141.20 | 98.30 | 115.00 | // |
| Total waist loss (cm) | 497.75 | 89.10 | 545.30 | // |

※ KSM : based on Mexico, supply of the automotive and automotive components

Click to show the other activities

- Kayaku Safety Systems de Mexico. S.A. de C.V.
 Opening of Futsal Court
- KAYAKU CHEMICAL (WUXI) CO., LTD. (KCW)
 Lectures on Health Check-ups at KAYAKU CHEMICAL (WUXI) Co. Ltd.

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.

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)

The safety performance of Nippon Kayaku business sites as well as all group companies inside and outside Japan during fiscal 2018 is presented below.

● Fiscal 2018 Safety Targets and Performance

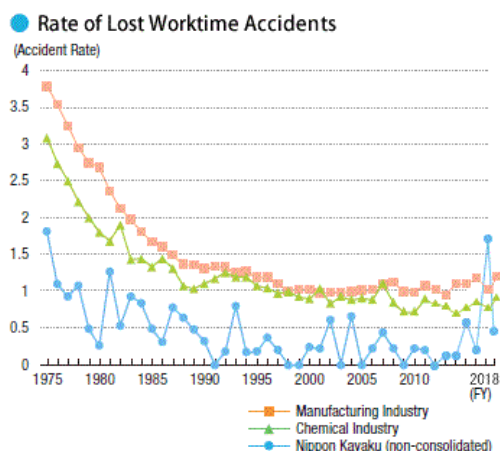
| Items | Target | Actual | Group companies |
|--|--|--------------|-----------------|
| Major injury / Accidents | 0 | 1 cases | 0 |
| Serious environmental accidents | 0 | 0 | 0 |
| Lost worktime accidents | 0 | 1 cases | 10 cases |
| Accidents not accompanied by lost worktime | Rate of lost worktime accidents ^{※1} of under 1 | 1,15 | - |
| | Less than 5 cases | 9 cases | 5 cases |
| Non-injury related accidents | 0 | 0 | 10 cases |
| Work-related automobile collisions ^{※2} | Serious accidents | 0 | 1 cases |
| | Personal injuries | 0 | 1 cases |
| | Property damage | Less than 3% | 4.8 % |
| | Self inflicted | Less than 3% | 5.8 % |

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

※2 Work and commute-related automobile collisions: Only applicable to MRs using company-owned vehicles belonging to the Pharmaceuticals Group.

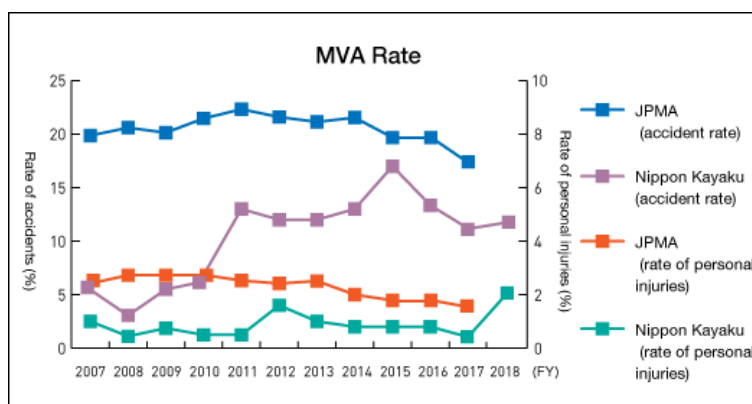
2. Graph Comparison of frequency rate of Lost Worktime Accidents

The frequency rate of lost worktime accidents in fiscal 2017 greatly exceeded the rate observed by the manufacturing industry and chemicals industry. As a result, we decided to institute workplace patrol activities (fixed-point observations) with the goal of pointing out unsafe actions in order to prevent accidents and injuries during non-regular work. We will continue to strengthen this activity in fiscal 2018.



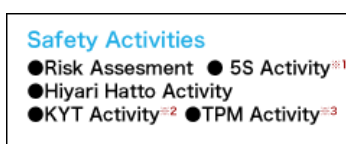
3. Efforts to Prevent MVA

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.



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.



※1 5S Activity: An acronym of five Japanese words phonetically starting with the letter "S".

※2 Kiken Yochi Training (KYT): Danger Prediction Training.

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

1. 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.*

* 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.

2. 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.

■ 3. 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 ^{※1}. And using the driving aptitude test approved by the National Police Agency ^{※2}. From now on, we will further strengthen the education of new employees in practical skills and engage in reducing traffic accidents.

- ※1 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.
- ※2 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.

■ 4. 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

■ 5. 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.

[> Related Articles](#)



Firefighting training

■ 6. 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.

Kashima Plant Improving Operator Skills through the Forklift Certification Program

There was a time when there were frequent occurrences of near misses involving forklifts at the Kashima Plant. The following initiatives were undertaken in an effort to prevent accidents before they happened with the goal of improving the skills of forklift operators.



(1) Initiatives for improving skills

All forklift operators were required to take a practical skills short course led by an outside instructor covering the basics of forklift operations and approaches to operator skills and educational guidelines.

(2) Introduction of operator certification program

Only those who passed the certification exam are allowed to operate forklifts (certification lasts for six months).

(3) Environmental improvements

A permanent training course was set up so that operators can practice and take practical exams at any time.

(4) Analysis of driver techniques

An omnidirectional driving recorder was installed on all forklifts to analyze operator conditions and habits using video footage.

These initiatives have helped to drastically reduce the number of near misses involving forklifts. The Kashima Plant will continue to use this certification program in order to prevent accidents before they occur.

Kowa Sangyo We are promoting safety experience education using Esperanza (safety experience equipment).

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 33 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.



Click to show the other activities

Polatechno Interactive Training on Getting Caught in Machinery ▼

Kayaku Safety Systems (Huzhou) Co., Ltd. (KSH) Introduction of ISO 14001 and OHSAS 18001 Systems ▼

WUXI POLATECHNO OPTICS CO., LTD. (WPLC) Introduction of OHSAS 18001 System ▼

Kayaku Safety Systems Europe a.s. (KSE) ▼

Labor Union/Management–Labor Relations

On June 1, 1998, Nippon Kayaku Co., Ltd. and the Nippon Kayaku labor union entered into a labor agreement "based on good faith and trust, in order to acknowledge the social significance and responsibilities of industry and labor, to mutually respect the each other's rights based on the spirit of the labor laws, and to establish stable and peaceful relations between management and labor." Since then, this agreement has been renewed six times in accordance with its purpose, so that today we maintain sound relations based on mutual

trust between management and labor. Because the Company has a union shop system, with the exception of certain managerial and contract employees, union participation is 100%.

The Company and the union engage in active discussions, and the Company's policy regarding these discussions is to be candid while disclosing as much information as possible. Also, the Central-Management-Labor Liaison Committee meets three times a year, at which the executive team communicates the Company's management policies as soon as the annual business plan, mid-term business plan, and health and safety policy are firmed up. A central management roundtable is held monthly to deepen mutual understanding, to share information about the status of the Company, and to discuss how to solve problems. Also, we are making efforts to promptly communicate the outcome of these management-labor discussions to employees throughout the Company.

At the same time, with respect to issues faced by individual offices, we hold monthly business site management roundtables to obtain a shared recognition through discussions and opinion exchanges and to bring about a labor environment where it is easy to work.

Environment, Health and Safety (Integrated) Review with The labor union of Nippon Kayaku

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 Nippon Kayaku labor union puts safety at the top of its action policy and offers an annual health and safety training, titled the "Level-Up Seminar (Health & Safety)," which is co-hosted by the Company and attended by employees from every local branch. The fiscal 2018 training lasted two days and was attended by 24 employees.

On day one, participants took part in outside training using interactive safety training equipment to experience actual dangers first hand, including why getting caught in machinery or pocket hands (walking with both hands in pockets) are dangerous and what is dangerous about them.

On day two, members of the Environmental Protection & Safety Division led a lecture entitled, "About learning safety measures from past accidents of Nippon Kayaku, and learning to implement KYT and pointing-and-calling." Also, the labor union held a lecture called "What is a Health and Safety Committee?" which covered the initiatives being undertaken by health and safety committees at each business site in compliance with laws.

Participants then learned by comparing these with the activities of their own health and safety committees. Furthermore, training participants were asked to identify positives and negatives 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.



Human Resources Data

「-」 is unpublished, Blank is not counted

| | 2017 | | | 2018 | | | Unit |
|---|-------|-------|---------|-------|-------|---------|---------|
| | Total | Males | Females | Total | Males | Females | |
| Number Of Permanent employees (consolidated) | 5,684 | | | 5,814 | | | Persons |
| Percentage of pamanent employees (consolidated) | | | | | | | % |

| | 2017 | | | 2018 | | | Unit |
|-----------------------------------|-------------------|---------------------------------------|---------|-------------------|---------------------------------------|---------|----------------|
| | Total | Males | Females | Total | Males | Females | |
| | | Manufacturing industry average (2017) | | | Manufacturing industry average (2018) | | |
| Workplace accident frequency rate | 1.74 | 1.02 | | 0.43 | 1.20 | | Frequency rate |
| Workplace accident severity rate | 0.085 | 0.08 | | 0.012 | 0.10 | | Severity rate |
| | | | | | | | |
| Number of union member | 1,753 | | | 1,762 | | | Persons |
| | | | | | | | |
| | University degree | High school degree | | University degree | High school degree | | |
| Starting salary | 225,000 | 173,200 | | 226,000 | 174,200 | | Yen |

※ The re-employment rate for retirees desiring re-employment has reached 100%