Safety, Environmental and Social Report 2018



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Kanto Denka Kogyo Co., Ltd. takes an environmentally friendly approach in its immediate matters and daily activities in order to protect people's healthy lifestyles.





#### Management Principles

Through the quest for constant corporate growth and acquisition of optimum profits, Kanto Denka is working with all its shareholders, users and employees to create a successful company and prosperous society. To achieve this end, we are endeavoring to meet the requirements of our users with our unique technologies and customer-oriented services, and to build a trusted company based on our motto, "sincerity, creativity, prompt response and harmony with nature."

# Fundamental Principles and Basic Policies on the Environment and Safety Issues

#### **Fundamental Principles**

The conservation of the global environment is one of humankind's common responsibilities. In all our operational activities, based on the principle of self-responsibility, we pay due consideration to the environment and safety, from the development, manufacturing, distribution, and use of our products, to how they are disposed of.

#### **Basic Policies**

- 1 Carry out comprehensive "environmental and safety" management in such areas as environmental protection, operational safety and disaster prevention, occupational health and safety, chemical product safety, logistics safety, and international trade safety.
- 2 Ensure the safety of employees and areas in the vicinity of company facilities by working to achieve no accidents and no operation incidents.
- $3\,$  Make efforts to save energy and resources and reduce the amount of industrial waste generated as a result of operations.
- 4 Ensure the development and introduction of products and manufacturing processes that take "environmental and safety" issues into account.
- 5 Strictly comply with laws, regulations and agreements related to the "environment and safety," as well as establish and meet our own stricter voluntary standards in these areas.
- $6\,$  Promote logistics safety and risk-free transactions with customers.
- $7\,$  Carry out "environmental and safety" audits.
- 8 Collect information on the "environment and safety" related to products, and thoroughly disseminate the information to employees and customers.
- 9 Take care to ensure the protection of the environment and safety in overseas operations, technology transfers and the international trade of chemical products.
- 10 Promote risk-awareness in society by widely publicizing the details and results of our "environmental and safety" activities through environmental reports and other materials like local communities, investors and related organizations.

### Safety Behavior Criteria

- 1 Pre-work Kiken Yochi (KY (danger prediction )) reminders and awareness checks shall be performed, and the causes of any hazards checked and eliminated before any work is carried out.
- 2 All work shall be monitored and checked to ensure that it is carried out in accordance with the instructions given by the manager or supervisor.
- $3 \,$  Unsafe activities shall not be tolerated under any circumstances and safety shall not be compromised.
- 4 Instructions shall be clear, detailed and appropriate for the type of work, and those responsible shall confirm that those instructions have been understood correctly.
- 5 Persons receiving instructions shall always query any instructions that they cannot understand and shall not engage in work while they are still unsure.
- 6 Where workers lack experience, the responsible manager or supervisor shall provide detailed instructions and work permits and shall monitor the work.
- 7 Instructions and coaching shall be provided based on the principles of "San Gen Shugi"(the "three actuals" philosophy).
- 8 Managers and supervisors shall communicate orders and instructions to the employees actually carrying out the work, including partner company contractors, and shall confirm that such communication is thoroughly carried out.
- $9\;$  Training shall be persistent and repeated until the content is fully understood.
- 10 In plants, the Production Department, Plant Protection Department and original contractor shall be fully aware of their rights and responsibilities and shall issue instructions in accordance with those responsibilities.

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This report mainly contains environmental and safety activities during FY2017 (April 1, 2017 to March 31, 2018)

Bringing the Power of Chemicals to the World. We aim to be a "Innovative Development-driven Company".

## Message from the President

Let me begin by expressing my deepest sympathies to all those affected by the terrible rains and flooding in July 2018. Recent years have brought frequent disasters of various kinds to many areas, including earthquakes, heavy rains and snowfalls, and even volcanic eruptions. I hope and pray that all the victims, not only those affected by the heavy rains, are quickly able to return to a normal and happy life. As a chemicals manufacturer with plants in Shibukawa City in Gunma Prefecture and in Kurashiki City in Okayama Prefecture, Kanto Denka is enormously supported by the understanding and assistance of the everyone in those regions. The recent disasters have reinforced our commitment to progressing development with regional governments, channeling our efforts into safe and stable operations so that we are even better prepared for disasters.

I'm pleased to announce that, in September 2018, Kanto Denka marked the 80th anniversary of its founding. Since being established, we have relied our strengths as developer of original technologies, based on electrolysis and techniques for using fluorine and chlorine together with miniaturization and advanced purification technologies. This has given us the capacity and flexibility to promptly supply high-quality chemicals in response to our clients' technological advances and changing demands. Through these advances, we have contributed both to market growth and to social development. Looking ahead, we see it as our role as a chemicals manufacturer to gain and keep the people's trust as a company that nurtures the prosperity of both its customers and the community. We achieve this by responding speedily and in good faith to their needs through our original technologies and services, all the while keeping in mind safety and harmony with nature. We also aim to be a "Innovative Development-driven Company" that develops a steady stream of new products for the market



through our broad-based manufacturing capacity and our proposals for technological solutions.

Over the next 10 or 20 years, we hope to be able to further deepen the trust that we have built up with our customers. We will work to establish a safe, low-cost stable supply regime and undertake BCP initiatives such as stabilizing our materials procurement and establishing multiple production sites, including overseas facilities. At the same time, we will fulfill our social responsibilities through safety assurance and initiatives to conserve energy and natural resources, working to address the global issue of environmental protection. To this end, we will listen to the feedback from our customers and identify those needs that can best be met by Kanto Denka's originality. We will also cultivate a corporate culture in which all our employees share their issues and goals and work together to resolve any issues, working to speedily develop and manufacture products with real value.

Kanto Denka holds "Giving the highest priority to safety", "Building a successful Kanto Denka" and "Development by and for everyone" as its three prime initiatives, and has always worked to ensure that its employees think and act in line with these initiatives.

While we have consistently achieved our goals, I see our 80th anniversary as a new springboard for further growth in the future. We need to provide even more advanced products to meet the needs of industry and the community, utilizing our unique strengths to further build trust and meet expectations.

I hope you all share my vision for the future and will lend your support in making that vision a reality.

> President Jun'ichi Hasegawa







## In paper and pulp

We reach out to everyone through the raw materials we supply for making paper and pulp products, including newspapers, magazines and cardboard.

**Fundamental** chemicals

#### caustic soda



#### In water treatment

Our products are used to treat tap water and sewage, providing safe drinking water and conserving the environment.

Fundamenta chemicals

caustic soda, sodium hypochlorite



## Our goal is to be a factory that contributes to the region through safe, stable and high-quality manufacturing.

The Shibukawa Plant mainly produces the fluorinated special gas products and ferrochemicals used in semiconductors and LCD panels, and is committed to manufacturing based on safe operations, stable production and excellent quality. To minimize our environmental impact, we are progressing our programs to collect any organic solvents or substances with high global warming potential emitted during production so that they do not escape into the environment. We also use combustion abatement systems in an effort to reduce emissions. Factory operations can indeed co-exist with regional areas. To deepen mutual understanding between our plant and the region, we regularly exchange views and information with the local government and residents' associations. With the aim of contributing to the region, we also work with various committees in Shibukawa City and take part in events and volunteer activities held locally.

Shibukawa Plant Manager Masatomo Hayashi



This plant manufactures a wide range of products, ranging from special gas products used in semiconductors and LCD panels through to the carriers used in copiers and printers. Through its efforts to ensure safe and stable operation and to improve its production capacity, the plant is supporting the growth of the industry.

Location	1497, Shibukawa, S City, Gunma, Japan	hibukawa	Plant area	approximate 138,000 squ
	Ferrochemicals	• carriers		● magnetit
List of products	Fluorochemicals	<ul> <li>carbon te</li> <li>ethane he</li> <li>hexafluore</li> <li>iodine pe</li> </ul>	etrafluoride exafluoride p-1,3-butadien ntafluoride	<ul> <li>methyl flu</li> <li>octafluor</li> <li>nitrogen</li> <li>tungsten</li> </ul>



Trends in Plant Waste Water

Plant waste water amount /

plant shipment value

plant shipment value

47 ЛЛ

'16

'17

COD emissions /

(index expression considering FY1990 as 100) (unit: %)

'14

'15

and COD

100

80

60

10

20

(Fiscal year) '90



Trends in SOx, NOx, Soot and **Dust Emission Levels** 

(index expression considering FY1993 as 100) (unit: %)

Fiscal year	'14	'15	'16	'17
SOx	0.00	0.00	0.00	0.00
NOx	0.81	0.53 1.11		1.10
Soot and Dust	0.17	0.14	0.18	0.17



Large and prominent warning signs to prevent heatstroke are placed at the plant entrance to catch the attention of visitors to the plant as well as plant workers and partner company contractors

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As one measure for preventing heatstroke, an electronic display board is installed showing the WBGT (apparent temperaure index)



Part of the cyclohexanone tion equipment is sed as a safety tower. The tower is dedicated to the plant remaining accident- and injury-free and was erected so that workers would see the "Safety First" message each time they look up would take it to heart.



Safety messages such as "Safety First" and "Be Safe" as well as "pointing and calling" signs are printed everywhere indoors in an effort to boost safety consciousness.







(unit: 1,000 kl)



Trends in Industrial Waste Amount Levels

(index expression considering FY2015 as 100) (unit: %)



The plant is equipped with waste gas combustion abatement systems (photo, left) and carrier combustion abatement systems (photo, right) to reduce the emissions of environmentally harmful substances from the production processes.



Meetings held in each workplace before work begins are invariably attended by staff from the Safety & Environment Department who provide instruction on safety and thorough risk avoidance



## Working to reduce environmental impact and further establish trust in the region.

At the Mizushima Plant, we are helping a wide range of industries through both our well-established fundamental chemical products and fluorinated special gas products. We are also growing the supply of our main product, lithium hexafluorophosphate, which is used as a key electrolytic material in lithium-ion batteries. Being located in an industrial complex, cooperation with our neighboring companies and with the region is vital, and we foster good relations by actively engaging in regular consultative meetings and events. The operating status of the plant and the surrounding social environment are always changing. To keep the trust of the local community and maintain operations into the future, we must preserve the environment and continually work to reduce our environmental impact. To these ends, we will work hard on improving the plant's environmental facilities, surveying its environmental impact and developing new technologies.

Mizushima Plant Manager Yasunari Yamaguchi



A large safety notice is installed at the plant entrance. As well as imploring workers, partner company employees and plant visitors to travel safely on the way home, this notice serves to raise safety awareness.



By highlighting the number of consecutive accident- and injury-free days, this is effective in raising people's awareness of safety and their willingness to act accordingly.



Large LCD panels are installed in the break rooms and in work areas to draw greater attention to safety-related information. A range of different approaches are used in the effort to gain worker's attention

This plant supplies world-leading chemical products to assist in a wide range of manufacturing processes, including fundamental chemicals that are indispensable to industry and battery materials, an area in which demand is growing year by year. But it also focuses its efforts on production innovations and the development of new and original technologies.







## Trends in Plant Waste Water and COD

(index expression considering FY1990 as 100) (unit: %)





(index expression considering FY1993 as 100) (unit: %)

/			
/	Fiscal year	'14	'15
	SOx	2.04	1.61
	NOx	69.93	75.97
	Soot and Dust	8.00	5.96

awareness of safety



Safety & Environment Department staff regularly conduct patrols inside the plant. Their job is to check for unsafe locations or work practices so as to prevent accidents before they happen



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proximately 5,000 square meters	Number of employees	178 (as of March 31, 2018)
<ul> <li>sodium hypochlorite</li> <li>vinylidene chloride</li> </ul>	<ul><li>hydrochlori</li><li>perchloroet</li></ul>	c acid thylene
phosphate	● lithium tetr	rafluoroborate
• chlorine trifluoride	• organic fluc	orine compounds

Trends in Energy Consumption in Crude Oil Equivalent

100

(unit: 1,000 kl)



Trends in SOx, NOx, Soot and

'16	'17
1.51	1.13
56.96	59.45
4.62	5.07

Trends in Industrial Waste Amount Levels

(index expression considering FY2015 as 100) (unit: %)



Safety notices and slogans are displayed in arrival areas in the plant. Large safety slogans are displayed all year round at the truck scale to constantly help raise



Large "Safety First" signs are displayed prominently on main roads to focus the attention of workers each time they see them.

# Achieving "full participation" in "giving the highest priority to safety"

## Director and Executive officer Technical Division

## Promoting improved safety activities and building a platform for safe and stable operations as the guiding principles for safety and the environment at Kanto Denka

The most important issue in any production site is "safety". We cannot undertake efficient production activities without "safety". To maintain safety, we have to hone our sensitivity to its antithesis: "danger", and for that we should be able understand and consider the content and significance of the work we do. We are promoting guidance and instructions to this end. At the same time, we also promote "safety" with respect to the community, by ensuring that we are fully compliant and practice RC, thereby fulfilling our obligations to the community as a chemical manufacturer. In its role as a leader in matters of safety, the environment, stability and production at Kanto Denka, the Technology Division is working to improve safety and to build a platform for safe and stable operations.

Fuyuhiko Ishii









Article carried in the "Responsible Care NEWS, Spring 2018 edition

## Headquarters Technical Division

## As the department responsible for safety management, we are promoting consistent safety standards across the whole group

The Technical Division consists of the Safety & Environment Department, the Production Engineering Department and the Quality Management Department. Among these departments, the Safety & Environment Department breaks down the basic RC policies into targets for the plants to ensure that they are giving the highest priority to safety. We are also working to make our safety standards consistent so that safety management at all our plants and research laboratories is guided and checked from the same perspective. This process includes introducing industrial safety consultant and conducting regular safety and environment surveys. Our efforts are also directed at enhancing workplace capacity through measures such as thorough analysis of the workplace command structures and causal factors when any problem arises, and by building workplace environments where there is full participation in exchanges of views. Under San Gen Shugi ( the "three actuals" philosophy), it is very important to engage in ongoing discussions in the workplace, as viewing a topic from another angle can often lead to new realizations. As the division in charge of safety management, we tackle the issues of safety and stable operation across the entire group from a range of different perspectives.



Safety & Environment Dept. Technical Div. General Manager  $Yuji \; Kurokawa$ 

Company-wide consistency in safety standards and making it a reality

 Formulation of the "Safety Activity Standards" Promotion of company-wide consistency in safety standards,

- including in overseas offices
- Safety instruction for regional employees through overseas business expansion

 Exchanges of information with industry organizations, etc. to improve safety Feedback to production sites

 Safety management system checking and instruction for plant workers, group companies and contractors

Kanto Denka has set out "full participation", "San Gen Shugi" (the "three actuals" philosophy) and "thorough and mindful instruction" as the guiding principles for safe plant operation. Based on these principles, Safety & Environment Departments have been set up in the Headquarters Technology Division and at both production plants to roll out accident- and injury-free practices to all our workers.

## Shibukawa Plant

## Working to establish safe basic practices and improve safety awareness among all plant workers, including at partner companies

At the Shibukawa Plant, we deal with fluorochemical gases that require high levels of skill and expertise with regard to safety. Accordingly, we construct production equipment that takes into account the properties of the manufactured gases and we undertake continual improvement programs once production has commenced. In our safety operations, we have also explicitly adopted "pointing and calling", "Kiken Yochi" and the "5S" activities as plant rules, taking the view that it is most important to uphold safe basic practices and maintain high levels of safety awareness in everyone involved in factory work. We hold periodic external training courses in ways to implement those rules and we also provide education that uses risk awareness equipment to further improve outcomes. The 3rd Thursday of every month is designated as a "Safety Day" o which we hold safety training using a database of past accidents and close calls.

Shibukawa Plant Safety & Environment Dept. General Manager Masamichi Sato

Focus on personnel training in responding to on-site risks

**Promoting safety** 

the production site

characteristics

- Participation by Safety & Environment Department staff in site meetings to keep abreast of the current situation
- Encouraging younger employees to gain qualifications in KYT and RST training
- Training using risk awareness equipment and verification of the outcomes

## Mizushima Plant

## Eliminating unsafe situations and practices by cultivating workers' ability to recognize potential risk factors in the workplace

To keep workplaces free of accidents and injuries, we think it is crucial to eliminate unsafe situations and unsafe practices. Accordingly, we undertake a range of activities, including risk assessments and equipment improvements. The newly installed risk awareness equipment is known as the "Kansui Safety Academy" and is used extensively in education and training. We are particularly committed to providing "awareness training" for younger and less experienced workers so that they do not overlook potential risk factors in the workplace. Specifically, we encourage our most experienced employees to give talks in "Know-Why" courses that teach safe work practices and provide training in risk awareness. We also use digital signage to share information in our production sites. We are also working to ensure that safety-related skills and expertise based on manufacturing technologies are passed down from veterans to novices, and these ongoing activities are yielding clear results.

Mizushima Plant Safety & Environment Dept. General Manager Yasuji Oguma

• Fast remediation of unsafe locations through the formation of an "Equipment Improvement Task Force" activities tailored to Promotion of awareness training that uses

- risk awareness equipment
- Making safety information more visible by installing digital signage



- Holding courses in security and disaster prevention and lifesaving in case of emergency
- Compiling and using "Know-Why" manuals in skills relating to manufacturing and safety



- Reviewing risk assessments, including for work with few risk factors
- •Using industrial safety consultant to provide safety instruction from a range of perspectives

## Efforts Geared toward CSR

Kanto Denka believes that we, as good corporate citizens, have a mission to society to contribute to making peoples' lives safer and more enriching. In order to achieve this goal, we strive to give priority to compliance and risk management in our business practices. Simultaneously, we endeavor to build a corporate culture for making a contribution to communities in which our facilities are located and for putting into practice initiatives for protecting the environment.

## Organization

President

Executive Board

### **RC** Promotion Council

#### Chairman: President

Members: Chairmen of subcommittees and a few members appointed by the President Office: Safety & Environment Department Formulation of fiscal year, and medium- and long-term

RC policies. Deliberation and decision-making on important issues related to RC activities across the entire company including performance.

Oversees three subcommittees as well as deliberates and decides on the promotion and auditing issues of each committee.

#### Safety and Environment Committee

Promotion and audit of RC(\*1) activities across all operational areas.

**Quality Management Committee** Promotion and audit of quality control issues, such as PL and quality certification.

#### Logistics Safety Committee

Promotion and audit of environmental and safety preparations related to the external transport of chemical products and customers' delivery facilities, and understanding the purpose of use.

## **Compliance** Action Charter

Compliance with relevant laws and regulations, and strict enforcement of ethical practices Building favorable relations with stakeholders

Practices to conserve the environment

Attitude toward antisocial forces and organizations

Ensuring the reliability and accuracy of financial reporting

## Compliance

#### **Compliance and Risk Management Committee**

The Compliance and Risk Management Committee is responsible for managing compliance and risk management. The Committee promotes various activities aimed at reducing risk and observing relevant laws, regulations and corporate ethics.

#### **The Internal Auditing Department**

The Internal Auditing Department carries out internal audits for all operations under the direct supervision of the President. The Department also independently evaluates the status of development and administration of internal control in accordance with the Basic Policies on Financial Reporting set forth by the Board of Directors.

## Audit Structure

## Self-auditing

Each facility works to achieve continuous improvements in RC activities through the evaluation of our RC measures by linking them to the ISO14001 and OHSAS18001 systems. The results of these self-audits are reflected in the next RC objectives and plans report.

#### Auditing of Each Facility

Safety and Environment Committee, the Quality Management Committee and Logistics Safety Committee once a year, respectively, conduct auditing of goals, plans, implementation systems, and performance evaluation of self-audits in all facilities. Furthermore, corrective action for some defects found at audit and sharing the common knowledge to other department should be accomplished so that we could strengthen our management systems.



#### **Overall Auditing**

Overall auditing (RC auditing) involves deliberation and evaluation by the RC Promotion Council of results of auditing carried out by Safety and Environment Committee, Quality Management Committee, and Logistics Safety Committee. The overall auditing results are then reflected in management policies, objectives, and implementation plans for the following fiscal year.

#### Internal Notification System (Hot line)

In order to respond promptly to breaches of compliance or to prevent them from happening, directors/employees of Kanto Denka are required to swiftly report information on breaches of compliance to the General Manager of the Personnel Department, General Manager of the Legal and General Affairs Department, the Auditor, or to lawyers outside the company. In addition, the rules stipulate that the person making the notification must not be treated disadvantageously.

#### Protection of Personal Information

We have formulated and publicized a basic policy regarding the protection of personal information, and are clarifying the rules regarding the storage and disposal of personal information. We have set forth various stipulations, including those for ensuring confidentiality of personal information for persons leaving the company.

## The 7th RC Action Targets

	RC Action Target for FY2016-2018 (three-year plan)
No Accidents and No Injuries           •Workplace Injuries Zero           Target         (zero workplace injuries among the employees and contractors)           •Accidents at Company Facilities Zero	0 Incidents
2 Saving Resources Target Reduce the quantity of principal raw materials against plant production volume by 3% of FY2015 levels ···Reduction of 1% every year.	3% Reduction
3 Saving Energy Target Reduce energy consumption (crude oil equivalent) per unit of production volume by 3% of FY2015 levels Reduction of 1% every year.	3% Reduction
A       Reduction of Greenhouse Gases Emissions         Reduce CO2 equivalent greenhouse gases emissions by 84% of FY1990 levels…Reduction of 2% every year.	84% Reduction
5 Reduction of Environmental Pollutants Target Reduce the emission intensity of chemicals specified as PRTR by JCIA by 30% of FY2015 levels Reduction of 10% every year.	30% Reduction
6 Reduction of Industrial Waste Target Reduce landfill industrial emissions outside our plant by 15% of FY2015 levels by raising the recycling ratio Reduction of 5% every year.	15% Reduction

## Investment for the Achievement of RC Action Targets



#### Trends in Investment in Safety Measures

To ensure thorough and safe operations, investment is ongoing. The amounts invested have been trending upwards year by year, with investment in FY2017 significantly higher than the average. By focusing investment on the core area of safety measures, we are working hard to improve equipment in the working environment and raise safety awareness.



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In fiscal 2017, there was continued investment aimed at measures such as saving resources and energy and reducing emissions of greenhouse gases, environmental pollutants and industrial waste.

#### Trends in Investment in Environmental Measures



## Through risk awareness training, installing risk awareness equipment to foster skills at identifying potential sources of risk

We have installed risk awareness equipment at the Shibukawa and Mizushima plants. These facilities allow participants to experience "dangerous" situations in safety. We are running risk awareness training that heightens participants' sensitivity to danger and cultivates their capacity to spot potential sources of danger during their day-to-day work. The ability to spot danger is not something that can be acquired overnight. While knowledge and experience are essential, participants do not have to actually be subjected to an accident or injury. Through this risk awareness training, we are promoting even higher levels of safety awareness and an even safer workplace environment.







#### Hanging from a safety harness during a fall

Actually feeling the force of a dust explosion



handling with valves

## No Accidents and No Injuries

#### RC action target

Workplace Injuries Zero (zero workplace injuries among the employees and contractors), Accidents at Company Facilities Zero

By giving the highest priority to safety throughout the company, Kanto Denka is endeavoring to achieve a record of no accidents and no injuries by focusing its efforts on production site-led safety activities and on raising safety awareness among its employees. In fiscal 2017, there were no workplace injuries and just 1 accident at a company facility. Going forward, we will actively conduct suitable activities as we continue to strive for continued safe and stable operations.

Accidents Involving Loss of Work time

Trends in Seriousness Rate(\* 3) of

#### Trends in the Frequency Rate(\* 2) of Lost Work-time Accidents

Fiscal year	'14	'15	'16	'17
Kanto Denka	0.00	1.93	0.00	0.00
Cooperating Companies	1.74	0.00	0.00	0.00
Chemical Industry Average	0.76	0.81	0.88	0.81

#### Consistent Safety Standards

We formulated our Safety Activity Standards to promote continued safe operations through the discovery of unsafe workplaces and the prevention of unsafe activities. We are working to create uniform safety standards by producing cards to be carried at all times and distributing them to all employees and contractors.



#### '15 '16 '17

#### '14 Fiscal vear Kanto 0.00 0.01 0.00 0.00 Denka Cooperatin 0.09 0.00 0.00 0.00 Companie Che 0.17 0.04 0.03 0.09

### Broad Circulation of Information

At the Mizushima Plant, we are using digital signage on large LCD panels that we have installed in the break rooms and in work areas. The panels display various types of information, including safety slogans and workplace injury information that changes each month, along with bulletins for each workplace. The displays also include content such as short comic strips and other techniques for attracting attention and making the information more visible.



#### Trends in the Number of Facility Accidents

Fiscal year	'14	'15	'16	'17
Number of accidents	0	1	0	1

#### The Inheritance of Safety

Using resources such as "Know-Why" compilations of problems that have arisen at workplaces in the past, veteran workers are handing down both their manufacturing skills and their safety-related skills and experience to the younger employees.



#### Safety Activities at Our Plants

In 2017, Kanto Denka renamed the Environment & Safety Department as the "Safety & Environment Department" and introduced the Assistant Manager system in order to reform safety activities at workplaces from the perspective of the production sites themselves. Numerous other initiatives are continuing so as to further boost effectiveness.

#### Promotion of Safety Education

We are working towards safety measures that will be effective in eliminating unsafe situations and activities, such as reforming work procedures and running safety education courses tailored to the actual work done.

#### Safety Measures for Mechanical Equipment

Our safety measures for mechanical equipment include risk assessments on new or updated machinery, regular safety inspections and maintenance, and the provision and regular reviewing of operation management manuals.

#### Implementing Disaster Prevention Drills

The Shibukawa and Mizushima plants both have their own disaster prevention groups, which run regular drills and joint training exercises with public fire departments. We also carry out monthly and departmental disaster prevention drills at each plant, along with emergency contact drills for our day and night duty staff.



injured victims

Joint training with the public fire department

### Logistics Safety

Kanto Denka is making every effort to minimize potential risk factors in product distribution. As part of these efforts, the Logistics Safety Committee carries out inspections at each of our offices and distributors.

#### Ensuring Safety in Emergencies

Distributors are required to carry a Yellow Card(\*6) and Safety Data Sheet (SDS)(\*7) documents showing their emergency procedures and contact details at all times during transportation. We have also contracted with external disaster prevention agencies to set up a system for handling fires or leakages of dangerous substances.



Special gas transport vehicle

#### Customer Facility Improvement Activities

Kanto Denka conducts independent inspections to check for problems in customer facilities, recommends improvements and requests that customer consider countermeasures. The program has been running for over 20 years and has implemented 143 improvement measures in that time. The program will continue to work with customers and distributors, helping to ensure safety during product delivery.



Yellow Cards

### Continuing to Enhance Various Safety Activities

- •Thorough implementation of safe basic practices (pointing and calling, Kiken Yochi, etc.)
- •Visualization" of safety goals at each workplace and their progress
- •Reinforcement of diversification of safety displays
- Establishing a Safety Day and conducting safety activities every month
- •Implementation of regular safety instruction by industrial safety consultant
- Training of KYT(\*4) trainer and RST(\*5) trainer,
- and implementation in each workplace
- •Active participation in external safety and health workshops



Health & safety patrol on Safety Day



Safety instruction by consultants



Materials for safety education conducted on Safety Day



Safety posters displayed at various locations in the plant

Safety Measures for Chemical Substances

Kanto Denka manages large quantities of chemical substances in accordance with the relevant legislation, and their safety is verified through inspections by third examination such as ISO 14001 and OHSAS 18001.

## Warning Labels Based on Product Liability Law(\* 8)

PL labels(\*9) indicating the product handling precautions are affixed to all products. As a Kanto Denka product safety initiative, goods are inspected by the company-wide Quality Management Committee and the results are reported to the RC Promotion Council.



PL labels

#### Reduction of PFCs, SF6 and NF3 Emissions

#### Target

JCIA Voluntary Action Plan 90% reduction in PFCs unit emission and 90% reduction in SF6 unit emissions of 1995 levels, and maintain this level 60% reduction in NF3 unit emission of 1995 levels by 2020

Kanto Denka manufactures PFCs(\*10), sulfur hexafluoride  $(SF_6)$  and nitrogen trifluoride  $(NF_3)$ , that are indispensable in the electronic devices industry. As these gases have a high global warming effect, Kanto Denka, as part of JCIA's Voluntary Action, has undertaken efforts to reduce PFCs and  $SF_6$  emissions in cooperation with five other companies in Japan. We have also been independently working on reducing NF<sub>3</sub>, and the JCIA has now added this substance as a new reduction target. Since FY2014, Kanto Denka has successfully reached all its reduction target under the plan, including those for NF<sub>3</sub>, and is continuing its reduction efforts.



#### Reduction of Greenhouse Gases Emissions

#### RC action target

Reduce CO<sub>2</sub> equivalent greenhouse gases emissions by 84% of FY1990 levels ... Reduction of 2% every year.

By installing multiple combustion abatement systems, we were able to reduce our greenhouse gas(\*11) emissions in FY2017. Our early work in reducing NF<sub>3</sub> emissions has also stood us in good stead following the addition of that gas to the emissions reduction targets.

#### Trends in Greenhouse Gases Emissions



## RC action targe

Reduce the quantity of principal raw materials against plant production volume by 3% of FY2015 levels ···Reduction of 1% every year

Saving Resources

Kanto Denka uses a calculation method\* capable of accurately displaying results without being affected by unspecified factors such as the unit cost of raw materials. Consolidation of some facilities during FY2017 led to improved results, but even so resource use increased by 5%. Further measures are under way in our efforts to achieve reductions. \*"Base Unit =Quantity of Raw Materials Consumed (t) / Production Volume (t)

#### Trends in Raw Material Consumption

(index expression considering FY2015 as 100) (unit: %)





#### 10% reduction compared with FY1990

Due to rising production volumes, FY2017 emissions were up on the previous year. However, Kanto Denka reached its target of a 10% reduction on 1990 levels in 1998 and has since continued to achieve sustained reductions of at least 10%. In future years, we will work to further reduce emissions.

#### Trends in CO<sub>2</sub> Emissions

(index expression considering FY1990 as 100)



# Reduction of Emission Amounts of Substances specified in voluntary Management Standards

#### Target

**Reduction of Emission Amounts of Substances** specified in voluntary Management Standards released from manufacturing facilities.

Kanto Denka has designated trichloroethylene (TCE), tetrachloroethylene (PCE), 1,2-dichloroethane (EDC) and dichloromethane as the four voluntarily managed substances\* and is working to reduce their atmospheric emissions.

\*These substances were chosen as being among the 12 substances prioritized by the Japan Responsible Care Committee (IRCC) for reductions in atmospheric emissions

#### **Reduction of Environmental Pollutants**

#### RC action target

Reduce the emission intensity of chemicals specified as PRTR by JCIA by 30% of FY2015 levels ...Reduction of 10% every year.

Kanto Denka uses the JCIA method to handle a

larger range of chemical substances than those that

are specified as PRTR(\*12) by law. In FY2017, Kanto

Denka handled 30 PRTR target substances using the

JCIA method with a total weight of 240,000 t.

Emissions totaled 30.7 t, which equates to 128 g of

unit emissions per ton handled. We installed multiple

combustion abatement systems in December 2017

and anticipate that this will result in significant

# 1,1-Dichloroethylene

4.0%



### **Reduction of Energy Consumption**

#### RC action target

emissions reductions in FY2018.

Reduce energy consumption (crude oil equivalent) per unit of production volume by 3% of FY2015 levels ...Reduction of 1% every year



(Fiscal year) '14 '15 '16 While we have been proactive with initiatives such as installing high-efficiency electrolytic cells and reducing vapor intensity, increased production led to a high operation load, meaning that energy use actually increased in FY2017. With further intensity improvements in our production facilities, we will also see progress in reductions. Also, due to the switch to a more accurate calculation method, the FY2016 results shown in the "Trends in Specific Energy Consumption(\*13)" graph for the Shibukawa Plant were revised.





Breakdown of emissions in FY2017



#### Trends in Emission Amounts of Substances Specified in Voluntary Management Standards



#### Breakdown of the 30.7 tons of Emissions in FY2017

#### Trends in Emissions of PRTR-designated Chemical Substances





### Reduction of Plant Waste Water and COD

#### Target

# Reduction of the amount of plant waste water and COD emissions

Kanto Denka has been working to reduce the volume of plant waste water and COD(\*14) emissions via actions like the recovery pollutant substances in our manufacturing facilities. This has resulted in significant reductions in both plant wastewater and COD emissions in FY2017. Going forward, we will be working to further reduce emissions.



Plant waste water amount /



(Fiscal year) '90 '14 '15 '16 '17

#### Reduction of SOx, NOx, and Soot and Dust Emissions

Target

Reduction of emissions in accordance with voluntary management standards

We are working to reduce the emissions of atmospheric pollutants, namely SOx (sulfur oxides), NOx (nitrogen oxides) and Soot and Dust through stable operation of abatement equipment. Our indicator for SOx and NOx is now very close to 0 relative to the base year, and we have achieved 99% reduction in particulate emissions. In the future, we will be working to ensure that emissions do not rise as well as aiming for further reductions.



(unit: %)

Discharged water (cleaned at the plant)

#### Trends in SOx, NOx, Soot and Dust Emission Levels

(index expression considering FY1993 as 100)

(and opposite contracting ( and )					
Fiscal year	al year '14 '15 '1		'16	'17	
SOx	0.09	0.09 0.06 0.		0.00	
N O x	3.10	2.82 3.22		0.00	
Soot and Dust	0.71	0.53	0.53	0.53	

\* emission / plant shipment value

#### Reduction of Industrial Waste

#### RC action target

Reduce landfill industrial emissions outside our plant by 15% of FY 2015 levels by raising the recycling ratio …Reduction of 5% every year.

In FY2017, we implemented active measures by enabling the recycling of construction materials contained in industrial waste destined for landfill. Despite our efforts, waste levels still increased significantly. We regard this outcome as very serious and will research and implement more effective measures. In the future, we will establish resource recovery pathways for industrial waste destined for landfill and couple that with recycling to achieve real reductions.

The Emissions of Greenhouse Gases: Report based
on the Law Concerning the Promotion of Measures
to Cope with Global Warming

Kanto Denka reports data in accordance with the "Mandatory Greenhouse Gas Accounting and Reporting System." The volume of  $CO_2$  equivalent emissions in FY2017 amounted to 306,000 tons. Because NF<sub>3</sub> has been designated as a greenhouse gas in Japan as well, we have included NF<sub>3</sub> emissions since the FY2015 report.

## Trends in Industrial Waste Amount Levels

(index expression considering FY2015 as 100)



(Unit: 10 000 tons of CO<sub>2</sub>)

Figures for	2014 (official)	2015 (official)	2016 (official)	2017 (reported)
Originating from energy	23.1	22.4	21.9	22.4
Emissions of PFCs, etc. *	7.3	6.4	6.7	3.9
Emissions of $NF_3$	-	7.5	18.9	3.6
Originating from distribution fuel	0.6	0.6	0.7	0.7
Total	31.0	36.9	48.2	30.6

\*Emissions of PFCs etc.: Total emissions of PFCs+HFCs+SF\_6

Greening Activities

Kanto Denka's progress in greening its factory precincts is helping to create richer and more pleasant workplaces and to preserve the environment.



### NPO "Shibukawa Wide Area Manufacturing Council"

Shibukawa Plant employees take part in the activities of the Shibukawa Regional Manufacturing Council aimed at beautifying the local environment and combating global warming. These activities provide a channel for deeper engagement with people in the local community.



#### **RC** Briefings

We take part in RC Briefings held by the JCIA where we discuss the Kanto Denka RC activities.

#### Internship

By taking part in the Kanto Denka internship program, students gain a deeper understanding of the company and the chemicals industry.

# An internship where I learned that I want to work here forever!

Taking part in the internship allowed me to hear the voices of the people who actually work in the plant.

There were so many kind and friendly people, and watching the senior workers doing their jobs so smartly, I felt that I really wanted to be a working adult like them. It was a really full and valuable 5 days and I got a lot out of spending time with the senior workers, which was something I've really been wanting to do. Through the internship, I got to know a company that made me feel that I really want to work there!!

There was a really nice feeling in the workplace after I started, but the most enjoyable part was being involved in the work. This enabled me to understand why the work is being done and what the work is for. In the future, I really want to do everything I can to become like those senior workers.

Mizushima Plant Quality Management Dept. Quality Control Sec. Marina Shinohara



### **Clean-up** Activities

As well as regular clean-ups in the areas around its plants, Kanto Denka also participates in city or district group clean-up events and clean-up activities organized by neighboring communities.





### **Blood Donation Activities**

Large numbers of employees have cooperated in donating blood for many years, resulting in several commendations over the years from Japanese Red Cross Society and the Ministry of Health, Labour and Welfare.



#### Plant Tours

Plant tours are available at any time for a wide range of age groups. They offer an opportunity to exchange views that are then used to influence plant management.

#### Local Community Social Gathering

These events are held several times a year for people living in neighborhoods adjacent to our plants. These social gatherings are aimed building trust in the community by listening to the views of everyone who attends and answering peoples' questions.

#### Participation in Regional Events

Kanto Denka takes part in local festivals and other events so that our employees can each engage with local residents and get to know them better.

### Activities for the July 2018 Flooding Rains

We at Kanto Denka wish to express our deepest condolences everyone who lost friends or family members in the flooding rains of July 2018, as well as to all those harmed or injured in the disaster.

To assist those affected by the flooding rains, Kanto Denka has donated 10 million yen to Okayama Prefecture and to Kurashiki City in Okayama. We are also supporting rebuilding efforts in the region through initiatives such as voluntary donations by labor unions and employees and ongoing volunteer activities in affected areas. We hope that the affected regions will quickly recover and that normal life can resume as soon as possible.

#### Creating a Pleasant Working Environment

Kanto Denka offers a wide range of regulations that allow work to be combined with commitments such as childcare and nursing care. We are striving to create an environment in which employees can feel secure through measures such as the re-employment of workers who have reached retirement age. We also provide avenues for dealing with workers' problems with mental health or harassment through consultations with specialists

## Managing both work and childcare with help from family and co-workers

When my first and second children were born, I took about a year in pre-natal, post-natal and childcare leave, and now I'm using the system of reduced working hours for childcare. As children grow in their first year, some things happen that are amazing to watch, and being able to take maternity and childcare leave allowed me to be there every day to see those precious moments. The workplace is now an environment where I can do my work at my own pace, and this often inconveniences others. While I was pregnant, my co-workers quietly helped me out, and when I came back to work, many people helped me out again whenever problems came up, like my superiors stepping in and taking over my work when my child suddenly got sick.

On workdays, my children may feel a bit sad sometimes, but they always give me a big smile when I go to meet

them at the kindergarten. I am supported by those smiles too, and in the future I would like to be able to balance work and childcare in the same way.

Shibukawa Development

Research Lab

# Naoko Nagumo

Offering a Wide Range of Employee Training Programs

In addition to courses for specific management levels, Kanto Denka offers training in subjects such as foreign languages and sexual harassment awareness. We also offer a range of elective correspondence courses to support employees' desire to advance themselves (personal development).







### Holding a Variety of Workshops and Lectures

Kanto Denka holds various events that contribute to employees' day-to-day health and raise their awareness levels, including stress checks by industrial physicians, AED workshops by instructors from the Regional Fire Bureau, and lectures and exhibitions concerning maintenance.



#### **Cultural Festival**

Held each year at the Mizushima Plant and open to visitors, this festival offers employees and their families an opportunity to show their photographs, craft works, bonsai and other exhibits





## "Ryoyukai" Activities

The Ryoyukai club runs various activities, such as viewings, bowling outings and staff travel that provide an opportunity for workers to get to know each other. The club brings employees together away from work where they can talk about other things and deepen their friendships.









# **Corporate** Profile

Company Name :	Kanto Denka Kogyo Co., Ltd.
Established :	September 22, 1938
Headquarters :	Waterras Annex, 2-105,
	Kanda-Awajicho, Chiyoda-ku,
	Tokyo 101-0063, Japan
TEL :	81-3-3257-0371
President :	Jun'ichi Hasegawa
Capital :	¥2.877 billion
Employees:	611 (as of March 31, 2018)
Sales:	¥46.652 billion



### Network

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#### Advanced Research Lab.

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#### Kanto Denka Korea Co., Ltd.

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## Message from the Editorial Department

A majority of the products are ISO certified. Shibukawa Plant JQA-1009 (certified in October 199 Mizushima Plant JQA-2254 (certified in March 1998

#### ISO 14001

ISO9001

Shibukawa Plant JQA-EM0438 (certified in May 1999 Mizushima Plant JQA-EM0437 (certified in May 1999)

#### **OHSAS 18001**

Shibukawa Plant JQA-OH0087 certified in July 2005 Mizushima Plant JQA-OH0190 (certified in May 2011)

(OSHMS between 2006 and 2011)

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more comprehensive. and encouragement in the future.







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The "Heisei" era will soon be reaching its end. Given events such as the spate of retirements by eminent people, the last few years have been a period where we feel strongly the approach of the end of an era in a wide variety of sectors, not just the imperial era.

So, as Kanto Denka nears its 80th anniversary, the "Safety, Environment and Social Report 2018" will be the last environment report of the Heisei era. In the 18 years since 2000 when we first started, the report name has evolved, from "Environment Report", to "Environment and Social Report" and finally to "Safety, Environment and Social Report" as it has become

Going into a new era, some things will change, some things will remain the same, and some new things will begin. Without retreating in any way from an approach that places accurate data disclosure front and center, we will strive as we look further ahead to our 90th anniversary to improve the report's design so that it is more accessible and makes easier reading. At the same time, we will continue to work towards a new plan for content that brings Kanto Denka and the entire readership closer together. We look forward to your further guidance