

Environmental and Social Report 2013

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This report can also be viewed on the Company website. <http://www.kantodenka.co.jp>



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Published: November 2013

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 ensure that our unique technologies and superior services meet the requirements of our users and build a trusted company based on the principles of 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 environmental conservation and safety issues, from the development, manufacture, 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, distributional safety, and risk-free international trade.
- 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 Work 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 distributional 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 Ensure the protection of the environment and safety in overseas operations, technology transfers and the international trade of chemical products.
- 10 Promote risk-awareness to society as a whole, such as local communities, investors and related organizations through the widespread dissemination of our environmental and safety activities, as well as the results of those activities, in environmental reports and other materials.

Corporate Profile

Company Name : Kanto Denka Kogyo Co., Ltd
Established : September 22, 1938
Head Office : Waterras Annex, 2-105,
 Kanda-Awajicho, Chiyoda-ku,
 Tokyo 101-0063, Japan
TEL : 81-3-3257-0371
President : Shiro Yamashita
Capital : ¥2.877 billion
Employees : 573 (as of March 31, 2013)
Sales : ¥30.002 billion

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This report mainly contains environmental and social activities during FY2012 (April 1, 2012 to March 31, 2013).

Message from the Editorial Department

At Kanto Denka, we had an accident two years ago as well as last year, and we regret having caused a great inconvenience to the local community and related parties. Once again we would like to offer our profound apologies. Recently, there has been a spate of serious accidents at chemical companies. One of the factors blamed for the accidents is problems with the way skills have been passed on to succeeding generations.

As younger generations replace older ones, we at Kanto Denka also face a similar situation. Going forward, we will move swiftly to review our procedures and technical materials, and ensure that they serve as textbooks for manufacturing and research activities. In September of this year, we celebrated our 75th anniversary.

Our head office has moved to a new location, and this year is the first year of activities under the newly formulated 9th Mid-Term Management Plan. Taking this opportunity, the entire workforce will reexamine the weight of the social responsibility that we as a company ought to be fulfilling, and make persistent efforts to ensure stable and safe operations as a company trusted by our customers. We kindly ask for your continued support and guidance. Thank you.

ISO 9001

A majority of the products are ISO certified.
 Shibukawa Plant JQA-1009 (certified in October 1995)
 Mizushima Plant JQA-2254 (certified in March 1998)

ISO 14001

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 2007 and 2011)

Making Our 75th Anniversary a Starting Point for New Growth, We will Continue to Offer Products Valuable to Society

Aiming to become an "innovative, development-driven company," we have consistently adapted to the changes taking place in society and the market, and focused on the R&D and manufacturing of products with enhanced added value. Our flagship products – special gases for semiconductors and liquid crystal displays, and battery materials – are supplied globally and have one of the leading market shares. However, these products have a high need for technological innovations, and international competition to capture market share is intensifying. Amidst this backdrop, we have implemented the 8th Mid-Term Management Plan which ended in FY2012. By setting out the overarching goals of strengthening existing businesses and creating new products, we have been putting efforts into production innovations and global marketing activities. In addition, under the Mid-Term Management Plan, we have been working on another critical theme. That is the establishment of a corporate culture reflective of Kanto Denka based on the pillars of "safe practices" and "environmental measures." Moving forward, we will reaffirm our belief that safe and stable operations constitute the foundation of our company, and promote the efficient operation of our occupational health and safety system. At the same time, through such efforts as reinforcing our environmental management system, adopting energy-saving technologies, improving processes to realize improvements in specific energy consumption, and reducing industrial waste through the 3Rs, we will aim to achieve the ultimate goal of zero emissions. Needless to say, the process of creating a corporate culture rests on the everyday will and conduct of each and every employee. At Kanto Denka, we will strive to reform employee awareness about and develop ways to assure preventive safety, and build a robust organization that can ceaselessly propose new products for the market on the basis of safety and safe operations.

In April 2013, we relocated our head office. In September, we celebrated our 75th anniversary. Under the newly started 9th Mid-Term Management Plan, we will further advance our existing initiatives. The entire workforce will make united efforts to turn the next three years into a turning point for the company's further growth. Furthermore, we will challenge ourselves to develop new products with speediness as a company-wide effort. I sincerely ask for your ongoing support and assistance as we go forward.

October 2013



President of
Kanto Denka Kogyo Co., Ltd.

Shiro Yamashita





For TVs, PCs, and mobile phones

We supply special gases which are essential for the manufacturing of semiconductors and LCD displays.

【Special Gases】

Nitrogen trifluoride, Carbon tetrafluoride, Hexafluoroethane, Octafluoropropane, Octafluorocyclobutane, Difluoromethane, Trifluoromethane, Sulfur hexafluoride, Chlorine trifluoride, Silicon tetrafluoride

We develop and supply Monofluoromethane, Hexafluoro-1,3-butadiene, and Carbonyl sulfide, which are gases with a low global warming potential that prevent global warming.

For the ultimate eco-car

Lithium hexafluorophosphate is used to make batteries for hybrid electric vehicles (HEV), electric vehicles (EV), mobile phones, and mobile devices.

High-grade lithium hexafluorophosphate that meet the rigorous needs of secondary batteries support the evolvement of eco cars.

For printers and copiers

We supply reprographic carriers and magnetites for the developer and the raw material of the toner for copiers and printers.

We have made it possible to have a high-durable developer, which contributes to resource conservation and waste reduction. Furthermore, our lineup includes environmentally friendly ferrite (EF Ferrite) free of heavy metals.

For air conditioners

Trichloroethylene and perchloroethylene are utilized as raw materials for the manufacturing of alternatives to CFCs in refrigeration systems.

Ozone-friendly alternatives to CFCs contribute to the prevention of global warming.

Even here!

Caustic soda is used as a raw material for cleansers, soaps, paper, and pulp. Sodium hypochlorite is used as the main raw material for bleaching agents and bactericides.

Hydrochloric acid is utilized for MSG as well as for raw materials and materials in a variety of industry areas.

For transformers

Sulfur hexafluoride with high insulative properties contributes to the development of more compact high capacity transformers.

For optical fibers

Silicon tetrafluoride is employed in the raw material of optical fibers which support the information-communication society.

At Kanto Denka's plants and laboratories

We have obtained certifications in ISO9001 (quality), ISO14001 (environment), and OHSAS18001 (safety). We endeavor to improve the quality and performance of our products, and appropriately dispose of and recycle industrial waste.

The combustion facilities installed at our plants decompose and process greenhouse gas emissions. The collected calcium fluoride is reused as a raw material for cement and subgrades. Our employees are working together to realize an accident- and injury-free workplace, beautify the surrounding environment, and reduce the environmental footprint of production processes.

Kanto Denka's chemical products, with their reliable quality, are expanding their field of activity to across the globe.

Kanto Denka's Technologies and Products
Make a Positive Difference in Your Lives

We are by your side, supporting your everyday needs.

Kanto Denka supplies a broad array of materials essential to improving the quality and functions of products that are indispensable to a comfortable and convenient lifestyle. We harness the outstanding properties of chemical materials and contribute to lowering the environmental footprint. You and us, we probably cross paths everyday!



Shibukawa and Mizushima Plant Head Managers explain

Additional Schemes and Workforce Enhancements for Safety and Environmental Protection.

At Kanto Denka, we have a company-wide effort to ensure safe operations and environmental conservation, and have stepped up the effort by drawing on the lessons learned from the 2011 and 2012 incidents. The Shibukawa and Mizushima Plants are undertaking initiatives to reform employee awareness and to promote continuous improvements. The plant head managers explain.

The key to safety is the “people.” We strive to continuously raise the awareness and skills of the people.



Shibukawa Plant Head Manager Katsuhiko Saito

Kawata: Chemical plants handle large amounts of hazardous substances. Even one accident could have devastating consequences. The recent incidents were a reminder that to prevent accidents, it is critically important that facilities have control measures, and that safety education is provided to those handling the equipment.

Saito: Unfortunately, there is no method which can guarantee safety completely. That is precisely why it is imperative that each and every employee continues to raise their perceptions about safety, learns from all possible cases, correctly understands the principles, and increases their safety skills without becoming complacent with the existing work approaches or the state of the facilities.

Kawata: I would like to foster a culture in which all employees have a high level of safety consciousness and execute the set tasks without fail. In addition to routine facility inspections which are a given, we have the entire workforce enroll in KYT meetings and



apply what they have learned. We also regularly give all employees pop quizzes on the Industrial Safety and Health Law called the “10-question Test” and evaluate the employees’ level of proficiency.

Saito: What’s important is that all employees perceive safety as their own problem and take actions at their own initiative. At the Mizushima Plant, a safety and health promotion committee comprised of those in charge from each worksite has been organized and carries out grassroots safety activities from the perspective of the worksites. At the same time, we invite professional trainers in occupational safety to serve as consultants to give us on-site guidance that has legal basis from an outsider’s perspective.

Kawata: Ultimately, it comes down to the “people.” It’s important that personnel who have a high level of safety consciousness are fostered. This can be done effectively by developing manuals tailored to the worksite, as well as offering “know how” and “know why” education regarding why the manuals stipulate

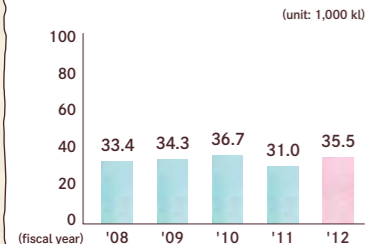
※KYT: Kiken Yochi Training (Danger Prognosis Training)

Shibukawa Plant

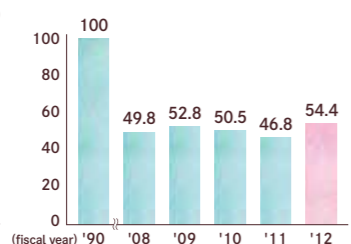
1497 Shibukawa, Shibukawa City, Gunma

■ Plant area: approximately 138,000 square meters ■ Number of employees: 249 (as of March 31, 2013)
■ Products: [Fluorochemicals] sulfur hexafluoride, carbon tetrafluoride, tungsten hexafluoride, nitrogen trifluoride, hexafluoroethane, trifluoromethane, others [Ferrochemicals] carriers, magnetite

Trends in Energy Consumption in Crude Oil Equivalent (unit: 1,000 kl)



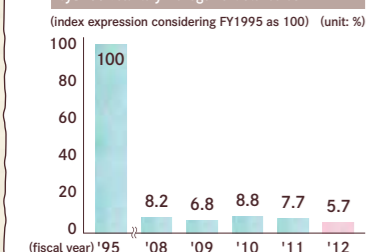
Trends in CO2 Emissions (index expression considering FY1990 as 100) (unit: %)



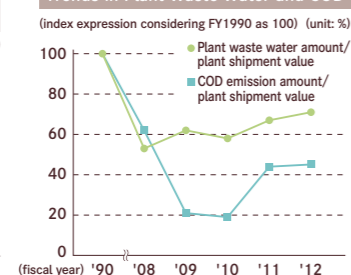
FY2012 PRTR Results

JCIA substance number	substance name	atmospheric emissions	water emissions	ground emissions	total emissions
274	Toluene	9.3	0.0	0.0	9.3
399	Methyl ethyl ketone	7.3	0.0	0.0	7.3
421	Iodine	0.0	3.4	0.0	3.4
397	Methyl alcohol	0.8	0.5	0.0	1.3
344	Fluorine	0.0	1.3	0.0	1.3
254	Trichloroethylene	0.4	0.0	0.0	0.4
169	Dichloromethane	0.4	0.0	0.0	0.4
	Others	0.4	0.3	0.0	0.7
total		18.6	5.5	0.0	24.1

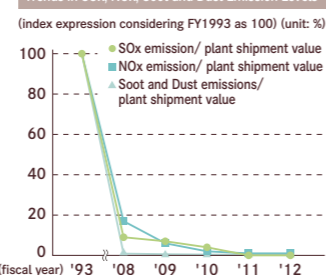
Trends in Emission Amounts of Substances Specified by JRCC Voluntary Management Standards (index expression considering FY1995 as 100) (unit: %)



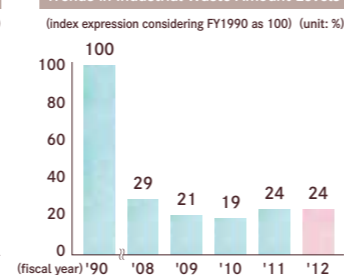
Trends in Plant Waste Water and COD (index expression considering FY1990 as 100) (unit: %)



Trends in SOx, NOx, Soot and Dust Emission Levels (index expression considering FY1993 as 100) (unit: %)



Trends in Industrial Waste Amount Levels (index expression considering FY1990 as 100) (unit: %)



Mizushima Plant

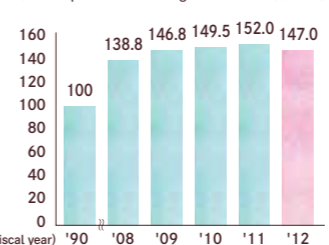
4-4-8, Matsue, Kurashiki City, Okayama

■ Plant area: approximately 185,000 square meters ■ Number of employees: 171 (as of March 31, 2013)
■ Products: [Fundamental chemicals] caustic soda, sodium hypochlorite, hydrochloric acid, trichloroethylene, perchloroethylene and vinylidene chloride; [Fluorochemicals] lithium hexafluorophosphate, silicon tetrafluoride, chlorine trifluoride, and organic fluorine compounds

Trends in Energy Consumption in Crude Oil Equivalent (unit: 1,000 kl)



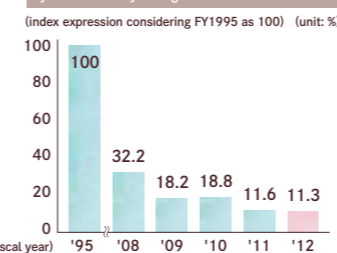
Trends in CO2 Emissions (index expression considering FY1990 as 100) (unit: %)



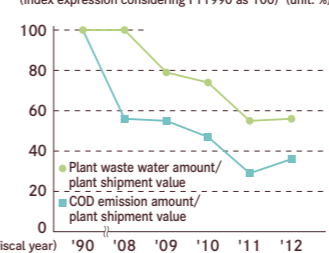
FY2012 PRTR Results

JCIA substance number	substance name	atmospheric emissions	water emissions	ground emissions	total emissions
152	1, 1-Dichloroethylene	6.3	0.0	0.0	6.3
254	Trichloroethylene	1.2	0.0	0.0	1.2
343	n fluoride and its water-soluble salts	0.0	1.0	0.0	1.0
253	1, 1, 2-Trichloroethane	0.4	0.0	0.0	0.4
16	Acetone	0.2	0.0	0.0	0.2
150	1, 2-Dichloroethane	0.1	0.0	0.0	0.1
233	Tetrachloroethylene	0.0	0.0	0.0	0.0
	Others	0.2	0.1	0.0	0.3
total		8.4	1.1	0.0	9.5

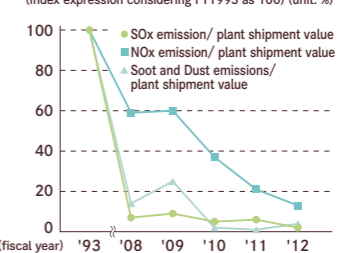
Trends in Emission Amounts of Substances Specified by JRCC Voluntary Management Standards (index expression considering FY1995 as 100) (unit: %)



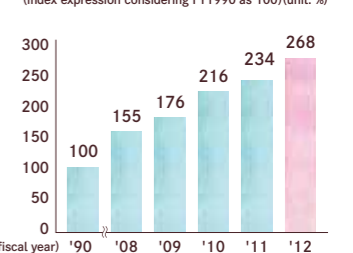
Trends in Plant Waste Water and COD (index expression considering FY1990 as 100) (unit: %)



Trends in SOx, NOx, Soot and Dust Emission Levels (index expression considering FY1993 as 100) (unit: %)



Trends in Industrial Waste Amount Levels (index expression considering FY1990 as 100) (unit: %)



what they do. Of course, our “close call” and “KYT” activities are also important. However, there is no magic bullet with safety. I believe you just have to keep up the efforts.

Environmental conservation efforts aimed at achieving harmony with the bountiful nature.

Saito: In terms of the importance of sustained efforts, the same goes for environmental conservation. The Mizushima Plant is located near the Tone River and is surrounded by the lush green mountains of Mt. Akagi and Mt. Haruna. It must never be forgotten that the plant exists in harmony with this rich natural environment and with the community members who enjoy this nature.

Kawata: The Mizushima Plant is situated on the corner of the Mizushima Industrial Zone facing the Seto Inland Sea. On the east side, past the flood-control land, there are private residences very close to the plant. Therefore, we pay great care towards the environment. In particular, we measure and monitor the quality of the surrounding air as well as the water quality of the plant waste water 24 hours a day. Should an abnormal value be detected, we are prepared to take immediate responses.

Saito: At the Mizushima Plant, we have been enhancing our waste water management efforts and taking steps to preserve the water quality of Tone River. Along with taking all possible measures to manage environmentally hazardous substances, we have thorough environmental conservation measures in place, installing an abatement facility for harmful substances for each process that emits such substances. We have also been promoting the reduction of industrial waste, putting considerable efforts into waste recycling and reuse. As for the factors which are causing these environmental impacts, we are working to reduce the environmental footprint more effectively by making use of the environmental management system.

Kawata: At any rate, what’s important is that we continue to make advancements instead of being satisfied with the current situation. At the Mizushima Plant, this fiscal year, construction work will be carried out to adapt to the revised Water Pollution Control Law and to enhance the waste gas treatment facility. In addition, KYT education will continue to be provided for the entire workforce.

Saito: The Mizushima Plant will continue to promote the achievement of an accident- and injury-free workplace and the reduction of the environmental footprint. Our priorities are: energy-saving measures, especially measures to cut the electricity use of electrical equipment; measures to make harmful substances and greenhouse gases completely harmless; and 3R measures for waste towards achieving zero emissions.

Aiming to become a trusted company by deepening interactions with the community.

Kawata: We have to continue to move forward hand-in-hand with the local community. Therefore, I believe the biggest contribution we can make to the community is, of course, conserving the environment, but also sustaining our safe and stable operations. I will continue our efforts to “create a safe and stable plant trusted by the society,” which is our priority policy, and aim to create a plant that is further trusted by the community and all of the stakeholders.

Saito: Companies are public institutions of the society. Naturally, we aim to further evolve as a company. However, we also hope that we can contribute to the development of a prosperous society, and furthermore, be of even a little help to passing on the appeals of Mizushima to future generations. That is all the more why I believe it is important that we promote environmental conservation activities that go beyond the level of laws and ordinances and that we disclose a broad array of these activities, so that the



Mizushima Plant Head Manager Akiho Kawata

community perceives us as a plant that is trusted and where employees can work with pride.

Kawata: Indeed, interactions with the community are also important. At Mizushima Plant, we have been deepening interactions with the community through a range of opportunities, including employees’ proactive participation in community events.

Saito: We also cooperate with the greening activities of a local NPO and try to foster an atmosphere that promotes the local acceptance of our plant. We hope that initiatives such as the introduction of internships and the holding of industry expos will deepen understanding about our corporate activities, and that these initiatives can play a part in community development and human resources development with an eye on the future.

Kawata: Yes, it would be great if we can continue to deepen our bonds of friendship with the community which have been nurtured over many years.



RC Promotion Organization

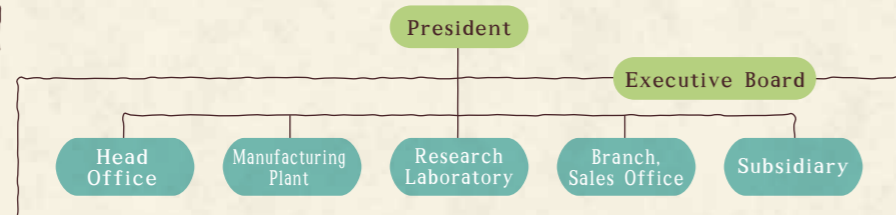
Kanto Denka has a system for promoting responsible care (RC) and compliance. To ensure that each organization functions to their fullest potential, we have concentrated our efforts into the evaluation and improvement of the organizations.



Efforts Geared toward CSR

Kanto Denka believes that we, as a good corporate citizen, 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



RC Promotion Council

Chairman: President

Members: Chairmen of subcommittees and a few appointed by the President

Office: Environment & Safety Department

Formulation of fiscal year, and medium- and long-term RC policies. Deliberation and decision on important issues related to RC activities across the entire company including their performance.

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

Environmental and Safety Protection Committee

Promotion and audit of RC activities across all operational areas.

Quality Control 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 recognition of 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

Ensure 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 system. The results of these self-audits are reflected in the next RC objectives and plans report.

Auditing of Each Facility

The Environmental and Safety Protection Committee twice a year, and the Quality Management Committee, Logistics Safety Committee once a year, respectively, conduct auditing of goals, plans, implementation systems, and performance evaluation of self-audits in all facilities.



Overall Auditing

Overall auditing involves deliberation and evaluation by the RC Promotion Council of results of auditing carried out by the Environmental and Safety Protection Committee, Quality Control Committee, and Logistics Safety Committee. The results of evaluation of overall auditing are then reflected in management policies, objectives, and the 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 and General Affairs Dept., 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.

Performance and Targets in RC Activities



Kanto Denka made company-wide efforts to achieve RC action targets based on its 8th Three-Year Plan for the FY2010-FY2012 period. For the period starting in FY2013, a new 9th Three-Year Plan has been established.

FY2012 Performance in RC Activities

- Saving Resources** **18% Reduction** **Target**
Maintain the quantity of principal raw materials against plant production volume with FY2006 results.
- Saving Energy** **8% Increase** **Target**
Reduce energy consumption (crude oil equivalent) per unit of production volume by 3% of FY2009 levels.
- Reduction of Greenhouse Gases Emissions** **21% Reduction** **Target**
Reduce CO₂ equivalent greenhouse gases emissions by 25% of FY1990 levels.
- Reduction of Environmental Pollutants** **33% Reduction** **Target**
Reduced the amount of emissions of chemicals specified as PRTR by the Japan Chemical Industry Association (JCIA) by 10% compared to FY2009.
- Reduction of Industrial Waste** **65% Increase** **Target**
Maintain landfill industrial emissions on par with FY2006 results (1,500 tons) by raising the recycling ratio.
- No Accidents and No Injuries** **1 Incident** **Target**
● Workplace Injuries: Zero (zero workplace injuries among employees and contractors)
● Accidents at Company Facilities: Zero

FY2013 RC Action Target (first year objective of 9th Three-Year Plan)

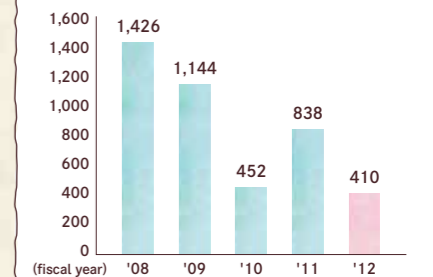
- Saving Resources** **Less than FY2012 actual levels** **Target**
Decrease the quantity of principal raw materials against plant production volume from FY2012 actual levels.
- Saving Energy** **3% Reduction** **Target**
Reduce energy consumption (crude oil equivalent) per unit of production volume by 3% of FY2012 levels.
- Reduction of Greenhouse Gases Emissions** **25% Reduction** **Target**
Reduce CO₂ equivalent greenhouse gases emissions by 25% of FY1990 levels.
- Reduction of Environmental Pollutants** **Less than FY2012 actual levels** **Target**
Decrease the amount of emissions of chemicals specified as PRTR by JCIA compared to FY2012 actual levels.
- Reduction of Industrial Waste** **Less than FY2012 actual levels** **Target**
Decrease landfill industrial emissions on par with FY2012 results (2,500 tons) by raising the recycling ratio.
- No Accidents and No Injuries** **0 Incidents** **Target**
● Workplace Injuries: Zero (zero workplace injuries among employees and contractors)
● Accidents at Company Facilities: Zero

Investment for the Achievement of RC Action Targets

Investment in Safety Measures

We make investments with a focus on safety measures which are essential for sustaining our safe operations, including the improvement of manufacturing facilities, strengthening of education and training within the Company, and participation in external workshops. Going forward, we will continue to strive to improve our work environments and increase safety awareness.

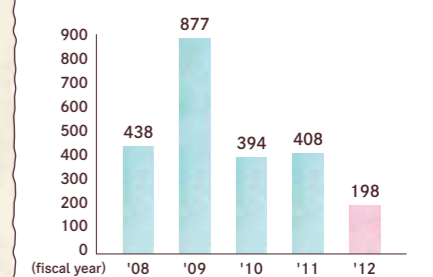
Trends in Investment in Safety Measures (unit: million yen)



Investment in Environmental Measures

In FY2012, we made investments in the environment for items which are deemed to be highly effective in order to strengthen our environmental measures, including reducing greenhouse gases, promoting resource-saving and energy conservation, and reducing environmental pollutants and industrial waste.

Trends in Investment in Environmental Measures (unit: million yen)



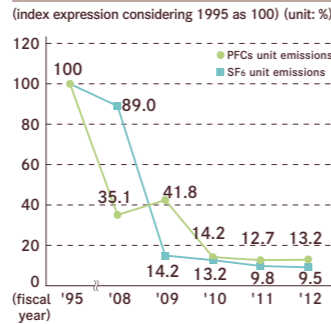
Trends in Reduction of PFCs Emissions

Target

Progress of the JCIA's Voluntary Action Plan 50% reduction in PFCs unit emissions and 75% reduction in SF₆ unit emissions of 1995 levels during the Kyoto Protocol's first commitment period (2008-2012)

Kanto Denka manufactures PFCs and SF₆ gases 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 Plan, has undertaken efforts to reduce PFCs unit emissions by 50% and SF₆ unit emissions by 75% compared to 1995 levels by 2010. Through these efforts, we achieved the reduction objectives in FY2009, and since then, have been working to further reduce all greenhouse gases emissions based on our own 8th RC action plan. The 8th RC action plan sets forth a target to reduce greenhouse gases emissions (CO₂ equivalent) by 25% compared to 1990 levels. In FY2012, we achieved a 21% reduction, moving significantly closer to attaining our company target.

Trends in Reduction of PFCs and SF₆ Emissions



Greenhouse Gases

Greenhouse gases are identified as substances that cause global warming, including carbon dioxide, dinitrogen monoxide, methane and hydrofluorocarbons (HFCs), as well as perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆), both of which are handled by Kanto Denka.

PFCs

PFCs are compounds consisting of fluorine and carbon. Kanto Denka produces tetrafluoromethane (CF₄), hexafluoroethane (C₂F₆), octafluoropropane (C₃F₈), and octafluorocyclobutane (C₄F₈).

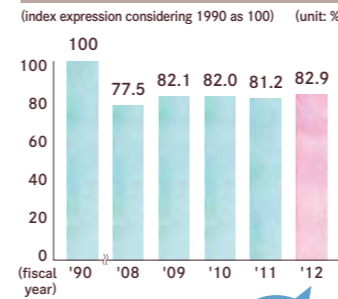
Reduction of Carbon Dioxide Emissions

Target

Kyoto Protocol target for Japan by FY2010 is 6% below the FY1990 levels

The Kyoto Protocol required Japan to reduce its emissions of carbon dioxide by 6% (compared to FY1990 baseline year levels) by the end of FY2010. Owing to Kanto Denka's successful energy saving measures, we were able to achieve the target at an early date. In FY2012, we achieved a 17% cut in emissions compared to the baseline year levels.

Trends in CO₂ Emissions



Results 17% Reduction

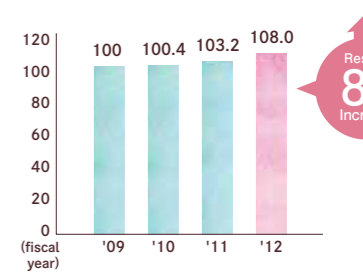
Reduction of Energy Consumption

RC action target

Reduce energy consumption (crude oil equivalent) per unit of production volume by 3% of FY2009 levels

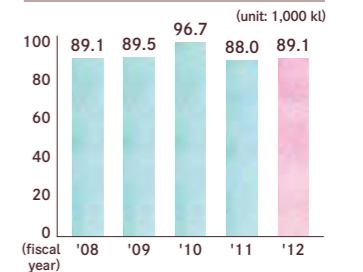
In FY2012, despite maintaining energy use at a level of around 90,000 Kℓ in crude oil equivalent, specific energy consumption increased to 108.0 considering FY2009 as 100. Moving forward, we will continue to strive to continuously improve production efficiency and contain energy use, and promote the reduction of specific energy consumption.

Trends in Specific Energy Consumption



Results 8% Increase

Trends in Energy Consumption in Crude Oil Equivalent



Specific energy consumption This index indicates how much energy is being consumed in the production of a certain given quantity of products. The lower the figure, the more energy conserved in the manufacturing process.

Coexistence with the Global Environment

Kanto Denka strives to save resources and conserve energy as well as reduce all greenhouse gases emissions by proactively utilizing environmental technologies and facilities, and takes steps to reduce the environmental footprint of all production activities.

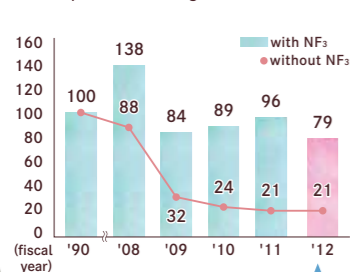
Reduction of Greenhouse Gases Emissions

RC action target

Reduce CO₂ equivalent greenhouse gases emissions by 25% of FY1990 levels

Kanto Denka achieved its voluntary action plan based on the Kyoto Protocol before 2009. From an early stage, we have included in our reduction targets nitrogen trifluoride (NF₃), which is anticipated to be subject to reductions in the future. This represents our commitment to reduce our greenhouse gases emissions even further.

Trends in Greenhouse Gases Emissions



Results 21% Reduction

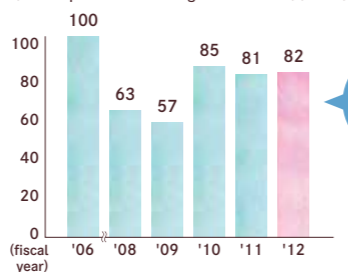
Saving Resources

RC action target

Maintain the quantity of principal raw materials against plant production volume with FY2006 results

As aggregating data on saving resources is significantly affected by the soaring unit cost of raw materials, Kanto Denka is switching over to a calculation method* that can accurately display results without being affected by unspecified elements. In addition, by repeatedly making small enhancements in our production processes, in FY2012 we have achieved an 18% improvement compared to FY2006 levels.

Trends in Raw Material Consumption



Results 18% Reduction

(*) Calculation is based on "Base Unit = Quantity of Raw Materials Consumed (t) / Production Volume (t)"

Target for Reduction of Substances Specified by Management Standards

Target

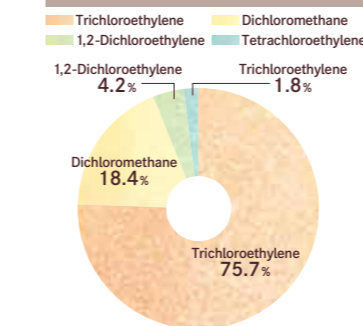
Manufacturing facilities' reduction of emission amounts of substances specified by JRCC Voluntary Management Standards

Kanto Denka currently manufactures four of 12 substances specified by the Japan Responsible Care Committee (JRCC) for priority reduction in atmospheric emissions. We manufacture the four substances of trichloroethylene (TCE), tetrachloroethylene (PCE), 1,2-dichloroethane (EDC), and dichloromethane.

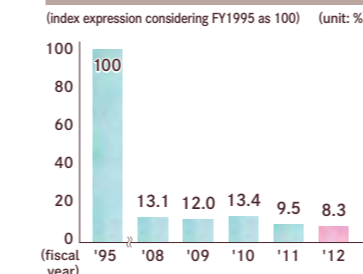
Due to facility improvements, we achieved a further reduction in FY2012.

Emission Amounts of JRCC Voluntary

Breakdown of Substances Emitted in FY2012



Trends in Emission Amounts of Substances Specified by JRCC Voluntary Management Standards



Reduction of Environmental Pollutants

RC action target

Reduction of the amount of emissions of chemicals specified as PRTR by JCIA by 10% compared to FY2009 by FY2012

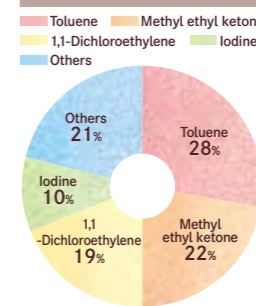
Kanto Denka handles 18 substances (including those less than 1 ton) that are specified as PRTR by law, but we manage substances in accordance with the larger range of substances specified by JCIA.

In FY2012 we handled 359,000 tons of the 37 substances specified as PRTR by JCIA. The emissions amount was 33.5 tons, and the emissions unit was 0.093kg for every 1 ton handled.

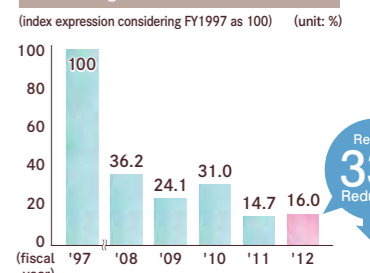
PRTR

The PRTR (Pollutant Release & Transfer Register) is a reporting and management system to help identify the quantity of chemical substances released into the environment, including the atmosphere, water sources, and the soil, and the quantity processed as waste materials. In Japan, the PRTR Law came into force in March 2001. The release and transfer quantities reported by companies are made public by the relevant authorities annually.

Breakdown of the 33.5 tons of Emissions in FY2012



Trends in Emission Amounts of PRTR-designated Chemical Substances



Results 33% Reduction

(*) FY1997, when the number of substances specified as PRTR by the JCIA was largely specified, is used as the base year.

Reduction of Plant Waste Water and COD

Target

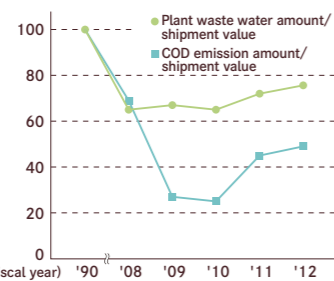
Reduction of the amount of plant waste water and COD emissions

Kanto Denka has been working to reduce plant waste water and COD emissions, including recovering pollutant substances from our manufacturing facilities. However, both plant waste water and COD emissions increased in FY2012. We are currently bolstering our emissions reduction initiatives and making every effort to bring emissions back to the levels of FY2006 and FY2007.



Discharged water (cleaned at the plant)

Trends in Plant Waste Water and COD
(index expression considering FY1990 as 100)(unit: %)



※COD (Chemical Oxygen Demand)
One indicator of pollution in water is the amount of oxygen necessary to decompose pollutants and other substances in water. The lower this figure is, the cleaner the water.

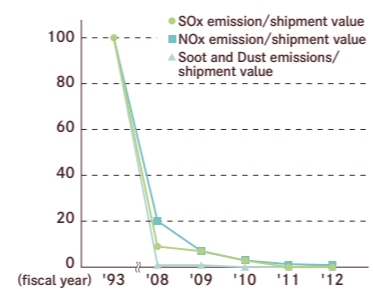
Reduction of SOx, NOx, and Soot and Dust Emissions

Target

Reduction of emissions in accordance with voluntary management standards

We have set our own management standards for atmospheric pollutants SOx (sulfur oxides), NOx (nitrogen oxides), and Soot and Dust, and are working to reduce the emissions of each of these substances. In recent years, we have maintained low levels of emissions for all of the substances.

Trends in SOx, NOx, Soot and Dust Emission Levels
(index expression considering FY1993 as 100) (unit: %)



Working towards Safety

Recognizing that the key to safe operations is "people," Kanto Denka strives to increase the safety awareness of all employees through daily safety education and various trainings, and thereby, ensure a safe work environment and thorough safety management.



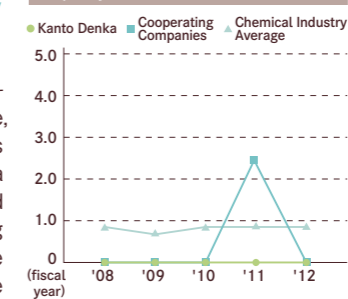
No Accidents and No Injuries

RC action target

Zero cases of industrial accidents, accidents at company facilities, or leaks of hazardous substances during transportation from Kanto Denka facilities to customers

With the objective of achieving an accident-free workplace, all employees at Kanto Denka and cooperating companies are working to "create a culture of safety" and to "create a workplace where people can work rigorously and in good health." However, in 2011, an employee of a cooperating company suffered a chemical injury, and in 2012, a fire broke out at a facility. Kanto Denka is working to ensure that such an accident will never occur by reinforcing the safety management of our facilities and handling of chemicals, and by enhancing our safety education for increasing our employees' risk awareness.

Frequency Rate of Lost Work-time Accidents



The safety first tower

※Frequency Rate
The frequency rate of lost work-time accidents is an index showing the number of deaths/injuries per one million hours worked. It is based on a by-industry nationwide study, carried out by the Ministry of Health, Labor and Welfare, and adjusted for company size and number of hours worked.

Safety Activities at our Plants

Implementation of Safety Education

In order to achieve our goal of no accidents and no injuries, it is essential that we constantly reduce potential dangers underlying occupational injuries. We are aiming for more effective safety measures through provisions such as safety education during the morning meeting tailored to the kind of work. We are also improving work processes at each site as necessary in order to ensure that the safety measures are enforced.



Safety education carried out before the start of operations

Implementation of KYT

(Kiken Yochi Training: Danger Prognosis Training)

In order to make clear what dangers the work entails, we gather near accident cases into a database and make use of it for KYT. Furthermore, once a month at each workplace, a meeting is held to discuss solutions based on these near-accident cases, and solutions for minimizing the risk factors are implemented continuously.



Glove inspection machine
Glove inspections are carried out prior to operations to check whether the gloves to be used during the operations have any holes or damage.

Joint training exercise with the public fire department

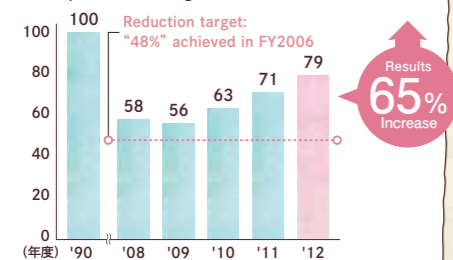
Reduction of Industrial Waste

RC action target

Maintain landfill industrial emissions on par with FY2006 results by raising the recycling ratio

Kanto Denka has been making proactive efforts to reduce the generation of waste products by controlling and reducing the volume of waste products while promoting recycling. Nevertheless, since 2010, industrial waste has been on an increasing trend temporarily due to the launch of new facilities. Going forward, we will strive to reduce emissions by further improving the product yield.

Trends in Industrial Waste Amount Levels
(index expression considering FY1990 as 100) (unit: %)



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

Kanto Denka reports data in accordance with the Mandatory Greenhouse Gas Accounting and Reporting System based on Japan's Law Concerning the Promotion of Measures to Cope with Global Warming. The volume of CO2 equivalent emissions in FY2012 amounted to 0.37 million tons. The breakdown of these emissions can be found at right. In March 2009, Kanto Denka installed a combustion facility. The facility has continued to operate steadily ever since, and has had an even greater effect than anticipated on the reduction of emissions, including PFCs.

	Figures for 2008 (official)	Figures for 2009 (official)	Figures for 2010 (official)	Figures for 2011 (reported)	Figures for 2012 (reported)
Originating from energy	18.1	21.2	21.3	21.6	21.5
Emissions of PFCs, etc.	137.7	33.3	17.8	14.5	15.1
Originating from distribution fuel	0.6	0.6	0.6	0.6	0.5
Total	156.4	55.1	39.7	36.7	37.1

Unit: 10,000 tons of CO₂

Safety Measures for Chemical Substances



As a company that handles large amounts of chemical substances, Kanto Denka pays utmost consideration to their safe management. Our chemical substances are managed in line with the Guidelines on Management of Chemical Substances incorporated in the PRTR Law, the Industrial Safety and Health Law, and the Poisonous and Deleterious Substance Control Law, and are verified by third parties such as ISO 14001 and OHSAS18001. With respect to poisonous and deleterious substances which require careful handling, we are strengthening their safety management by ensuring segregation management and implementing procedural manuals.

Warning Labels Based on PL (Product Liability)

All of our products are affixed with PL labels listing handling precautions. The Quality Control Committee carries out company-wide audits, including checks of the Shibukawa and Mizushima Plants and their research laboratories, to ensure that product safety measures based on the Product Liability Law are being followed. Their findings are then reported to the RC Promotion Council.

※The PL (Product Liability) Law
The PL (Product Liability) Law is a law stating that if the consumer can prove defects in a product, the manufacturer's responsibility will be questioned regardless of whether the fault lies with the manufacturer or not, and was entered into force in 1994. As a result of this law, companies are required to pursue even stricter safety standards.



PL labels
These labels give product safety information

Logistics Safety



Kanto Denka is working to reduce potential risk factors in distribution through such measures as preventing deformation and damage of containers, securing the environment and safety of filling stations and distribution centers, and implementing a user facility improvement program. As part of these efforts, our Logistics Safety Committee is conducting safety auditing for each office and transporter.



Special gas transport vehicles make delivering products safer

Ensuring Safety in Emergencies

In order to ensure safety in the event of an accident, it is a requirement for all transportation companies to have the Yellow Card and MSDS (Material Safety Data Sheet) documents at all times during transportation. The documents contain emergency contact numbers and details of emergency steps to be taken during emergencies.



The Yellow Card is an emergency contact card printed on yellow paper, which details the steps that a driver or assistant must take in the event of a traffic accident involving chemical substance or high-pressure gas, as well as the measures the fire department, police, and other emergency services should take.

User Facility Improvement Program

Since 1996, Kanto Denka has been implementing ongoing activities to improve customers' facilities. If a driver finds environmental or safety anomalies at a customer site, Kanto Denka investigates it based on the transporter's report. At a later date, we make a recommendation for improvement and recommend that the customer take the appropriate steps.

Lessons from incidents have been leveraged towards the activities of all workplaces and employees

In July 2011, there was an accident involving the failure of sulfuric acid pipes, and in May 2012, there was an outbreak of fire. We once again express our apologies to everyone involved and to the members of the community for the huge inconvenience and concerns the incidents have caused. Drawing on the lessons learned from these incidents, we have taken the following measures and are undertaking company-wide efforts to ensure safe operations:

- [1] Reexamination of risks at facilities: For facility risks which have come to light as a result of the incidents, control measures have been applied to our other facilities and risk mitigation efforts have been taken.
- [2] Redevelopment of our checking system: Our checking system has been redeveloped, including a review of the methodology and frequency of our facility inspections.
- [3] Increasing safety knowledge and awareness: We have and will continue to enhance our safety education for the entire workforce, check their level of safety proficiency, and conduct KYT meetings.



Interaction with the Local Community



Kanto Denka has been deepening interactions with the people in the community through various opportunities, including participation in community contribution activities.

RC Briefing Sessions

We introduce the initiatives of responsible care activities, which are a core responsibility of companies that produce and handle chemical substances.

Local Community Roundtable Meetings

We routinely hold roundtable meetings with communities near our plants. We listen to the views of the local community and address their questions or concerns.

Plant Tours

Plant tours are offered as needed to people from a variety of different age groups. Discussions are held on operational safety and environmental activities.

Blood Donation Activities

Many employees take part in Kanto Denka's blood drives held twice a year at both the Shibukawa and Mizushima Plants.

Display at the Shibukawa Industrial Technology Promotion Exhibit

Each year Kanto Denka hosts a display at an exhibit organized by Shibukawa City. The latest results of our R&D activities and production activities are introduced.



Greenery Activities

Kanto Denka promotes greenery at its plants and offices to conserve the environment and create comfortable workplaces. Innovative efforts are employed to motivate employee participation, e.g., setting up commemorative monuments and naming greenery areas after each department and division.



Clean-up Activities

In addition to weeding and garbage pick-up near its plants, Kanto Denka participates in city- and district-led clean-up events as well as clean-up activities conducted by neighboring communities.

NPO Shibukawa Regional Monozukuri Council

Shibukawa Regional Monozukuri Council contributes to the beautification of the local community through the planting of flowers along the center divider of local national roads and green areas. Employees of the Shibukawa Plant participate in this activity. The planting of flowers near the roads has led to a significant reduction in the amount of garbage disposed by passing vehicles (people). The bonds of friendship with the local people have also deepened through this activity.



Aiming to Create Dynamic Workplaces



Creating Pleasant Working Environments

A hotline for consultations regarding sexual harassment, power harassment, and mental healthcare is available to receive services from professionals. In addition, various internal rules and regulations have been created to ensure work-life balance, including internal rules that address the health of new mothers and their children, childcare leave, nursing care leave, and the rehiring of older age employees.



Offering a Wide Range of Employee Training Programs

Kanto Denka offers new employee, 6-month, and 3rd-year training sessions, as well as rank-based training sessions. We also have elective correspondence courses to support the independent studies of employees. We also conduct mental health and sexual harassment training programs.



"Ryoyu-Kai" Activities

Ryoyu-Kai provides networking and socializing opportunities for employees outside of the workplace. Through various club and other activities, employees meet and interact with peers they do not normally interact with.

Energy-Saving Measures and Heat Stroke Prevention Measures

Kanto Denka implements a range of energy-saving measures, including expanding the Cool Biz period and scope of permissible dress and applying heat control film on windows. We also keep first-aid kits at workplaces, which include sports drinks, cooling mediums, and basic thermometers, for the prevention of heat strokes.