CSR Report
2014

Aiming at sustainable growth in harmony with environment, safety and health
The Nissan Chemical Group contributes to realization of sustainable society through our business activities.

The demand for new technologies and products increases, as the awareness on global environmental preservation rises. In response to the demand, we establish de-facto standard technology and create the most advanced materials that contribute to the sustainable development of society. Simultaneously, we offer affordable and fully functional products that respond to the needs of the global market.

Globally, population is growing and also rapidly aging. There are growing concerns over shortages of food and declining farmers in the domestic agricultural industry. Under this circumstance, we try to develop agrochemicals that will secure stable agricultural products’ yields and lead to streamlining of agricultural work and saving labor. Furthermore, we develop pharmaceuticals that are required for healthier and wealthier lives of people.

As the changes of the times accelerate, various social issues are coming to light. By gathering our company’s wisdom as well as integrating external knowledge into our work to solve the issues, we will keep on challenging the technological innovation.

**Editing principle of this Report**

Nissan Chemical began its Responsible Care activities in 1992 and had been continuously improving them in the field of “Environmental Protection”, “Process Safety and Disaster Prevention”, “Occupational Health and Safety” and “Chemicals and Products Safety”. Information concerning the activities had been published in the “Environment and Safety Report” since 1999.

Meanwhile, the society’s demand for corporate social responsibility and information disclosure is increasing year after year. In response to this demand, we decided to issue the “CSR Report” for the first time last year, encompassing not only reports on responsible care activities but also corporate governance, compliance, and social nature such as relationships with our stakeholders.

The "CSR Report 2014" is based on the Ministry of the Environment’s "Environmental Report Guideline". However, we tried to make it more easy-to-follow by improving its structure such as adding a comparison table with G326000, the international standard for organizational social responsibility, and interviews with employees.

We will continue to make efforts to strengthen our CSR activities and enrich and advance the contents to help deepen understanding of our stakeholders. We would be grateful if you could read this Report and give us your comments and opinions.

**Reporting period**

FY 2013 (April 2013 to March 2014)

*The Occupational Accidents data (IP17) are from January to December 2013.

**Report coverage**

This Report mainly covers the CSR activities as part of the corporate activities of Nissan Chemical Industries, Ltd.
Message from the President

Corporate Vision

Aiming at becoming a “Corporation that Contributes to Human Survival and Development”.

Our Company Group began its 3-year midterm business plan, Vista 2015 Stage II with a slogan of “Only challenge to change makes us keep winning!”. Under this plan, we are steadily implementing various actions based on the basic strategies such as development of new products that respond to the technology advancement of our clients in the field of performance materials, establishment of a local subsidiary in China, and expansion of business in the field of pharmaceuticals for animals as a new business.

During this fiscal year, our business is steadily growing, centered on performance materials and agrochemicals. However, the changes of business environment are accelerating. In order to further secure our earnings growth base, we need to not only accurately understand the demands of the market and appropriate respond to the demands but also accelerate our corporate decision making process.

In order to achieve it, during this fiscal year, we undertook a management system reform. By introducing the Executive Officers system, we try to clarify each role of management and business execution, strengthen our capacity to develop and implement the business strategies, reduce the number of Directors, and activate the Board of Directors. We also selected a Director from outside of the Company. By incorporating external views, we will try to further enhance the soundness and transparency of business administration.

In order to achieve our Corporate Vision, we will try to respond to the expectation of all stakeholders by developing environmentally-friendly products, enriching corporate governance, ensuring compliance, strengthening risk management systems and proactively undertaking CSR activities such as promotion of responsible care.

NISSAN CHEMICAL INDUSTRIES, LTD.
President & CEO
Kojiro Kinoshita

Business Strategy

Midterm Business Plan Vista 2015 Stage II

We began to implement the 6-year midterm business plan, Vista 2015 Stage II, in April 2010 and had been making efforts to enhance our true strength as a Value-Creating Enterprise dedicated to growth in partnership with customers. In the first 3 years during Stage I (from FY 2010 to 2012), we successively gained certain results including launching of new products in the performance materials and agrochemicals fields and development of new materials that would be the future core of our business. Furthermore, we reinforced research infrastructure and expanded overseas operation base for our future business.

As a continuous effort, we started implementation of Stage II (from FY 2013 to 2015) in April last year. We will continue working towards the realization of our ideal form while clarifying our corporate vision.

Vision of FY 2015

To establish the status as the chemical manufacturer with growth capacity and stability by setting the fields of Performance Materials (electronic, organic, inorganic) and Life Science (agrochemicals, pharmaceuticals) as a pair of wheels to lead the growth and solidifying the revenue base of chemical products and our subsidiaries.

Basic Strategies

1. Creation of new products and new businesses
   1) Launching of new business with highly unique materials, development of new products and new agents based on the market needs
   2) M&A and acquisition of products to expand businesses
   3) Establishment of the research structure to take full advantage of the Company’s core technologies
   4) Introduction of advanced technologies through open innovation, etc.

2. Promotion of a business structure reform
   1) Enhancing competitiveness by reducing cost at all plants
   2) Solidifying and expanding business base for the growing overseas market

Major Financial Index

- Sales Operating Income [100 million yen]
Corporate Overview

- **Corporate Name**: NISSAN CHEMICAL INDUSTRIES, LTD.
- **Head Office**: 7-1, Kanda Nishiki-cho 3-chome, Chiyoda-ku, Tokyo 101-0054, Japan
- **Founded**: 1887
- **Capital stock**: 18,942 million yen (As of the end of March 2014)

**Business fields**

- **Performance Materials**
- Display materials - Placing “SUNEVER®”, a polymeide resin for liquid-crystal glass, as our core product, we conduct sales and development of products in response to the needs of the display market that is expanding mainly in Asia.
- Semiconductor materials - We provide materials that are essential for semiconductor manufacturing process to our customers, with a focus on BAC (a bottom anti-reflective coating material) and multi layer process materials.
- Inorganic colloid - We have been developing new uses of inorganic colloid for various industries over a long period of time. Those days, we receive high recognition in the fields of battery, hard coating agent for optical films, and polishing agent for silicon wafer.

- **Life Sciences**
- Agrochemicals - We enrich our product lineups through research and development of new agrochemicals for major crops across the world and buying out the agents from other companies, and sell them in Japan and overseas.
- Pharmaceuticals - By making full use of the strategically established chemical library, cutting-edge evaluation function and precise organic synthesis technology, we will keep challenging research and development of innovative new drugs.

- **Chemicals**
- Basic chemicals - We provide our products to a wide range of fields. Our products are centered on industrial chemicals such as ammonia, nitric acid and sulfuric acid as well as high-purity products for semiconductor cleaning.
- Fine chemicals - We conduct our business with a focus on chemicals to keep environment such as special epoxy compound for sealant, “TEPICO®”, and bactericide and disinfectant, “HI-LITE®”.

**Subsidiaries**

- **Domestic consolidated subsidiaries**
  - Nissan Corporation (Sales of chemicals, insurance business, real estate business)
  - Nissan Butsuryu Co., Ltd. (logistics business)
  - Nissan Green & Landscape Co., Ltd. (Design and implementation of gardening, civil engineering and planting green work)
  - Nissan Engineering, Ltd. (Plant engineering)
  - Environmental Technical Laboratory, Ltd. (Environmental protection consulting, environmental measurement)
  - Nihon Hiyko Co., Ltd. (Manufacturing and sales of manure)

- **Overseas Subsidiaries**
  - NCK Co., Ltd. (Korea: Research, development and sales of electronic materials)
  - Nissan Chemical Taiwan Co., Ltd. (Taiwan: Research and sales of electronic materials)
  - Nissan Chemical America Corporation (USA: Manufacturing and sales of inorganic materials)
  - Nissan Chemical Product (Shanghai) Co., Ltd. (China: Support for the sales and development and distribution of agricultural chemicals)
  - Nissan Chemical Europe S.A.R.L. (France: Sales of agricultural chemicals)
  - Nissan Chemical Agro Korea Ltd. (Korea: Sales of agricultural chemicals)

**Equity method affiliates**
- Sun Agro Co., Ltd. (Manufacturing and sales of manure)
- Clariant Catalysts (Japan) K.K. (Manufacturing and sales of industrial catalyst)
Products of Nissan Chemical that Play Active Parts in the Society

We introduce our three business fields and our products that are used in various parts of the society.

Performance Materials

- **Electronic Materials**
  - SUNEVER® (Liquid crystal aligning agent, Polyimide)
  - NMC® (insulating hard coat for LCD)
  - BARC (Bottom anti-reflective coating for semiconductor lithography)
  - OPTIFOCUS® (coating for imaging sensor)

- **Inorganic Materials**
  - SNOWTEX® (gilding agent, surface treatment material)
  - ORGANOSILCASOL
  - SUNCOLL®
  - CELNAX® (antistatic agent, heat ray shield material)
  - NanoUT® (refractive index adjustment material)

Life Science

- **Agrochemicals**
  - SRIUS®
  - PERMIT®
  - ROUNDUP MAXLOAD®
  - TARGA®
  - ALTAR®

- **Insecticide**
  - STARMITE®
  - SANWITE®

- **Fungicide**
  - LEMAX®
  - ORACLE®
  - GREATAX®
  - KARGA®

- **Pharmaceuticals**
  - UVALO® (pharmaceutical ingredient)
  - LANDEL® (pharmaceutical ingredient)
  - NEW medicines under development

- **Herbicides**
  - ROUNDUP MAXLOAD®
  - STARMITE®

- **Insecticides**
  - LEMAX®

- **Fungicides**
  - ORACLE®

- **Pharmaceuticals**
  - UVALO® (pharmaceutical ingredient)
  - LANDEL® (pharmaceutical ingredient)

- **New medicines under development**
  - NT-703 (asthma care, antiobesity, blood pressure treatment agent)
  - NTC-801 (anti-arrhythmic agent)
  - NIP-022 (thrombocytopenia treatment agent)

Chemicals

- **MELAMINE** (Phenolic resin, wood bonding agents, etc.)
- **High purity agent**
- **High-grade urea solution (AdBlue®)**
- **PINE OXICELL®**
- **Other major products**
  - Ammonia, nitric acid, sulfuric acid, chemicals for construction, etc.
- **TEPC®** (Special epoxy compound for sealant)
- **MELAMINE CYANURATE (MC)**
- **PHOSWEL®** (Flame retardant)
- **HYLITE®** (Sanitizing agent, disinfectant)
- **NISSAN REISHI**
Development of New Products that Contribute to the Society

Taking full advantage of our core technology, the Company develops new products that contribute to the society.

Cell medicine materials

We are developing materials that contribute to the latest cell culture technologies such as 3D cell culture medium and in-vitro amplification agent for the platelet generated from iPS cells.

For the 3D cell culture medium “FcAM Series” released in October of this year, we adopted the natural polysaccharides discovered in our research for a culture substratum and combined it with a low adhesive cell plate, enabling the culture of cells in the environment that is closer to the inside of a biological body than conventional 2D culture.

We also succeeded in developing a new method for 3D culture suited for the mass culture of human pluripotent stem cells (iPS cells).

On the other hand, in-vitro amplification agent for platelet is used for mass-producing platelets, which have the hemostatic effect, from iPS cells. As there is a chronic shortage of platelets, it is expected that by producing a large amount of platelets from iPS cells, it will be possible to supply platelets for transfusion therapy stably.

Supramolecular gelator “Nano-fiber Gel”

Our company has enriched the lineup of premixed products, for which our original supramolecular gelator “Nano-fiber Gel” is mixed with other components in advance. The low-molecular “Nano-fiber Gel,” which is constituted by palmitic acid and dipalmitate, is less sticky and has a water-like texture compared with polymeric gels. Therefore, it is effective as a gel spray substrate. Since it solates rapidly with a gentle push with the finger, the nozzle will not be clogged, and it becomes misty when sprayed. When it attaches to a material, it turns into a gel swiftly, without dripping. In addition, we found a material whose water content ratio is nearly 90% and that can adjust a weakly acidic stick. This is sold as an additive to quasi drugs and pharmaceutical products, in addition to cosmetics, such as sprays for skincare and body lotion, moisturizing and medicinal creams, and whitening sticks.

Active pharmaceutical ingredient for animals, “Fluralaner”

We invented “Fluralaner” which is the active substance of veterinary medical product “BRAVECTO” developed by MSD Animal Health (MSD), the global animal health business department of Merck & Co., Inc.

Fluralaner belongs to the isoxazoline group that possesses a new mode of action different from existing anti external parasites drugs for companion animals. We manufacture and supply Fluralaner to MSD as the active pharmaceutical ingredient for their product.

“BRAVECTO” is a chewable tablet (oral administration) and provides unique immediate tick and flea killing activity for dogs. It is persistent for 12 weeks (8 weeks for lone star tick), longer than existing once-monthly commercialized products.

MSD started the sales of BRAVECTO in EU countries and the USA after April 2014, and endeavors to obtain marketing authorization in the other countries including Japan.

Electroless plating agent

We have been developing the applications of Hypertech®, the functional coating material including multi-branched organic nanoparticles, as mainly surface and highly reflective materials. Some clients have adopted the applications we developed.

We have developed a new material that can reduce the amount of metal used when producing wires for the touch panels of smartphones, tablet PCs, etc. to less than one tenth as an electroless plating agent.

For metallic wires, the entire surface of a substrate is covered with a metallic thin film in a vacuum chamber, and unnecessary parts are removed with an acid, but the removal amount is over 90%.

With this material, it is possible to draw a wiring pattern, and metal adheres to necessary parts only. Accordingly, metal coating can be minimized. Furthermore, since vacuuming devices are not required, production costs can be reduced. We concentrate on the increase of clients by approaching new clients with samples.
Promotion of CSR

The foundation of our business activities is our corporate principle: “Contributing to the society in harmony with the environment based on our excellent technologies, products, and services”, and we believe that implementation of this principle is our CSR activities.

CSR Basic Policies

The Company defines the stakeholders as “customers, shareholders/investors, employees, communities/society, and business partners” and decided the following basic policies in order to respond to the expectations of all stakeholders and strengthen their confidence in us.

1. To strengthen corporate governance and secure stability, soundness and transparency of management.
2. To further focus on appropriate chemical substance management and reduction in environmental load and try to protect global environment.
3. To place value on the communication with all stakeholders and disclose information appropriately.

Corporate Governance

Basic Principles

The Company understands corporate governance as “the system for sound and efficient management to achieve sustainable and long-term profit for our stakeholders”. In order to achieve it, we are working on the acceleration of management decision-making.

Overview of the Corporate Governance

- Management Structure
  Our “Board of Directors”, consisted of 7 Directors including 1 external Director who is disinterested in the Company, is held regularly every month, and important decisions concerning management are made at the meeting. At the same time, the Board of Directors has a function of supervising the business execution of the Directors.
  In April 2014, we introduced the Executive Officers’ system. By clarifying the decision-making and execution functions of the management, we will try to strengthen both functions and enhance our capacity to establish and implement our management strategies. At the same time, we clarified the management responsibilities and executive operation responsibilities by making the term of the office of Directors and Executive Officers for 1 year. Important matters concerning the management are decided at the “Board of Directors” or “Management Council” which is consisted of Directors who also hold the positions of Executive Officers in accordance with the Internal Regulations of the Company.
- Internal Audit
  The Company has the Internal Audit Unit, and based on the Internal Auditing Regulations, fair and independent internal audit is carried out. The business activities are checked by the Departments of Accounting, Legal Matters, Intellectual Property, and Environment, Safety, and Quality Assurance from the experts point of view.
- Audit by Corporate Auditors
  In accordance with the audit plan developed at the Board of Auditors’ Meeting, the Corporate Auditors attend Board of Directors and other important meetings and audit business execution of the Directors.

Corporate Governance System

[Diagram of Corporate Governance System]

- General Shareholders’ Meeting
- Board of Directors’ Meeting
- Board of Auditors’ Meeting
- President and CEO
- Management Meeting
- Compliance Committee
- Responsible Care Committee
- Quality Assurance Committee
- "GCP" Committee
- Security Trade Control Committee
- Each Divisions & Department
- Audit
- Collaboration

[Diagram of Corporate Governance System]
Compliance

The Company Group values the management that stresses compliance, because we believe that complying with law, regulations and social norms are the conditions for survival and development of a corporation. Therefore, we vigorously promote compliance throughout our group companies. In addition, we have the “Compliance Committee” in place as an organization that maintains and improves compliance. The chairperson of the Committee is the Company’s president and the members include experts from outside of the Company. The Committee provides education and guidance, revises regulations and develops manuals concerning compliance. Furthermore, it receives reports from the heads of Departments, Units, individual relevant Committees, and Presidents of our subsidiaries, regularly audits compliance status and provides recommendations for improvement, as needed.

We also try to obtain sound social recognition as a good corporate citizen by setting the compliance rules and carrying out our daily activities with more sincerity than ever.

Corporate Ethics Guiding Principles

(1) We comply with laws and regulations in Japan and overseas. We respect for social norms and undertake sensible business activities as a member of the international society.

(2) We develop and provide socially useful and safe technologies, products and services.

(3) We volunteer and proactively work on environmental protection, no accidents and no disasters.

(4) We properly disclose corporate information and secure transparency of the management.

(5) We respect for individual personality and create a positive and employee-friendly workplace.

(6) We properly manage information. We also give sufficient consideration for the protection of personal information.

(7) We conduct social contribution activities as a good corporate citizen.

Risk Management System

Management Office and assign Risk Managers in each department, office and subsidiary. In collaboration with the various Committees including Compliance Committee, they extract and evaluate risks of non-compliance of their workplace, check the implementation status of countermeasures against the risks, strengthen risk and emergency responses systems, and develop Business Continuity Plan (BCP).

We also carry out risk management meeting that is composed of CRO, Risk Managers, and the Risk Management Office. At the meeting, information concerning risk management of the entire corporate group is shared through annual plan of risk management activities, annual review and activity report from each department.

Information Disclosure

General Meeting of Shareholders

The Company considers the General Meeting of Shareholders as a venue of dialogue between our shareholders and the management. In order to have many shareholders at the General Meeting of Shareholders, we avoid organizing the regular General Meeting of Shareholders on the first concentrated day.

IR Briefing

In Japan, we conduct the IR Briefing Meeting for analysts and newspaper journalists twice a year. Overseas, we conduct the IR Briefing Meeting for investors once a year.

We also publish the brief Financial Results Report, Securities Report, Business Report, Annual Report, and Financial Settlement Supplementary Information on our home page.
Promotion of the Responsible Care Activities

We make efforts to continuously improve “Environment, Safety and Health” throughout the life cycle of our products from development to disposal.

Contents of the Responsible Care Activities

The Responsible Care (RC) activities are conducted voluntarily by firms that produce or handle chemical materials for securing “Environment, Safety and Health” in all processes including chemical material development, production, distribution, use, final consumption, disposal, and recycling, and then executing and improving measures for safety, health, and environmental protection, based on the principles of self-discipline and self-responsibility.

The Company has been a member of the Responsible Care Committee of Japan Chemical Industry Association since its establishment (it was called Responsible Care Council) and is promoting the activities to achieve the following 5 items.

Basic Principles concerning Responsible Care

The Company tries to secure and enhance “Environment, Safety and Health” that are relevant to all of our business activities through the “Responsible Care”. We set the basic principles and promote our activities in order to act in good faith as a good corporate citizen, be always harmonized with the environment in all activities, secure safety and health of the public and employees, respond to the trust from the society, and support our employees’ practices as good citizen by enhancing their awareness on global environment protection and living environment improvement.

(1) To continuously improve the environment, safety and health performance over the entire lifecycle from development to disposal waste of our products.
(2) To manage our business activities so as to prevent adverse impact on people and environment as well as to take into account the environment, health and safety during manufacturing, storing and disposing our products.
(3) To examine the environment, health and safety aspects from the research and development stage, and to develop products and technologies with lower impact on the environment, health and safety.
(4) To promote conservation of resource and energy, to minimize waste generation and to recycle waste effectively.
(5) To address the concerns of government officials and public regarding the influence of our products and operations on the environment, health and safety, while disclosing relevant information and participating in dialogue to promote proper understanding of the issues.
(6) To ensure risk characterization and risk management based on sound scientific information in order to reinforce product stewardship.
(7) To comply laws, regulations and standards, and to promote and meet voluntary initiatives for improving the environment, health and safety.
(8) To ensure accountability in order to address the expectations of domestic and worldwide stakeholders for the promotion of the environment, health and safety.

Establishment: June 24, 1996
Revision: April 25, 2014

As a tool to promote activities, the Company’s 5 plants acquired ISO 14001 (EMS), an international standard for environment management system, and they have been maintaining and updating the certificate through the certifying body since then.

Responsibility Care Management System

We established the Responsible Care Committee as a group that promotes Responsible Care activities. The Committee meeting is regularly held once a year. The Committee has the head of the Environment, Safety and Quality Assurance Department Manager as the chairperson and is consisted of the Executive Officer of Environment, Safety and Quality Assurance Department, the head of Production Technology Department, Personnel Department, Purchasing Department, each Business Division, each Plant and each Laboratory. The secretariat is located in the Environment, Safety and Quality Assurance Department. At the Committee, activity results, audit results, their improvement status, and compliance status to relevant laws and regulations of the year for the Company and subsidiaries are reported to the members, and the activity objectives, etc. concerning the Responsible Care for the next fiscal year are discussed.

Practice of Responsible Care

Our Company’s Responsible Care Activities are implemented in accordance with the annual schedule based on the PDCA cycle, to be aimed continuous improvement year by year.

The Responsible Care Committee (RC report, Annual RC Plan development)

- Responsible Care Committee (Chair: Head of Environment, Safety and Quality Assurance Department)
- Responsible department: Environment, Safety and Quality Assurance Department
- Responsible person: Onda Plant, Kudayama Plant, Nagoya Plant, Sodegaura Plant, Tsurumai Plant

<table>
<thead>
<tr>
<th>Responsible Care Committee</th>
<th>Year of acquisition</th>
<th>Certification body</th>
<th>Certification number</th>
</tr>
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<tbody>
<tr>
<td>Onda Plant</td>
<td>October 2003</td>
<td>Japanese Chemical Quality Assurance Ltd.</td>
<td>02QA-0180</td>
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<tr>
<td>Kudayama Plant</td>
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<td>02QA-0182</td>
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<tr>
<td>Nagoya Plant</td>
<td>July 2001</td>
<td>Same as above.</td>
<td>02QA-0271</td>
</tr>
<tr>
<td>Sodegaura Plant</td>
<td>October 2002</td>
<td>Same as above.</td>
<td>02QA-0406</td>
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<tr>
<td>Tsurumai Plant</td>
<td>March 2003</td>
<td>Same as above.</td>
<td>02QA-0456</td>
</tr>
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</table>

Message

“Aiming at further improvement of management systems”

Environment, Safety, and Quality Assurance Department

The work of the Environment and Safety Group is to manage and promote Responsible Care activities of the entire Company. The Group promotes continuous improvement for the entire Company by encouraging each plant, laboratory, business division and affiliates to set the Responsible Care objectives. The Group will promote the Responsible Care activities not only to achieve zero labor disaster and reduction in energy consumption and wastes discharge amount, but also to aim at developing products and technologies that contribute to the society in consideration for environment, safety and health.
Occupational Safety and Health

We try to create a pleasant work environment where all employees can work in good health and safely.

Occupational Safety

Since 2007, we determined “wearing appropriate protections”, “suspension of rotating machine during work (such as maintenance)”, and “compliance with SOP” as basic safety rules, and we have been making efforts to keep everyone informed about it, including our subcontractors. We conduct thorough examination of causes of industrial accidents due to violation of safety rules and share the information with the other sites in order to eliminate similar accidents. As a result, we managed to reduce the rule violation cases from 40% to 10%. We will continuously carry out our activities to achieve zero accidents.

Occupational Health

In order to prevent health hazards to employees, we engage in the improvement of the working environment for handling powder and new chemical substances. Especially, research laboratories sometimes use substances that are strongly bioactive or suspected of causing cancer, and so we evaluate the safety of chemical substances and assess their risks in advance, strengthen local exhaust equipment, and make containment facilities.

Safety Results

In FY 2013, there was one lost work time accident, and seven accidents that did not require time off from work. Although the number of the former was the same as the previous year, the latter increased by one compared with the previous year. If accidents that cause employees to take days off, there was fracture after stumbling and falling, but these were no serious industrial accidents. Nowadays, workers often fall and have a crick in the back, and so we promote them to do radio calisthenics at the beginning of working hours or after a lunch break.

As for the safety results, both frequency rate and severity rate were lower than the average rates of the industry. We will strengthen our safety activities aiming at zero accidents.

- Lost-work time accidents rates [%]

![Graph showing lost-work time accidents rates](image)

- Lost-work time severity rates [%]

![Graph showing lost-work time severity rates](image)

Process Safety and Disaster Prevention

Ensuring safety is the foundation of our production activities. We set the “Safety and Stable Operation” as our priority and work on ensuring safety and stable operation together with our affiliates and subcontracting companies. In order to achieve stable operation, we provide educational training workshops such as Process and Facility Risk Prediction, and conduct pre-manufacturing assessment and carry out planned facility investment and facility maintenance. Considering the fact that there are many accidents at other companies’ chemical plants, we review the accident reports and re-inspect similar locations of the accidents in order to avoid similar accidents and enhance our safety capacity.

Emergency Response

Emergency regulations are in place at our plants and laboratories, taking into account characteristics of each area and locality. Based on the regulations, we conduct various drills such as earthquake disaster prevention, first-aid fire fighting, and communication and reporting every year in order to ensure appropriate responses at the time of emergency. We also install AED at all of our sites and provide life-saving training to our employees.

Logistics Safety

The Company is trying to secure safety in the logistics process of our products and ensure appropriate responses at the time of accidents in collaboration with Nissan Butsuryu Co., Ltd., our subsidiary handles the logistics businesses. We are in the process of introducing the container yellow-card that has additional information such as UHI number and guideline number on the labels of containers and packages. We also train drivers to carry the yellow card with them all the time when they transport products with a tank truck. Nissan Chemical also participates in the regular training programs that are conducted by Nissan Butsuryu together with the public fire department and confirm our responses at the time of transportation accidents.

Topics

- Reception of the Commissioner of the Fire and Disaster Management Agency Award
  - Our Shariha Plant received the “2013 Award for Excellent Hazardous Materials Handling Business Establishment” from the Commissioner of the Fire and Disaster Management Agency Award. We learned lessons from the heavy of spill accidents in July 1998, and under the strong determination of not to repeat hazardous material accidents, we have been making steady efforts towards safety. The Award is given as a recognition result of evaluating our efforts as well as continuation of no accident and no disasters that require time off from work.
Environmental Performance

We calculate the total inputs of energy and resources that are needed for our manufacturing activities and make efforts to understand their environmental load on the air and water.

Environmental Load from Manufacturing Activities

The environmental burden flowchart shows the materials, energy, water inputted for manufacturing products, production, discharge to atmosphere and the aquatic environment, and the output of industrial wastes. We make efforts to grasp the entire picture of environmental burdens produced by Nissan Chemical.

2013 Environmental Load Results Flow

<table>
<thead>
<tr>
<th>Raw materials</th>
<th>Energy input</th>
<th>Water resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>94,751,600 t</td>
<td>15,240,000 t</td>
<td>41,335,000 t</td>
</tr>
</tbody>
</table>

Emissions to the atmosphere

- CO2: 305,000 tons (CO2)
- Greenhouse gas other than CO2: 133,000 tons (CO2-)
- NOx: 144 tons
- Dust: 23 tons

Emissions to the water area

- Discharged water: 15,240,000 t
- Total nitrogen (TN): 3,123 tons
- Total phosphorus (TP): 1.1 tons

Emissions to the soil

- Substances specified in the PTE Act: 0.511 tons

Emissions to the atmosphere

- Total nitrogen: 1.8 tons
- Total phosphorus: 1.8 tons

Waste

- Generated waste: 34,933 tons
- Final waste: 3,309 tons
- External final waste volume: 1,040 tons

Pre-Assessment for Responsible Care and Quality Assurance

In order to secure environmental safety in our business activities and quality assurance, the Company conducts evaluation at each step from synthesizing chemical substances (or products), research and development, manufacturing to launching of the products. This evaluation is conducted not only for new products and new brand products but also at the time when the process is changed for existing products in order to assess the applicability of the business.

Conducting Pre-Assessment

<table>
<thead>
<tr>
<th>Stage</th>
<th>Section in charge of evaluation</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
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<tbody>
<tr>
<td>Research Laboratories</td>
<td>Development</td>
<td>23</td>
<td>24</td>
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<tr>
<td>Development</td>
<td>Development</td>
<td>5</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>Manufacturing</td>
<td>92</td>
<td>106</td>
<td>110</td>
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<tr>
<td>Total</td>
<td></td>
<td>120</td>
<td>138</td>
<td>140</td>
</tr>
</tbody>
</table>

Evaluation Item

1. Compliance with laws and agreements
2. Safety and environmental impact of chemical substances we handle
3. Occupational safety and health for workers
4. Safety of used equipment
5. Product safety and reduction of environmental loads
6. Safety in logistics
7. Reduction of industrial wastes
8. Quality assurance
9. Environment and safety in production outsourcing, purchase, and sale

Prevention of Global Warming

In accordance with the “Act on Promotion of Global Warming Countermeasures”, we calculate the volume of CO2 and other greenhouse gas emissions from all of our branches and offices including plants, laboratories and head office and submit our report to the government. The greenhouse gas emission of FY2013 was 5% more than that of the previous fiscal year. This is because our plants purchased a large volume of electrical energy, indicating increase in production activities was larger than reduction in CO2 and greenhouse gas emission as a result of energy saving.

About a one half of the greenhouse gas of Nissan Chemical is composed of nitrous oxide (N2O). Although N2O can be used as laughing gas for medical purposes, most of the N2O is generated from the nitric acid plant. Because the global warming potential (GWP) value is 310 times larger than that of CO2, it occupies a large percentage of our greenhouse gas emissions.

Transition of greenhouse gas emissions (1,000 tons -CO2)

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2</td>
<td>347</td>
<td>330</td>
<td>329</td>
<td>246</td>
<td>235</td>
</tr>
<tr>
<td>N2O</td>
<td>66</td>
<td>65</td>
<td>62</td>
<td>49</td>
<td>45</td>
</tr>
<tr>
<td>Other</td>
<td>170</td>
<td>160</td>
<td>159</td>
<td>140</td>
<td>153</td>
</tr>
</tbody>
</table>

Energy Consumption, Energy Intensity

In accordance with the “Act on the Rational Use of Energy”, we consolidate the total energy consumption of all locations and report them together with the energy consumption rates. In FY2013, although the production amount increased by 2%, we managed to decrease the energy consumption by equivalent to approximately 1,900 kl of crude oil as compared to previous year.

Nissan Chemical has a wide range of product matrix from all-purpose chemical products, agrochemicals, pharmaceuticals, to functional products for electronic materials. Our product matrix has drastically changed from 1990, and it became difficult to assess the energy consumption rate based on the simple production amount standard. Therefore we calculate it based on the sales and floor area (laboratory, etc.). As compared with the energy consumption rate of FY2009, we managed to achieve 14% improvement of the rate in FY2013.

Transition of energy consumption and energy intensity index (Crude oil 1,000KL)

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2</td>
<td>35.8</td>
<td>35.4</td>
<td>35.4</td>
<td>35.9</td>
<td>36.5</td>
</tr>
<tr>
<td>N2O</td>
<td>4.8</td>
<td>5.1</td>
<td>5.0</td>
<td>5.0</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Our Actions for Saving Energy in the Logistics Site

As a consigner, Nissan Chemical is streamlining the use of energy for transportation together with Nissan Butsuru, a subsidiary company that handles our logistics. Our energy consumption in crude oil equivalent and energy consumption rate in FY 2013 slightly deteriorated from the previous year because we had many parcel transportation and transportation efficiency was not very good. We will continue making efforts to improve energy consumption rate by promoting modal shift, updating to energy-saving vehicles and promoting green driving.

Transition of energy consumption and energy intensity in the logistics department

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2</td>
<td>35.8</td>
<td>35.4</td>
<td>35.4</td>
<td>35.9</td>
<td>36.5</td>
</tr>
<tr>
<td>N2O</td>
<td>4.8</td>
<td>5.1</td>
<td>5.0</td>
<td>5.0</td>
<td>5.1</td>
</tr>
</tbody>
</table>
Environmental Load Reduction

Control of Waste Water

As for the waste water, we also comply with the standard specified by the “Water Pollution Prevention Act” and the regulation levels that are determined based on the agreement with the region. While controlling the total waste water amount, we also monitor the concentration level of chemical oxygen demand (COD), total nitrogen and total phosphorus in the waste water. We have also responded to the “Water Pollution Prevention Act” amendment for prevention of groundwater pollution.

- Total emission [million m³]

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>15.9</td>
<td>16.0</td>
<td>15.9</td>
<td>15.5</td>
<td>15.3</td>
</tr>
</tbody>
</table>

- COD, total phosphorus, total nitrogen emission [ton]

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>COD emission</td>
<td>2,890</td>
<td>2,971</td>
<td>3,123</td>
<td>3,166</td>
<td>3,100</td>
</tr>
<tr>
<td>Total phosphorus emission</td>
<td>3,210</td>
<td>3,211</td>
<td>3,166</td>
<td>3,100</td>
<td>3,123</td>
</tr>
<tr>
<td>Total nitrogen emission</td>
<td>326</td>
<td>232</td>
<td>247</td>
<td>277</td>
<td>277</td>
</tr>
</tbody>
</table>

Control of Exhaust Gas

Each plant complies with the emission standards specified in the “Air Pollution Control Law” but also observes regulation values that are determined based on the agreement with the region. We try to maintain proper condition of desulphurization facility, densification facility and electrostatic precipitator and control emission volume of sulfur oxide (SOx), nitrogen oxide (NOx) and dust.

- Transition of SOx, NOx emission (ton)

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOx emission</td>
<td>510</td>
<td>452</td>
<td>376</td>
<td>379</td>
<td>381</td>
</tr>
<tr>
<td>NOx emission</td>
<td>117</td>
<td>162</td>
<td>138</td>
<td>136</td>
<td>146</td>
</tr>
</tbody>
</table>

- Transition of dust emission [ton]

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission</td>
<td>40</td>
<td>26</td>
<td>37</td>
<td>27</td>
<td>26</td>
</tr>
</tbody>
</table>

Environmental Event Report

Because some of our laboratories are located in the residential areas or land development for housing is progressing in the neighboring areas of some plants, we give sufficient consideration in terms of noise, vibration and odor.

During FY2013, there was no environmental event that affected the surrounding areas.

Control of Chemical Substances and Emission Reduction

Confirming the Intended Use of the Substances Subject to the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

The Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. issued in 2012 stipulates that companies that manufacture or import 1 ton or more of chemical substances must notify the amount of manufacturing or import, and intended use for each year. We have 31 general substances and 2 priority assessment substances that are subject to this Act. For these substances, we try to confirm consignees’ intended use and report the information to the government.

Reducing Emission of Substances Specified in the Pollutant Release and Transfer Register Act (PRTR)

In FY 2013, we had 62 substances that are subject to notification under the “Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereto”. The major substances are formaldehyde and normal-hexane. The former is used as reaction solvent and the latter is derived from naphtha that we use as fuel or raw material.

- Reduction of emissions of substances specified in PRTR

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>2.3</td>
<td>2.6</td>
<td>2.4</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Normal-hexane</td>
<td>Exempt</td>
<td>1.5</td>
<td>1.2</td>
<td>1.2</td>
<td>1.4</td>
</tr>
<tr>
<td>Others</td>
<td>11.5</td>
<td>0.5</td>
<td>0.7</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>3.4</td>
<td>2.6</td>
<td>2.4</td>
<td>0.5</td>
<td>2.3</td>
</tr>
</tbody>
</table>

The total emission amount is 2.3 tons; 1.8 tons to the air and 0.5 tons to the water area. Although it showed a slight increase from the previous fiscal year (2.0 tons), we are continuously working on emission control. There is no emission to the soil.

Reducing Emission of Volatile Organic Compounds (VOC)

We are continuously trying to reduce emission of volatile organic compound (VOC) that generates photochemical oxidant. There is no atmospheric emission of 1,2-dichloroethane that is used for reaction solvent since 2006 as a result of countermeasures such as sealing of equipment and introduction of combustion exhaust gas treatment. We are trying to reduce emissions of chemical substances including the ones that are not included in the PRTR Law.

- Reducing emission of hazardous air pollutants [ton]

<table>
<thead>
<tr>
<th>Year</th>
<th>Benzene</th>
<th>Formaldehyde</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>0.33</td>
<td>0.18</td>
</tr>
<tr>
<td>2011</td>
<td>0.37</td>
<td>0.17</td>
</tr>
<tr>
<td>2012</td>
<td>0.30</td>
<td>0.17</td>
</tr>
<tr>
<td>2013</td>
<td>0.26</td>
<td>0.17</td>
</tr>
</tbody>
</table>

Device to remove VOC
### Reduction of Disposal of Waste

We try to reduce discharge of industrial wastes and strictly implement the appropriate disposal of the wastes. When disposal is commissioned to external contractors, we use the industrial waste manifest to check and control the transfer amount and destination of the wastes. If necessary, we go to the site and monitor the process until the final disposal.

Most of our industrial wastes are the waste water from the reaction process. Currently, the waste water is incinerated. For the solid wastes, we try to reduce the final disposal amount by recycling the generated sludge for base course materials and cement. Nagoya Plant achieved zero emission in FY2013.

### Activities to Protect Environment and Biodiversity

Because our plants have been in operation before the establishment of the "Factory Location Act" (1973), they do not meet the ratio of greening that is required by the current laws and regulations. However, we are trying to increase the green space as much as possible by planting greens in the rest area and parking spaces of these plants.

- **Factory greening ratio**
  - Sodegaura Plant: 15%
  - Saitama Plant: 15%
  - Toyama Plant: 11%
  - Nagoya Plant: 7%
  - Onoda Plant: 10%

We are actively participating in the environment protection volunteer activities in the area. Since 2009, we have been continuously participating in the tree-planting event called "Uminori-Mori (Sea Forest)" project by the Tokyo Metropolitan Government with our group company, Nissan Ryokka.

### Response to Customers

We are undertaking various activities so that the customers who use our products feel safe when using them.

#### Response to Product Liability(PL)

In order to secure safety of products and prevent accidents using our products, we provide highly reliable products to our customers from the research and development to manufacturing, consumption and disposal.

#### Security Trade Control

The importance of security trade control is increasing in the international society. We established the Compliance Program (CP) for observing the Foreign Exchange and Foreign Trade Control Law and appropriately controlling export operations, in order to contribute to maintaining international peace and security. We also established the "Security Trade Control Committee", which is directly under the Company’s President. It is chaired by the Head of Environment, Safety, Quality Assurance Department and promotes compliance with export-related laws and regulations and ensures operation and control of the CP.

### Product Safety

A new regulation on chemicals called REACH1 was issued in Europe in June 2007. In accordance with REACH, the industry is responsible for providing risks and toxicity information of chemicals to their users as well as collecting and registering information on the customers’ intended use and handling amount of chemicals in EU. Nissan Chemical completed its pre-registration in 2008 and completed the full registration of the high export volume products in 2010. We also respond to and observe the Regulation about Classification, Labelling and Packaging (CLP) of Substances and the Mixture (Regulations concerning classification display and packaging of substances and mixed materials) that came into effect in 2009.

In order to ensure safety when using the product, we provide Safety Data Sheet (SDS) that corresponds with GHS2 for all the chemical products and electronic material products in Japan and attaches warning labels on the containers. For the export products, we are in the process of making GHS-SDS and labels in their languages in response to the regulations of the destination countries of export.

### Topics

**Nissan Biopark Nishihongo** received the grand prize of the 8th RC Awards from Japan Chemical Industry Association.

Toyota Factory received the grand prize of the “Responsible Care (RC) Awards” hosted by Japan Chemical Industry Association (JCA). RC Awards are intended to commend offices, factories, sections, groups or individuals that have produced excellent achievements or contribution, in order to promote and expand responsible care activities in chemical firms. In 2013, we have seen the 8th RC Awards.

Toyota Factory improved the adjacent idle land (about 6,500 m²) as a logistics space, and made it open to local residents as the park named “Nissan Biopark Nishihongo”. In addition to the provision of a place for recreation, our company and the local community cooperated in various activities that offer opportunities to learn the importance of biodiversity, including stockling rivers with Japanese rice fish, which is endemic, the briefing sessions for former employees certified as nature commentators for elementary school students in the neighborhood, and the cooperative maintenance and management of flower fields. These activities were highly evaluated, resulting in the grand prize. We will keep promoting social contribution activities as a member of the local society.

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**AdBlue** received certificate for the JIS Mark Display System

The JIS Mark Display System is the system to place JIS Mark on the products or packages once they are certified by the organizations registered by the Japanese government. In order to receive the certificate, the products must pass a product test and strict review of quality assurance system. In April 2014, we received the certificate at all 4 manufacturing sites of AdBlue. AdBlue is a high-grade urea solution used in the “Izumi SCR reduction system”, which is a type of exhaust purification technology. By spraying it on the exhaust from diesel vehicles, it will convert nitrogen oxides (NOx) into harmless nitrogen and water. We will make efforts to respond to stringent vehicle exhaust regulations and higher demand for the quality.
Quality Assurance

We are continuously working on quality improvement in order to provide the products that complete customers’ satisfaction.

Quality Principle and Quality Targets

The Company’s quality principle is "to provide products and services to meet customers’ satisfaction". By setting the quality targets under this quality principle and implementing the annual schedule based on the PDCA cycle, we continuously improve our quality management system and business operation every year. We will strengthen our responding capability to the diversifying and advancing market and further grown as a corporation that contributes to the society.

PDCA Cycle

- PLAN: Quality Assurance Committee (reporting, development of annual plan)
- DO: Taking concrete actions in accordance with the plan
- CHECK: Annual report (performance results) Corrective actions
- ACT: Operation of quality assurance

Quality Principle

"To provide products and services to meet the customers’ satisfaction"

Quality Objectives

(achieving the quality policy)

- Consistent quality assurance from product development to production and shipment
- QMS improvement to respond to advancing needs of customers and laws and regulations
- Corrective and preventive actions to complaints and quality troubles

Quality Management System (QMS)

The Company’s quality assurance system is based on the Quality ISO in each plant and has been receiving high recognition from our customers for its excellent products and services within Japan and overseas. We established the Quality Assurance Committee as an organization to promote quality assurance activities as well as the Responsible Care Committee, the Committee holds regular meetings once a year. At the Committee meetings, activity results, audit results and complaint information and their corrective actions’ status of the year for the Company and affiliates are reported to the members, and the activity policies, etc. concerning quality assurance for the next fiscal year are discussed.

Quality Assurance Promotion System Organizational Chart

- Board of Directors Meeting
  - CEO and President (General director for QM)
  - Chairperson of Quality Assurance Committee (Head of Environment, Safety and Quality Assurance Department)

- Departmental Meeting
  - Environment, Safety and Quality Assurance Department
    - Quality Assurance Manager (Head of Plant Quality Assurance Sections, People in charge of quality assurance in Business Division)
  - Quality Assurance Committee (Head of Business Divisions, Production Technology Department, Plants, Purchasing Department and Laboratories)
  - Pharmacetical Quality Assurance Committee (People in charge of quality assurance in plants, laboratories and Business Division)

Quality Assurance Activities

By applying quality management system such as ISO9001, we conduct quality assurance activities that respond to laws, regulations and demands from the customers throughout the product’s life cycle from product development, commercialization, to the use by the customers. In order to promptly collect voices of the customers concerning the products (complaints, product liability accident information, etc.), evaluate them, and take corrective actions if necessary, we also have the Quality Information and Corrective Key (QUICK) System, a virtual meeting place on the intranet.

Acquisition of the Certification of a Quality Management System

All of our Company’s plant (5 plants) acquired the certificate of ISO9001, the international standard for quality management system, and have been maintaining and updating the certificate. By utilizing the management system, we are continuously making efforts to achieve stable quality and improve our products and services.

System Concept of QUICK

- Bean Section in Japan
  - Investigation into the cause of complaint and implementation of corrective actions
  - Review of defect data
  - Management of the information on customers
  - Quick resolution
  - Management of the in-company relations

Demands from customers

Product development

Technology transfer

Production of commercial products

Customer satisfaction

The products are manufactured in accordance with ISO9001:2008, the international standard of quality management. Furthermore, the pharmaceuticals are manufactured under the quality assurance system that meets the pharmaceutical Good Manufacturing Practice (GMP), Standards for Manufacturing Control and Quality Control of Drugs.

Message

"Aiming at further improvement of management systems"

Environment Safety and Quality Assurance Department, Quality Assurance Group Leader, Etsuko Oya

The work of the Quality Assurance Group is to control and promote the quality assurance activities of the entire Company. Each of our plants has its own quality goals and continuously improves the processes. Our products are used by many customers in various fields. The quality must meet the expectation of our customers. In order to further develop the products that respond to the advanced demand from the customers and laws and regulations and continue providing them to the market, we promote the quality assurance activities based on the Quality ISO.
Relationships with Employees
We are trying to create a work environment where all employees can perform their entire capability and work with sense of rewarding.

Human Resource System
Our Company’s human resource system is designed to support the employees so that they can enthusiastically carry out their work using their creativity, while feeling their growth to become the person that each “independent individual” wants to be, through communication between the employees and their supervisors. We try to make a fair HR assessment by making it more transparent, more persuasive, and more results/contribution-oriented.

Human Resource Development
Our Company believes that the essence of human resource development is “for each employee to try to grow through voluntarily self-improvement”. We offer various human resource development opportunities for the employees who wish to “learn” and “grow”.

1. Professional staff, General staff

Name of training | Content
--- | ---
New employees self-start | To learn the importance of taking self-driven actions and make the training as the first step to form their personality.
Third year self-start | To learn the importance of inspiring themselves in order to keep on challenging with high motivation.
Before promotion to manager position | To enhance essential agenda setting/strategy setting abilities. To prepare the employee for taking responsibilities as the leader for the next generation and devise action plans to achieve the vision.

Strengthening on-site capacity
Self-start training
Strengthening on-site capacity training

2. Others

Name of training | Content
--- | ---
Evaluator | To learn about the evaluation, basis of HR evaluation, practice of capacity assessment, and capacity assessment communication.
Coaching skill | To acquire coaching skill called “Communication technology to promote voluntary actions”.
Work improvement | To try to clarify scope of work-hole and enhance communication capacity and motivation control capacity.
Correspondence education | To provide support tools for individual employee to have his/her own vision, have career plan and move up step by step to achieve self-realization.
Strategic OJT | Aiming at “Creating an organization that develop people and where people grow”, supervisor and subordinates work on OJT facing each other in an effort to strengthen capacity to develop human resources and capacity to work.

Message from a training participant
Intellectual Property Department, Hirotsugu Taki
I have opportunities to recognize my shortcomings and acquire skills to augment them at appropriate timings. At the PreManager Promotion Training, I received trainings that allowed me to reexamine myself based on the analysis by myself and others, change awareness and behavior, and establish a vision based on a holistic perspective. The training enabled me to look at my current work from a higher standpoint, and I was surprised that I could have more goals that I had never thought of. What one person can do is limited. I realized the power that is generated by gathering the wisdom of many people.

Message from a training participant
Biolong Research Laboratories, Safety Research Group, Kae Kazukuri
For each grade of profession, the role is clarified and the direction is confirmed. Currently, I am working on a project with my subordinates using the comprehensive perspectives, theoretical thinking and various, leadership styles that I learned from the Pre-C3-Grade Promotion Training. In order to continue producing large outcomes, I believe it is necessary to have the same direction with your supervisor. I hope to find the solutions and tricks in the “Training to Face with your Supervisor in-depth” that I am currently taking.

Award System
Every year, we provide awards to the employees for beneficial invention, improvement ideas, or outstanding performance and service that are beneficial for our business. Furthermore, from the intellectual property perspective, we try to increase incentives for research and development that would lead to new inventions and higher quality and creativity by providing rewards to the excellent patent pending inventions.
Friendly Working Environment

The Company expands the number of half-day annual leaves and implements the 5-day planned annual leave system. As a result, the recent annual leave acquisition rate is high at more than 70%.

Systems, etc for Work and Life Balance

<table>
<thead>
<tr>
<th>Names of system</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childcare leave</td>
<td>If certain requirements are fulfilled, the employee can take childcare leave until the child becomes &quot;one and half years old&quot; or until the first April 20 after the child reaches one year old.</td>
</tr>
<tr>
<td>Spouse childcare support leave</td>
<td>The male employee whose spouse gave birth is allowed to take up to 7 leave days per week from the child's birth.</td>
</tr>
<tr>
<td>Nursing leave</td>
<td>The employee is allowed to take nursing leave to take care of her/his child (children) and spouse up to 20 days per year from the accumulated annual leave days.</td>
</tr>
<tr>
<td>Short working hours</td>
<td>The employee is allowed to make their designated working hours shorter, up to 2 hours, at the unit of 30 minutes, to take care of child (children) until they reach the 4th grade.</td>
</tr>
<tr>
<td>Half a day leave</td>
<td>The employee is allowed to take half a day off as annual leave up to 30 times a year.</td>
</tr>
<tr>
<td>Planned annual leave</td>
<td>The Company recommends the employees to take annual leave of 2 days as company-wide planned leave and 3 days as individually planned leave.</td>
</tr>
<tr>
<td>Refresh leave</td>
<td>Within 1 year from the time an employee reaches 50 years old the company provides 10 consecutive days leave (paid) with financial support.</td>
</tr>
</tbody>
</table>

Labor-management Relationship based on Straightforward Communication and Mutual Understanding

As good business partners, Nissan Chemical and Nissan Chemical Labor Union collaboratively solve issues such as work-life balance based on good labor-management relationships that had been built in the past.

Respect for Diverse Human Resources, Individuality and Views

At the Company, diverse human resources are playing active roles in wide range of fields, regardless of their age, gender and nationality.

<table>
<thead>
<tr>
<th>Contents</th>
<th>Full time employee</th>
<th>New employee</th>
<th>Re-employment rate of retired employees</th>
<th>Re-employment ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male (persons)</td>
<td>1,040</td>
<td>23</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Female (persons)</td>
<td>1,144</td>
<td>1</td>
<td>76.9</td>
<td></td>
</tr>
</tbody>
</table>

Employees who Play Active Part Globally

Many employees are stationed at our major subsidiaries overseas and work actively together with the local staff.

Cross-Cultural Communication

The company is accelerating overseas expansion, recognizing that the overseas market, mainly newly emerging countries, will take the lead in the future growth. There will be more number of employees who will be dispatched to our overseas offices or will go on business trips, and it is our urgent task to develop human resources who can understand cultural background and can have communication in the true sense. In order to respond to this task, our Company Group offers “English Conversation Training System” and “Learning Language Overseas System” with a focus on mindset education.

The English Conversation Training System are not only to learn language, but also to learn overseas business manners and culture to be a person who can accurately convey their thoughts and work with diverse people. We also offer variety of programs in accordance with the level of the participants, such as group lessons by Japanese teachers and one-on-one lessons by native teachers, to enable the students to maintain high motivation and continue their study.

Topics

Introduction of our overseas subsidiary (NCX)

NCX is located in Pyeongtaek city (80km south of Seoul) in Gyeonggi Province, South Korea and is researching, manufacturing and selling SUCROF and BAC. The products are sold not only in South Korea but also exported to Asia and North America.

The number of employees is about 70, out of which 9 are Egyptians and 9 are South Koreans. They work to support the operation, research, or work at the plant and try to carry out work smoothly by close communication with local staff.

In order to respond to the increasing demand, the manufacturing plant was upgraded this year. We will continue carrying out business activities to make NCX, a company that contributes to the world as a major site of the functional materials business.
Communication with the Society

We carry out social contribution through achievement activities as well as carry out various activities to have better communication with the society and the communities.

Social Contribution Activities “Social Welfare Fund Raising”

As part of the local contribution activities, our Company is conducting “Social Welfare Fund Raising” activities since 1997. The employees make a certain amount of contribution to the reserve funds every month, and the Company donates the matching amount. The funds will be used for the social welfare of the local communities. Specifically, we conduct the activities through “Support Fund for Social Welfare Organizations”, “Support Fund for Environmental Protection and Beautification of Environment”, etc. at the plant, laboratory, or head office or branch, or jointly in some areas.

In FY 2013, we donated to 40 organizations such as Council of Social Welfare and welfare facilities, in 16 regions.

Support for the Next Generation

- Internship
  The Company offers internship to the college and high school students in order to raise job consciousness and support building their career as well as to deepen their understanding on the Company. In 2013, 12 students experienced testing work and observed manufacturing site at our laboratory and plant. We hope they will utilize this experience and play active role after their education.

- Off-Site Class, Work Experience
  The Chemical Research Laboratories offered off-site chemical experiment classes at nearby elementary schools as part of their support activities for science education. The Biological Research Laboratories invited students from junior high schools in the city to experience the work of the Laboratories.

Dialogue with Community

Every year, we offer plant tours and briefing meeting to the local community people and nearby schools. Especially at the plants, we explain our activities on disaster prevention and environment to enhance their understanding that the plant is safe and secure.

We are also proactively involved with the Responsible Care (RC) Community Dialogue Meeting, hosted by the Japan Chemical Industry Association Responsible Care Committee, as a lead company. We are making efforts to maintain good communication with the residents and administration.

In FY 2013, we participated in the Responsible Care Community Dialogue Meeting in Toyama/Takaoka district where Toyama Plant is located and Yamaguchi-nishi district where Onoda Plant is located.

Community Beautification Activities

We proactively carry out beautification activities in the community, in accordance with the characteristics of the area where the plant is located.

At Sodegaura, Satama and Nagoya Plants, we cleaned the public roads around the plants. Onoda Plant plants flowers along the road in front of the premises in collaboration with local community people in spring and fall, as an action to fill the Seimi Street with full of flowers. Furthermore, Toyama Plant works on cleaning and beautification of the nearby JR Takayama Line, Kayoshi Station.
1 Sodegaura Plant

Overview of the Plant

- Location: 11-1, Kitasoda, Sodegaura, Chiba, 12-17, Goiminakigan, Ichihara, Chiba (Gei Works)
- Plant manager: Executive Officer, Yui Nishida
- Number of employees: 169
- Major production items:
  - Inorganic (silica-based materials): INVENTEX (colloidal silica), ORGOGEL (organosilica), MUDMASA (colloidal alumina), CEMIX (magnesium conductive materials), SIMPLE (high refractive index silica), Triplax, ALUMINEX (aluminum materials), SIRUDOL (high-performance high refractive index silica)
  - Display materials: SUNEVER (polymer for LCDs), NRC (inorganic coating materials)

Recent Responsible Care related topics

- Plant-wide 5S activities [October 2013]
- SS (Sorting, Setting in order, Shining, Standardizing, Sustaining the Discipline)
- Earthquake disaster prevention drill [November 2013]

2 Saitama Plant

Overview of the Plant

- Location: 235-1, Azai Nishida, Otsa, Itabashi-machi, Kamisato-machi, Kodama-gun, Saitama
- Plant manager: Associate Executive Officer, Naoki Matsumoto
- Number of employees: 44
- Major production items:
  - Inorganic (silica-based materials): Siloxane (silica granule), Oakum (granule), Plantigrade, Trinom (granule), Genka (granule), San-Fusion (granule), Spark (granule), Inorganic (granule), Siloxana (granule), etc.
  - (Pesticide) Dacron (granule), Ruphy (granule), Gearing (granule), Teleca (granule), Elanex (granule), etc.
  - (Pesticide) Beem prince (granule), Cryopaste (granule), etc.
  - (Pesticide) Oracle (granule), Hybrid (granule), Horizon (granule), Stomoral (granule), etc.

Recent Responsible Care related topics

- Safety and health education for all contractors [May 2013]
- Conversion of boiler fuel from kerosene to LPG in order to reduce CO2 emission [July 2013]
- Ladder truck drill at the newly built grinding mill [August 2013]
- Clearing around the plant [October 2013]
- Fire drill [November 2013]

3 Toyama Plant

Overview of the Plant

- Location: 635, Sasakura, Fuchu-machi, Toyama, Toyama
- Plant manager: Executive Officer, Takashi Iwata
- Number of employees: 399
- Major production items:
  - Inorganic (silica-based materials): Ammonia and its derivative, Nitric acid and its derivative, Sulfuric acid and its derivative, Uranium and americium extraction, Mendelevium and its derivative, etc.
  - (High purity products) High purity ammonium, nitric acid, sulfuric acid, high-purity nitrogen gas, etc.
  - (Environmental chemicals) Cyanidic acid, Chromic acid (chromic acid water), etc.
  - (Inorganic material) DC aluminode (aluminum compound for semiconductor), INVENTEX, aluminode, etc.
  - (Performance materials) Mendelevium (silicon electronic materials)
  - (Electronic materials) BARC (bipolar-anti reflective coating for semiconductor), Photoactive (plastic crystal aligning agent)

Recent Responsible Care related topics

- Emergency drill at naphtha handling facility for transport [June 2013]
- The eighth gathering for private fire brigade firefighting techniques [August 2013]
- Plant-wide disaster prevention drill [November 2013]
- Disaster prevention lecture by an external consultant [February 2014]

Our actions for Responsible Care

- The Sodegaura Plant contributes to stable provision of safe and secure food when it manufactures agrochemical products. At the same time, it proactively works on environment protection and improvements. Furthermore, by using the technique of safe and health management system, we are promoting protection of the natural environment and regional environment and creation of a safe, hygienic, open and healthy workplace.

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4 Nagoya Plant

Overview of the Plant
- Location: 7, Tsukiji-cho, Minato-ku, Nagoya, Aichi
- Plant Manager: Hideki Yana
- Number of employees: 36
- Major production items: [Basic chemicals] Sulfuric acid, Acid sodium sulfate solution, Urea aqueous solution, High purity products, High purity sulfuric acid

Recent Responsible Care related topics
- Fire drill (July, August 2013)
- Oil leakage drill as part of an effort to strengthen drainage controls (November 2013)
- Training simulation an accident during transportation, together with Nissan Butteru (March 2014)
- Integrated disaster prevention and evacuation drill (March 2014)

Our actions for Responsible Care
- The Nagoya Plant manufacturer basic chemical products. In order to minimize impact on the global environment, all staff members participate in the activities to achieve the purposes of the environmental principles, including "appropriate control of air pollutants and water pollutants", "reduction in industrial wastes and enhance recycle rate (challenge to zero emission)", and "promotion of energy saving". As a result of the efforts to reduce industrial wastes and recycling, the recycling rate has reached 100%. We also continuously conduct mutual awareness raising activities and provide various training programs with a critical theme of safe and stable operation.

5 Onoda Plant

Overview of the Plant
- Location: 6903-1, Oaza onoda, Sanyo-Onoda, Yamaguchi
- Plant Manager: Executive Officer, Macatake Hatanaka
- Number of employees: 224
- Major production items: [Agricultural intermediates] Ethyl (parabens), TARTA, SIRUS, FERREL, ALTAR (herbicides; SUNRAY (insecticides/miticides), LEMAY (fungicides), STARMITE (miticides)
- Performance materials: TEFK (flow-coating agent for polymer powder coating material), TEFK-S (3-D setting, slider mark; PVA, phenoxyphosphoric acid
- Pharmaceuticals: [Dilavcol; pharmaceutical ingredient (anti-cholesterol agent), Fluscalan (veterinary pharmaceuticals)]

Recent Responsible Care related topics
- Safety workshop for all contractors (July 2013)
- Emergency resuscitator lecture [October 2013]
- Safety lecture by an external consultant [October 2013]
- Integrated disaster prevention and evacuation drill [November 2013]

Our actions for Responsible Care
- At the Onoda Plant, life science products (pharmaceuticals and agrochemicals; etc) and organic fine chemicals are manufactured. In order to reduce environmental load, we are vigorously promoting "appropriate handling and reduction of greenhouse gas, environmental load substances". "Prevention of leakage of oil", "saving resources and saving energy". We are making efforts to prevent environmental pollution due to accidents and disasters and also place safety and stable operation as the top priority of the environment/safety activities in order to protect safety and health of the local community people and our employees.
- In 2013, we will strengthen the environmental protection and safety initiative by reinforcing the activated sludge facility.

6 Materials Research Laboratories (Funabashi)

Overview of the Laboratories
- Location: 4888-6, Subatsu-cho, Funabashi, Chiba
- Number of employees: 123
- Major research contents: Research and development of materials for liquid-crystal display and new performance materials

Recent Responsible Care related topics
- Public solicitation and presentation of the slogan (July 2013)
- Conducted a group safety activity meeting for young researchers (in collaboration with Chemical Research Laboratories) (October 2013)
- Fire drills (January 2014)
- Development and publication of Disaster Prevention Manual (February 2014)

Our actions for Responsible Care
- The Materials Research Laboratories (Funabashi) work on safety activities in collaboration with the Toyama District. Because there are many young researchers, we focus on the training ability to enhance safety awareness. Recent activities include exhibition of the examples from labor disasters and notice in advance reports by young employees and regular risk prediction training for all. Furthermore, since the way handling chemicals substances are becoming more and more stringent, we carry out appropriate management of chemical substances by encouraging all staff to participate in the projects in order to ensure thorough education and planning in practice.

7 Materials Research Laboratories (Sodegaura)

Overview of the Laboratories
- Location: 11-1, Kitasode, Sodegaura, Chiba
- Number of employees: 18
- Major research contents: Research and development of inorganic colloidal products such as silica sol using our superfine particle control technology.

Recent Responsible Care related topics
- Conducted 55 activities
  [In collaboration with Sodegaura Plant, October 2013]
  [Earthquake drill. (in collaboration with Sodegaura Plant, November 2013]

Our actions for Responsible Care
- The Materials Research Laboratories (Sodegaura) are located next to the Sodegaura Plant, and have conducted a series of plant operations to maintain and improve the work environment as well as enhance safety awareness. For example, sharing information of near miss and risks, danger prevention training, 5S activities and disaster drills are carried out together with the Plant. The laboratories also try to keep everyone informed about safety education and comply with local regulations through safety meeting every month and O&T on a daily basis.
### 9 Chemical Research Laboratories

#### Overview of the Laboratories
- **Location:** 10-1, Tsukuba-Nishi, 2-chome, Funabashi, Chiba
- **Head of Laboratory:** Executive Officer, Junichi Watanabe
- **Number of employees:** 165

**Major research contents**
- Research to discover, formulate and develop agrochemicals, research to discover and develop pharmaceuticals, biosynthetic, and process development of pharmaceutical intermediates and drug substances, research and development of organic performance materials, research and development of organic synthetic technology, and material analysis.

**Recent Responsible Care related topics**
- Certified as a cooperative office for first aid in Funabashi City. [May 2013]
- Group reporting session about safety activities by young researchers (in collaboration with Material Science Laboratory) [October 2013]
- Fire and evacuation drill [October 2013]
- Held “the briefing session on the law regarding chemical substances” by in-company lecturers. [December 2013]

### 10 Biological Research Laboratories

#### Overview of the Laboratories
- **Location:** 1470, Shiraoka, Shiraoka, Saitama
- **Head of Laboratory:** Associate Executive Officer, Toshiro Miyake
- **Number of employees:** 101

**Major research contents**
- Biological evaluation researches for creating agrochemicals and pharmaceutical compounds and putting them into practical use. Research and development of new materials for medical technology.

**Recent Responsible Care related topics**
- Reduction in industrial wastes by changing from alkaline batteries to rechargeable nickel hydroxide batteries
- Held “AEC lecture” [October 2013]
- Disaster prevention drill in anticipation for earthquakes. [December 2013]

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### 9 Chemical Research Laboratories: Our actions for Responsible Care

Chemical Research Laboratories are our Company’s central research institution, and its core technology is organic synthesis. It is especially making efforts in safe experiment and disaster prevention. By carrying out risk sharing information of new risks and dangers, and risk prediction training, it is aiming to enhance safety awareness among the employees and eliminate occupational accidents. The surrounding area of the laboratories is a residential area. Therefore, the laboratories make sure to follow the laws and ordinances concerning management of waste water, odor, noise and waste and promote environmental preservation as a corporation that is trusted by the local society.

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### 10 Biological Research Laboratories: Our actions for Responsible Care

The Biological Research Laboratories are the Company’s major institute for “biological evaluation.” In order to conduct tests, we provide training programs including how to handle experimental organisms and also conduct 45 actions to take notice to enhance awareness on safety among the employees. In order to strengthen the management system for appropriate animal experiments, we established a working group on animals that leads the actions. Currently, we are updating buildings. We regularly paint the construction site and take safety measures and preventive actions to prevent accidents among the employees and contractors.
CSR Report
2014
Aiming at sustainable growth in harmony with environment, safety and health