

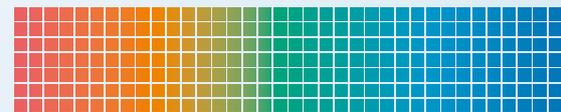


DENKA GROUP

CSR REPORT

2014

Site Reports



CONTENTS

- 2 Omi Plant
- 4 Omuta Plant
- 6 Chiba Plant
- 8 Shibukawa Plant
- 10 Ofuna Plant
- 12 Isesaki Plant
- 14 DENKA Innovation Center
- 16 Denka Singapore Pte., Ltd. Merbau Plant
- 17 Denka Singapore Pte., Ltd. Seraya Plant
- 18 Denka Advantech Pte., Ltd. Tuas Plant
- 19 Denka Advantech Pte., Ltd. Tuas South Plant
- 20 Denka Advanced Materials (Suzhou) Co., Ltd.
- 21 Denka Chemicals Development Suzhou Co., Ltd.
- 22 DENKA Polymer Co., Ltd.
- 23 DENKA SEIKEN Co., Ltd.
- 24 CRK Corporation
- 25 Hinode Kagaku Kogyo Kaisha Ltd.
- 26 DENKA Azumin Co., Ltd.
- 27 Environmental Performance

Pursuing Lasting Trust  
as an Outstanding Manufacturer

# Omi Plant



## Overview

**Operations** Since our establishment in 1921, we have maintained unique carbide chemical operations that exploit in-house assets. These include Mount Kurohime, which has five billion metric tons in limestone reserves, and an in-house power generation capacity of 180,000kW. Our broad product range includes calcium cyanamide, chloroprene rubber and cement. In recent years, we have diversified into inorganic fine chemicals and pharmaceuticals. We continue to develop our business to meet new and diverse challenges in chemicals.

**Products** **Elastomers & Performance Plastics:** Chloroprene rubber, POVAL, etc.  
**Infrastructure & Inorganic Materials:** Cement, special cement additives, calcium carbide, calcium cyanamide, ALCEN, etc.  
**Electronics & Innovative Products:** Monosilane gas  
**Life Science & Environment Products:** Macromolecular sodium hyaluronate  
**Others:** Eel farms

**Address** 2209, Oaza Omi, Itoigawa, Niigata Telephone: +81-25-562-6105

**Employees** 865 (as of March 31, 2014)

## Message from the General Manager

As a chemical plant, we manufacture materials and products that benefit society while utilizing a range of resources, including limestone produced from mines nearby and waste and byproducts generated by local industries and communities.

In the course of these operations, we put a significant emphasis on handling hazardous substances carefully and preventing environmental pollution from occurring in line with our aim to continue production activities in a way that harmoniously coexists with local communities.

Moreover, we are striving to develop a workplace environment in which all workers can take pride in their job and find it rewarding. Simultaneously, we are engaged in dialogue with community residents and value their feedback. In these ways, we endeavor to contribute to local society and thereby be a plant that deserves people's trust.



**Shohei Tamaki**  
 Managing Executive Officer,  
 General Manager of Omi Plant

## CSR Policies

### »» General Manager's Policies

Develop a workplace environment in which all workers can take pride in their job and find it rewarding while restructuring the Omi Plant through reforms engaging all sections to realize the goals of the DENKA100 initiative.

### »» Maintaining Safety

Each section will select one specific issue to work on intensively in line with our recognition that safety activities help reinforce operational excellence.

### »» Environmental Load Reduction and Social Contribution

All workers will pursue higher goals in their efforts aimed at reducing environmental burdens while contributing to the local community as well as society as a whole.

### »» Quality Management

We will raise quality awareness and enhance technological capabilities to deliver products with even higher quality, thereby gaining the greater trust of customers.

## Fiscal 2013 Achievements and Future Initiatives

### Safety

To secure preparedness in case of chemical facility-related accidents, we have implemented a variety of disaster drills, including a comprehensive emergency drill undertaken in tandem with the Itoigawa City Fire Department. Assuming a fire breaking out at a plant facility, this joint drill involved 12 activities, including initial reporting to the fire department, extinguishing and rescuing people from fires, and final confirmation of fire extinction, to ensure that these actions are swiftly taken. We also participated in the Himekawa Port Comprehensive Emergency Drill, in which it was assumed a major earthquake had occurred.



Rescue training at Himekawa Port Comprehensive Emergency Drill



Fire extinction training at the plant's comprehensive emergency drill

### Environment

We are promoting facility improvement aimed at reducing environmental burdens. To increase the proportion of clean energy power sources our incineration facilities use, we switched over from heavy oil to environment-friendly natural gas. Moreover, to recycle more industrial waste, we installed chlorine removal equipment in our cement production facilities while upgrading the feed chute to facilitate the processing of waste plastics.

In addition, to help preserve the environment of local community, we are participating in the Himekawa River Cleaning Mission, a public-private initiative undertaken during the river preservation month designated by the Japanese government, with the aim of helping to keep the river environment clean.



Cleanup activity along the Himekawa River



Plant staff who participated in the Himekawa River Cleaning Mission

### Communication

To facilitate communication with local residents, the Omi Plant is proactively participating in community events while assiduously undertaking cleanup activities across adjoining areas. Our fiscal 2013 initiatives included helping to organize a local marathon. We also proactively participated in local science events targeting children.

We will continue with our community contribution efforts to maintain the trust of local residents.



Plant employees who helped organize a marathon



Many children were attracted to the stand run by plant staff

### Environmental Performance

| Item  | Unit                 | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|----------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | Compared with FY1990 | 0.97        | 0.96        | 0.94        | 0.90        | 0.94               |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t              | 76          | 77          | 83          | 84          | 92                 |
| PRTR substance emissions                        | t                    | 12          | 17          | 18          | 14          | 12                 |
| NO <sub>x</sub> emissions                       | t                    | 2,750       | 2,820       | 2,940       | 3,390       | 3,010              |
| SO <sub>x</sub> emissions                       | t                    | 120         | 94          | 81          | 61          | 54                 |
| Soot and dust emissions                         | t                    | 103         | 114         | 86          | 67          | 117                |
| Water used                                      | 1,000m <sup>3</sup>  | 66,300      | 67,200      | 64,000      | 63,000      | —                  |
| COD (BOD) discharges                            | t                    | 1,570       | 1,270       | 850         | 850         | 1,140              |
| Waste generated                                 | t                    | 83,900      | 105,200     | 109,870     | 101,260     | 114,420            |
| Final waste disposal                            | t                    | 160         | 143         | 100         | 69          | 110                |

# Omuta Plant



## Overview

**Operations** Established in 1916, the Omuta Plant is DENKA's oldest plant, and the first to manufacture carbide and calcium cyanamide. Since that time, as an inorganic chemical product manufacturing base boasting proprietary electric furnace, high-temperature control and nitride technologies, the Omuta Plant has introduced a number of unique products. In recent years, we have entered the fine ceramics and electronic materials fields. Today, we contribute to the development of the electronics, automotive and numerous other industries.

**Products Infrastructure & Inorganic Materials:** Calcium carbide, calcium cyanamide, fire resistant materials for steel making, alumina cement and special cement additives  
**Elastomers & Performance Plastics:** Acetylene black

**Electronics & Innovative Products:** Fused silica filler, spherical alumina, silicon nitride, boron nitride, ceramic electronic circuit substrates, thermally conductive sheets, ceramic composite and LED phosphors

**Address** 1, Shinkai-Machi, Omuta, Fukuoka  
 Telephone: +81-944-52-1055

**Employees** 635 (as of March 31, 2014)

## Message from the General Manager

Established in 1916, the year following the Company's founding, the Omuta Plant is the oldest of DENKA's production bases. Over its history, the plant has overcome a number of challenges with the cooperation of various stakeholders. In April 2015, DENKA will celebrate its centennial. With this in mind, we will strive to develop the Omuta Plant into a more independent, leading production base capable of securing the genuine trust that will sustain it for the next 100 years. To this end, we will strive to ensure safety while reinforcing our platform to secure product quality. Moreover, we will devote our day-to-day efforts to enhance profitability and to create new technologies and products. In these ways, we will forge ahead toward the goals of the DENKA100 management plan.



**Toshiharu Kano**  
 Managing Executive Officer,  
 General Manager of Omuta Plant

## CSR Policies

### General Manager's Policies for fiscal 2014

#### 1. Enhance responsiveness to changes in operating environment

- 1 Expand customer base as well as product lineup
- 2 Cut raw material procurement costs while minimizing waste and material loss
- 3 Increase work capacity to become less dependent on outsourcing

#### 2. Pursue facility security and safety to achieve zero-accident status

- 1 The Omuta Plant is fully responsible for the safety of every person working within its premises
- 2 Every plant worker must act with constant vigilance
- 3 Managers' failure to counter predictable danger and operators' unsafe behaviors must be strictly investigated

#### 3. Attain higher quality through top-down management

- 1 Product quality reflects managers' technical capabilities
- 2 Prevent recurrence of quality-related incidents to gain customers' trust
- 3 Improve quality assurance process; introduce automated system for inspection

#### 4. Create new value into the future

- 1 Promote R&D with an emphasis on adding value
- 2 Promptly address customers' requests while turning R&D results into profit generators
- 3 Determine quantitative targets for R&D activities while strictly complying with project schedules

## Fiscal 2013 Achievements

### Environment

We have participated in voluntary cleanup activities in tandem with local community organizations in spring and autumn. We also participated in a semiannual Japanese Islands Cleanup Campaign sponsored by the Omuta City.

Since we operate a number of energy-intensive production processes, we promoted energy-saving and environmental

load reduction activities while cutting waste emissions.



Voluntary cleanup activity

### Communication

#### 1 Chemistry classes for children

We visited nearby elementary schools to give chemistry classes. We also participated in the Omuta Ecotown Fair sponsored by the Omuta City to host experimental science classes.

#### 2 Participating in Omuta Daijaya Festival

Having participated in the Omuta Daijaya Festival, a summer festival that dates back 300 years, a total of approximately 100 plant staff joined the main attraction of the festival entitled "10,000 people's dance."



Children making personalized PET bottles at the Omuta Ecotown Fair



The Omuta Daijaya Festival

#### 3 Plant tours

We invite local associations, students, teachers and parents associations to tour the plant, with the aim of facilitate their understanding of our business operations.



Teachers and parents on a plant tour



Blood donation campaign

#### 4 Blood donation campaigns

We cooperate with blood donation campaigns twice a year, with 291 employees donating blood in fiscal 2013 (cumulative total).

## Fiscal 2014 Initiatives

- We will step up our community contribution through chemistry classes aimed at communicating the fun of chemistry to children.
- We will strive to ensure that every plant worker acts with constant vigilance with the aim of achieving a zero-accident record.
- We will enhance our responsiveness to changes in the operating environment, with every employee striving to improve their working efficiency.

- We will endeavor to develop the plant into the Group's leading production base in the true sense.



Chemistry class for children

### Environmental Performance

| Item  | Unit                 | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|----------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | Compared with FY1990 | 0.91        | 0.90        | 0.94        | 0.94        | 0.89               |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t              | 11          | 11          | 13          | 12          | 12                 |
| PRTR substance emissions                        | t                    | 17          | 25          | 7           | 7           | 7                  |
| NO <sub>x</sub> emissions                       | t                    | 1,120       | 940         | 850         | 790         | 940                |
| SO <sub>x</sub> emissions                       | t                    | 1           | 1           | 1           | 1           | 1                  |
| Soot and dust emissions                         | t                    | 3           | 6           | 3           | 5           | 5                  |
| Water used                                      | 1,000m <sup>3</sup>  | 1,310       | 1,390       | 1,220       | 1,190       | 1,200              |
| COD (BOD) discharges                            | t                    | 1           | 2           | 1           | 1           | 1                  |
| Waste generated                                 | t                    | 8,670       | 13,600      | 7,400       | 8,680       | 8,075              |
| Final waste disposal                            | t                    | 71          | 39          | 22          | 72          | 17                 |

# Chiba Plant



## Overview

**Operations** The Chiba Plant has served as a core production base bolstering DENKA's petrochemical operations. Begun as a styrene monomer facility, the plant is now also producing polystyrene, ABS resins, CLEAREN styrene-butadiene block copolymer, transparent plastics and other styrene-based materials as well as EVA emulsions and acrylic rubber while reinforcing such plastic processed products as biaxially oriented polystyrene sheet (OPS), vinyl chloride tapes and construction materials.

**Products** **Elastomers & Performance Plastics:** Styrene monomer, polystyrene,\* ABS resin, transparent polymers, heat-resistant polymers, CLEAREN styrene-butadiene block copolymer, EVA emulsions and DENKA ER (\*Product of an affiliated company)

**Life Science & Environment Products:** Food packaging, construction materials and vinyl chloride tapes

**Address** 6, Goi-Minamikaigan, Ichihara, Chiba  
 Telephone: +81-436-26-3200  
 Bibai Subplant: 1-1, Higashi-Gojo-kita 10-chome, Bibai, Hokkaido  
 Telephone: +81-126-62-1444

**Employees** 474 (as of March 31, 2014)

## Message from the General Manager

In 2015, when the Company marks the centennial of its founding, the Chiba Plant will celebrate the 50th anniversary of its operational kickoff. We aspire to remain a manufacturing plant that contributes to communities and society and to continue growing in step with them over the next 50 years. Reflecting on the accidents in fiscal 2013, we have reaffirmed the utmost importance of maintaining safety and preserving the environment in all our production activities. Accordingly, every plant employee is steadily implementing the following initiatives.

- Ensuring compliance
- Reinforcing operational excellence = nurturing human resources (passing down technologies, skills and “know-why,” nurturing employees’ sense of ownership)
- Continuously upgrading our facility security, occupational safety and health, environmental and quality management systems
- Reducing energy and resource consumption as well as environmental burdens
- Contributing to local society



**Ken Koizumi**  
 Executive Officer,  
 General Manager of Chiba Plant

## CSR Policies

### >>> General Manager's Policies for fiscal 2014

- In line with the DENKA100 new growth strategies, we will proactively take on challenges as we strive to reorganize our business structure and to develop new businesses and products. To enhance our international competitiveness, we will also scrutinize every cost element in line with specific numerical targets, thereby securing a stable profit.
- To establish a foundation for the next 50 years, we will vigorously promote CHIBA50 activities aimed at becoming a plant with the flexibility necessary to ensure sustainable development.
- We will steadily nurture human resources, pass on technologies and skills to younger generations and advance the plant's technological capabilities. We will thereby enhance operational excellence to secure occupational safety and health, conserve the environment, prevent disasters and achieve higher product quality and thereby become a plant deserving trust.

## Fiscal 2013 Achievements and Future Initiatives

### Safety

We launched the My Plant Chiba (MPC) campaign aimed at reinforcing operational excellence by nurturing proactiveness and a sense of ownership among employees. Specifically, we are striving to raise employee awareness of accident prevention, for example, by making everyone consciously engage in the exchange of courtesies in the course of their work.

We also upgraded the mandatory safety training programs for newcomers to the plant, incorporating video presentations to supplement written materials as well as tests to confirm individuals' level of comprehension. By doing so, we are making sure that anyone who

enters the plant can work safely, including those from subcontractors and partner companies.

Going forward, we will continuously improve our facility security management system as well as occupational safety and health management system while facilitating a safety-oriented corporate culture. In these ways, we will maintain safe and stable plant operations.



Mandatory safety training using video presentations

### Environment

#### Participating in the “Green Curtain Contest”

The “green curtain” refers to a greenery initiative in which vines are planted around buildings so that they climb and cover walls and windows. By doing so, they provide shade and cool air through evaporation while contributing to CO<sub>2</sub> reduction. We participated in a competition hosted by the Ichihara City aimed at promoting this initiative.



Bitter melon vines climbing the wall of the plant's office building

#### Reducing Emissions of SOx and CO<sub>2</sub>

We completed a switchover of boiler fuel from heavy oil to gas to reduce emissions of environmental load substances.

To achieve targets set forth in the Fifth Medium-Term Environmental Plan, we will promote energy saving and the effective utilization of resources while reducing emissions of waste and environmental load substances. At the same time, we will proactively undertake initiatives to curb global warming and preserve the environment by closely working together with community residents as well as relevant authorities and agencies.

### Communication

To enhance our relationship of trust with the local community, we proactively participate in local events, including the Goi Rinkai Festival and the Naka-Boso International Art Festival Ichihara Art x Mix, while taking part in community gatherings. Moreover, we are facilitating people's understanding of the plant by inviting local residents to join plant tours. These tours welcomed students from elementary schools and high schools in the prefecture as well as members of such organizations as Chiba Prefecture's Civil Rights Commission.

In addition, under a program commemorating Ichihara City's 50th anniversary, we received a special prize recognizing our contribution to local industries.



Local high school students touring plant facilities



Certificate awarded by Ichihara City

### Environmental Performance

| Item  | Unit                 | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|----------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | Compared with FY1990 | 0.87        | 0.89        | 0.96        | 0.91        | 0.88               |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t              | 43          | 46          | 34          | 33          | 46.1               |
| PRTR substance emissions                        | t                    | 86          | 92          | 73          | 66          | 67                 |
| NOx emissions                                   | t                    | 448         | 479         | 260         | 263         | 213                |
| SOx emissions                                   | t                    | 129         | 122         | 33          | 20          | 23                 |
| Soot and dust emissions                         | t                    | 5           | 8           | 3           | 1           | 3                  |
| Water used                                      | 1,000m <sup>3</sup>  | 9,700       | 9,690       | 9,580       | 9,600       | —                  |
| COD (BOD) discharges                            | t                    | 23          | 22          | 13          | 10          | 18                 |
| Waste generated                                 | t                    | 18,300      | 18,100      | 14,280      | 12,860      | 11,000             |
| Final waste disposal                            | t                    | 40          | 23          | 39          | 52          | 39                 |

# Shibukawa Plant



## Overview

**Operations** In 1951, the Shibukawa Plant was established as a production base for vinyl chloride polymers. In 1976, the plant began manufacturing HARDLOC structural adhesive. Since 1984, the plant has expanded its business domain, making a full-scale entry into the electronic materials business. Currently, the Shibukawa Plant specializes in electronics-related products, encompassing electronic circuit substrates, thermally conductive materials, emitters, structural adhesives, temporary fixing adhesives and semiconductor processing-related products, thereby driving DENKA's growth strategies as a key organic electronic materials production base.

**Products** **Electronics & Innovative Products:** DENKA HITPLATE high thermal conductivity aluminum substrates, DENKA THERMALLY CONDUCTIVE SPACER, DENKA TFE and DENKA LaB6 CATHODE electron and ion emitters, ELEGRIP dicing tape and back grinding tape, HARDLOC structural adhesive, HARDLOC OP/UV light curing adhesive, TEMPLOC temporary fixing adhesive

**Address** 1135, Nakamura, Shibukawa, Gunma  
Telephone: +81-279-25-2109

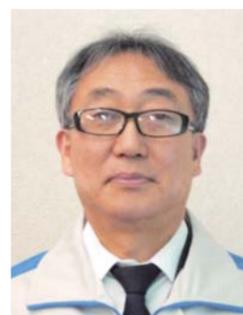
**Employees** 395 (as of March 31, 2014)

## Message from the General Manager

Regrettably, we must report that the plant recently experienced its first accident in 1,057 days. Although the accident resulted in only a minor injury, it reminded us of the need for serious self-examination by all working at the plant, including people from subcontractors, to ensure vigilance is maintained.

We at the Shibukawa Plant aim to create a safe, lively and vibrant workplace in which every person can work with confidence. We therefore recognize that raising everyone's awareness is essential. Accordingly, "nurturing people who can think proactively and act with a sense of ownership" is the focus of our human resource development.

Approaching the centennial of the Company's founding in 2015, we will strive to develop the Shibukawa Plant into a facility that deserves the trust of the local community and society over the next 100 years.



**Hideki Hirano**  
General Manager of Shibukawa Plant

## CSR Policies

- 1 Maintain thorough compliance
- 2 Create an organizational culture that ensures every person who works at the plant can work safely and efficiently with confidence
- 3 Facilitate communication with public entities and communities
- 4 Realize the three initiatives set forth as the DENKA100 new growth strategies



Cleaning Nakamura Waterway



Comprehensive emergency drill



Science experiment class

## Fiscal 2013 Achievements and Future Initiatives

### Safety

In fiscal 2013, the Shibukawa Plant established the Discipline Training Room and Plant Maintenance Training Room with the aim of raising employees' safety awareness. The former provides on-site programs involving the practice of "pointing and calling" to make trainees realize the importance of such practice. The latter involves the use of the actual machine tools to make trainees aware of the dangers of misuse. Going forward, we will enhance the content of training programs designed for female workers as well as our mandatory job level-based training in addition to stepping up our ongoing safety activities.



Practicing pointing and calling

### Environment

To promote the use of clean energy, the Shibukawa Plant established DENKA Solar Power Shibukawa, a mega solar power generation facility. The facility was established on the site of the former Yagihara Plant, putting it to effective use. Boasting a maximum output of 2.2MW, the facility is capable of supplying electricity equivalent to that consumed by 900 general households on an annual basis. All output is sold to Tokyo Electric Power Company.

Looking ahead, we will strive to reduce resource and energy consumption as well as CO<sub>2</sub> emissions.



An aerial view of DENKA Solar Power Shibukawa

### Communication

The Shibukawa Plant holds softball games and sports festivals in every spring and autumn, respectively, with management and the labor union as co-sponsors. Every year, a number of employees and workers from subcontractors as well as their families attend these events, taking advantage of the opportunity to facilitate communication that transcends workplace boundaries.

Looking ahead, we will regularly hold various events aimed at enhancing communication.



A spring softball game

### Environmental Performance

| Item  | Unit                 | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|----------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | Compared with FY1990 | 0.74        | 0.78        | 0.78        | 0.83        | 0.68               |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t              | 1.0         | 1.0         | 1.0         | 0.7         | 0.8                |
| PRTR substance emissions                        | t                    | 6           | 4           | 3.8         | 2.9         | 4.8                |
| NO <sub>x</sub> emissions                       | t                    | 10          | 6           | 5           | 10.9        | 8.4                |
| SO <sub>x</sub> emissions                       | t                    | 10          | 1           | 0.9         | 1.5         | 1.1                |
| Soot and dust emissions                         | t                    | 0           | 0           | 0.02        | 0.06        | 0.02               |
| Water used                                      | 1,000m <sup>3</sup>  | 2,580       | 2,520       | 2,460       | 2,400       | —                  |
| COD (BOD) discharges                            | t                    | 3           | 3           | 3.2         | 3.5         | 2.4                |
| Waste generated                                 | t                    | 479         | 416         | 369         | 382         | 381                |
| Final waste disposal                            | t                    | 3           | 2           | 1.3         | 1.3         | 1.4                |

# Ofuna Plant



## Overview

**Operations** Our product lineup is the fruit of cutting-edge technologies in ejection molding, adhesion coating and film production. We are DENKA's prime production unit for plastic products. We manufacture a variety of offerings, such as TOYOKALON synthetic fiber for wigs and hairpieces now popular around the world, packaging tapes that boast unique functions, including hand-cuttable tapes, and Calalyan Y polyethylene film featuring excellent transverse direction (TD) mono-axial cut properties.

**Products** **Life Science & Environment Products:** Synthetic fibers for wigs, packaging materials and functional films

**Address** 13-1, Dai 2-chome, Kamakura, Kanagawa  
Telephone: +81- 467-45-1110

**Employees** 185 (as of March 31, 2014)

## Message from the General Manager

Based on the philosophy of contributing to and prospering with the community, we are proactively deepening our engagement with the local society of Kamakura, which boasts a rich cultural, historical and environmental legacy.

As we aim to reduce environmental burdens, efforts are now under way to revise our production process to save energy and cut CO<sub>2</sub> emissions. To maintain our zero-emission status, we are mitigating environmental load substance emissions while promoting the reduction and separation of waste. In tandem with environmental conservation initiatives encompassing all production activities from the development to disposal stages, we are responding to social needs through the development and manufacture of high-quality products that contribute to the preservation of the global environment.

Focusing on safety activities, we are also training plant staff to avoid worksite dangers while cultivating a sense of mutual support. By facilitating a safety-oriented corporate culture based on mutual trust and collaboration, we are creating a workplace environment in which every person can work safely and with confidence.



**Hideki Watanabe**  
General Manager of Ofuna Plant

## CSR Policies

### >>> General Manager's Policies

The Ofuna Plant's fiscal 2014 slogan is "Let's work as one to create a safety-oriented corporate culture based on mutual trust and collaboration while blazing a path to the future with passion and technologies." Under this slogan, we will pursue the DENKA100 new growth strategies by encouraging plant staff to rethink their priorities and proactively take on challenges to achieve higher goals. Specifically, we will focus on the following four activities.

- 1 Ensure facility security and occupational safety and health
- 2 Advance RC activities
- 3 Reinforce operational excellence and promote product development
- 4 Facilitate a passionate approach to work while strengthening technological capabilities

## Fiscal 2013 Achievements and Future Initiatives

### Safety

To minimize the possibility of occupational accidents and facility-related incidents, we are implementing a near-accident reporting and analysis initiative. Due to the incorporation of the in-house commendation system and new submission forms, in fiscal 2013 the number of reports submitted doubled from fiscal 2012. Going forward, we will create a workplace in which staff can work safely and with confidence, with every employee taking part in safety activities.

To ensure facility security, we implemented comprehensive emergency drills that assume the occurrence of earthquakes and fires. These drills included a water discharge drill by an in-house fire brigade, an emergency communication drill and an evacuation drill as well as other training aimed at

confirming emergency response procedures.

In addition, the plant was commended by the head of the Kanagawa Labour Bureau for its excellent track record in occupational safety and health initiatives.



Comprehensive emergency drill



Award certificate from the head of the Kanagawa Labour Bureau

### Environment

The plant was commended by the governor of Kanagawa Prefecture for its outstanding contribution to pollution prevention and the preservation of atmospheric, water and soil quality.

We developed a solution to curb odor attributable to Volatile Organic Compounds (VOCs) used in the printing process by reducing the use of VOC-based solvents. As a result, in accordance with Japan's Industrial Safety and Health Act, we were able to change the classification of the printing facilities' working environment from Class II to I. We also improved the working

environment of our slit processing facilities, which had been labeled Class III facilities, through the reduction of noise, thereby acquiring Class I certification.

We will continue to work to systematically reduce the environmental impacts of our plant operations.



Receiving a commendation from the governor of Kanagawa Prefecture

### Communication

We are proactively interacting with the local community while undertaking social contribution activities. In fiscal 2013, we made the square in front of the plant's main gate available for a summer festival held by nearby neighborhood association on July 6. We also set up food stands and an employee band performed. In addition, we hosted plant tours to which we invited local elementary and junior high school students in order to assist with their social studies, and a total of 122 students visited. We have received thank you cards bearing comments and words of appreciation and are pleased that these events helped visitors to better understand the plant. We will con-

tinue our efforts to facilitate dialogue and interaction with local community.



Summer festival held by a neighborhood association



Local elementary school students on a plant tour

### Environmental Performance

| Item  | Unit                 | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|----------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | Compared with FY2002 | 0.79        | 0.75        | 0.77        | 0.78        | 0.72               |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t              | 1           | 1           | 1           | 0.8         | 0.8                |
| PRTR substance emissions                        | t                    | 1           | 1           | 1           | 0.5         | 0.5                |
| NO <sub>x</sub> emissions                       | t                    | 2           | 2           | 2           | 2           | 2                  |
| SO <sub>x</sub> emissions                       | t                    | 0           | 0           | 0           | 0           | 0                  |
| Soot and dust emissions                         | t                    | 0           | 0           | 0           | 0           | 0                  |
| Water used                                      | 1,000m <sup>3</sup>  | 96          | 59          | 51          | 46          | —                  |
| COD (BOD) discharges                            | t                    | 0           | 0           | 0           | 0           | 0                  |
| Waste generated                                 | t                    | 199         | 124         | 110         | 167         | 100                |
| Final waste disposal                            | t                    | 30          | 30          | 17          | 16          | 11                 |

# Isesaki Plant



## Overview

**Operations** This plant manufactures sheets and films from polystyrene, vinyl chloride and other raw materials. We supply food and electronic packaging materials that meet stringent requirements for performance and quality management, and are endeavoring to bolster our processing technologies while developing value-added offerings.

**Products** **Electronics & Innovative Products:** Carrier tapes, trays and cover tapes for semiconductor and electronic component transportation process

**Life Science & Environment Products:** Food packaging sheets, stretch films and solar cell module back sheet materials

**Address** Isesaki Plant: 245, Nishigawara, Naganuma-cho, Isesaki, Gunma  
Telephone: +81-270-32-1251  
Isesaki Plant (Ota): 3015, Serada-cho, Ota, Gunma  
Telephone: +81-276-52-4111

**Employees** 238 (as of March 31, 2014)

## Message from the General Manager

In line with DENKA's CSR Vision "pursuing lasting trust as an outstanding manufacturer," the Isesaki Plant has made delivering highly functional and high-quality plastic films and sheets its social mission. Accordingly, we emphasized enhancing the environment-friendliness of our products, even from the development stage, while pursuing energy- and resource-saving, safe and stable production activities. With the aim of utilizing clean energy, we installed solar power generation facilities on the rooftop of the Ota Plant, incorporating DENKA DX FILM produced by the plant as solar cell module back sheets. Moreover, we are undertaking cleanup activities encompassing nearby streets and parks. By doing so, we are striving to create a plant that deserves the trust of local community, with every employee fully understanding the DENKA Group Guidelines and practicing CSR activities accordingly.



**Koichi Taguchi**  
General Manager of Isesaki Plant

## CSR Policies

We will develop a rewarding workplace in which every person can work safely and with confidence while realizing greater customer satisfaction and profitability.

### >>> Safety and Health

- 1 Place top priority on safety and pursue safety activities with every plant worker striving toward zero-accident status
- 2 Continuously improve occupational health management while creating a rewarding workplace

### >>> Quality

- 1 Clarify root causes of every customer complaint to prevent recurrence through fundamental improvements
- 2 Achieve higher quality through the improvement of manufacturing process, gathering the wisdom of entire workforce

### >>> Environment

- 1 Promote R&D of environment-friendly products
- 2 Pursue energy- and labor-saving production process

## Fiscal 2013 Achievements and Future Initiatives

### Safety

To minimize potential danger at worksite, we implemented case studies of typical accidents that occurred at DENKA's and external facilities, sharing them throughout organization. We also addressed and mitigated risk factors identified through risk assessment activities. To eliminate unsafe employee behavior, we strove to upgrade our operating procedure documents while instilling the practice of pointing and calling. Although our ongoing safety activities supported by the

entire workforce have resulted in the improvement of the plant's safety records, we will step up initiatives to facilitate a safety-oriented corporate culture, regularly refreshing worker's memories of accident countermeasures.



Practicing pointing and calling

### Environment

Introduced in 2013 to help reduce greenhouse gas emissions, the Ota Plant's solar power generation facilities boast an annual power generation capacity of 1,000MWh, which is equivalent to an the annual energy consumption of approximately 300 households. Moreover, since we have constantly endeavored to reduce the volume of final landfill waste to zero, we succeeded in maintaining zero-emission status for the fourth consecutive year. In these ways, we are helping develop a sustainable, recycling-oriented society.

In addition to maintaining zero-emission status going forward, we will systematically reduce the volume of industrial waste generated by our facilities, with an eye to utilizing limited natural resources in a sustainable manner.



Solar power generation facilities installed on the rooftop of the Ota Plant

### Communication

With the aim of facilitating a sense of unity among employees, the plant and the labor union jointly hold various events. For example, each year more than half of plant employees enter into bowling tournaments. We also organize bus excursions to football games at the DENKA BIG SWAN STADIUM and Tokyo Disneyland for employees and their families. Other events aimed at facilitating exchange include walkathons and barbecue parties.

To facilitate communication with local residents, we engage in periodic cleanup activities with them to maintain parks and streets in the vicinity of the plant.



Employees and their families on a bus tour



Cleaning a park near the plant



An excursion to the DENKA BIG SWAN STADIUM

### Environmental Performance

| Item  | Unit                 | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|----------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | Compared with FY2005 | 0.97        | 0.99        | 0.95        | 1.02        | 0.96               |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t              | 2           | 2           | 2           | 1.6         | 2.5                |
| PRTR substance emissions                        | t                    | 0           | 0           | 0           | 0           | 0                  |
| NO <sub>x</sub> emissions                       | t                    | 0           | 0           | 0           | 0           | 0                  |
| SO <sub>x</sub> emissions                       | t                    | 0           | 0           | 0           | 0           | 0                  |
| Soot and dust emissions                         | t                    | 0           | 0           | 0           | 0           | 0                  |
| Water used                                      | 1,000m <sup>3</sup>  | 412         | 422         | 483         | 427         | —                  |
| COD (BOD) discharges                            | t                    | 0           | 0           | 0           | 0           | 0                  |
| Waste generated                                 | t                    | 207         | 239         | 178         | 145         | 200                |
| Final waste disposal                            | t                    | 0           | 0           | 0           | 0           | 0                  |

# DENKA Innovation Center



## Overview

**Operations** The DENKA Innovation Center began operating at its current site after DENKA relocated its Meguro Research Center from Meguro-ku, Tokyo, in 1962. The facility has developed numerous core technologies in the areas of inorganic and organic chemicals, ceramics, petrochemicals, biotechnologies and plastics that laid the groundwork for DENKA's business operations. The center will continue to serve as a focal point for the DENKA Group's R&D efforts, focusing on developing next-generation products that may become major profit sources in the medium to long term while further reinforcing its core technologies.

**Address** 5-1, Asahi-cho 3-chome, Machida, Tokyo  
Telephone: +81-42-721-3611

**Employees** 163 (as of March 31, 2014)

## Message from the General Manager

On April 3, 2014, we completed the DENKA Innovation Center main building, a facility aimed at boosting our capability as the Group's key R&D base. Since then, we have been engaged in full-scale R&D, with three new subordinate facilities bolstering our R&D platform. Specifically, the Life Innovation Research Institute was newly founded to reinforce our operations in the life science field—a potential growth driver—while the Advanced Technologies Research Institute and the Infrastructure & Solutions Development Research Institute were created by upgrading the Group's existing R&D sections.

In addition to focusing R&D strength Groupwide, the Center was positioned as a hub for realizing open innovation, and thus promotes joint research projects with various entities with the aim of mutually facilitating breakthroughs.

As we aspire to blaze a path to the future, we will take on challenges to create epoch-making products and solutions while spearheading Groupwide efforts to realize innovation.



**Norihiro Shimizu**  
Managing Executive Officer in charge of  
DENKA Innovation Center

## CSR Policies

In line with the following basic policy, we are promoting the fiscal 2014 priority initiatives presented below.

### >>> Basic Policy

Promote social contribution activities to ensure harmonious coexistence with society while enhancing the quality of our R&D output

### >>> Priority Initiatives

- 1 Reduce the environmental impact of our R&D activities while undertaking ongoing social contribution activities
- 2 Pursue the development of materials, products, technologies and processes with an eye to reducing environmental burdens
- 3 Enhance the quality of our R&D output through statistical quality control (SQC) activities

## Fiscal 2013 Achievements and Future Initiatives

### Safety

We consider safety activities to be as critical as our R&D activities. We maintain an environmental management system (EMS) that encompasses occupational safety and environmental conservation. The EMS has been renewed following the latest examinations carried out on March 5 and 6, 2014.

To pursue safety activities engaging all employees, we have set a basic policy of "preventing occupational accidents

and diseases as well as facility-related incidents." In fiscal 2013, we began worksite patrols by managers as well as cross-patrols between each R&D section.

Going forward, we will conscientiously pursue these and other efforts while giving due consideration to worksite communication.

### Environment

The renovation of the main building is expected to significantly reduce the Center's energy consumption. The installation of LED lights and infrared-absorbing double-glazed windows has already considerably improved the building's energy efficiency. We also used SUQCEM, a special concrete precast product, in the entrance's sunshade and louver windows on the second floor. Due to its strength, this innovative product can be formed into extremely thin sheets that can be used to both improve building appearance and provide solar shielding.

In R&D, we are stepping up the development of materials for lithium secondary batteries and other energy-related

applications. We are also proactively developing energy-saving construction methods for infrastructure development and other civil engineering fields.

In addition, we will promote tree planting to increase greenery in the center's premises.



A louver window made from SUQCEM

### Communication

Held on August 30, 2013, our annual "Innovation FESTA" was a roaring success, with approximately 140 center employees attending.

To enhance communication with the local community, we hosted facility tours for students from nearby elementary schools. We also participated in the Summer Holiday Chemical Experiment Show for Children sponsored by the "Dream Chemistry 21" committee on August 3 and 4, 2013, following up on our participation in fiscal 2012.

The overall structure of the center's main building is designed to eliminate partitions between rooms as much as possible, thereby facilitating exchange between employees. Going forward, we will examine and implement various plans to create an even more vibrant facility.

\* A campaign launched in Japan in 1993 to facilitate people's understanding of chemistry and the role the chemical industry plays in society.



Innovation FESTA was a roaring success



The Summer Holiday Chemical Experiment Show for Children

### Environmental Performance

| Item  | Unit                | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|---------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | —                   | —           | —           | —           | —           | —                  |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t             | —           | 0.1         | 0.1         | 0.1         | 0.1                |
| PRTR substance emissions                        | t                   | —           | 0           | 0           | 0           | 0                  |
| NO <sub>x</sub> emissions                       | t                   | —           | 0           | 0           | 0           | 0                  |
| SO <sub>x</sub> emissions                       | t                   | —           | 0           | 0           | 0           | 0                  |
| Soot and dust emissions                         | t                   | —           | 0           | 0           | 0           | 0                  |
| Water used                                      | 1,000m <sup>3</sup> | —           | 8           | 8           | 8           | —                  |
| COD (BOD) discharges                            | t                   | —           | 0           | 0           | 0           | 0                  |
| Waste generated                                 | t                   | —           | 130         | 120         | 100         | 100                |
| Final waste disposal                            | t                   | —           | 0           | 0           | 0           | 0                  |

# Denka Singapore Pte., Ltd. Merbau Plant



## Overview

**Operations** The Merbau Plant, where we manufacture DENKA BLACK, was DENKA's first production facility in Singapore. We established this plant in 1980 to participate in the Singapore Petrochemicals Complex project on Jurong Island. We began operating our "50% press" facility in 1984, augmenting the lines in 1997. We set up a granulation facility in 2002.

**Address** Office: 4 Shenton Way #29-02 SGX Centre 2, Singapore 068807  
 Telephone: +65-6225-6120  
 Plant: 300 Ayer Merbau Road, Singapore 628282  
 Telephone: +65-6867-8496

**Employees** 50 (of which, 17 from subcontractors; as of March 31, 2014)

## Message from the General Manager

As of July 9, 2014, the Merbau Plant marked its fourth consecutive year of zero-accident operations. To maintain this track record, we will focus on safety activities aimed at ensuring all plant workers are able to avoid hazards while fostering a sense of mutual support.



**Yuji Koga**  
General Manager of Merbau Plant

## CSR Policies

- 1 Maintain zero-accident record
- 2 Clarify the rationale for security standards while implementing employee education
- 3 Undertake safety activities to ensure that all plant workers are able to avoid hazards while fostering a sense of mutual support

## Fiscal 2013 Achievements and Future Initiatives

### Safety

- 1) Achieved a three consecutive year zero-accident record (as of March 31, 2014)
  - 2) Implemented Hazard and Operability Studies (HAZOP); issues identified have yet to be addressed
  - 3) Carried out joint emergency drills with PCS\* (four occasions per year)
  - 4) Reinforced safety and security educational programs centered on case studies (provided at monthly safety meetings)
- We will continue each initiative presented above.

\*Petrochemical Corporation of Singapore (Pte) Ltd.



Joint emergency drill with PCS

### Environment

- 1) Maintained zero-environmental accident status
  - 2) Implemented environmental and hygiene education centered on case studies
- We will step up these initiatives to maintain our zero-environmental accident status.

### Communication

- 1) All plant staff participated in monthly safety discussion meetings to address current safety issues
  - 2) General manager made rounds throughout worksite to call attention to safety before and during operation
- We will continue these initiatives going forward.



Merbau Plant staff

# Denka Singapore Pte., Ltd. Seraya Plant



## Overview

**Operations** The Seraya Plant commenced operations to produce general-purpose polystyrene in 1997. In 2006, the plant expanded its facilities for manufacturing TX Polymer (methyl methacrylate styrene (MS)) and CLEAREN (styrene-butadiene block copolymer (SBC)). In April 2012, the plant launched a facility to produce DENKA IP (imidized polymers). Today, the combined annual production capacity of the four facilities is 325,000 metric tons. Also housing the Technical Service Center on its premises, the Seraya Plant is a key production base spearheading the DENKA Group's styrene-based resin business.

**Address** Office: 4 Shenton Way #29-02 SGX Centre 2, Singapore 068807  
 Telephone: +65-6225-6120  
 Plant: 40 Seraya Avenue, Singapore 627873  
 Telephone: +65-6867-6089

**Employees** 75 (as of March 31, 2014)

## Message from the General Manager

Since the launch of polystyrene production in 1997, the Seraya Plant has expanded its operations to include MS and SBC resin facilities in 2006 and an IP copolymer facility in 2012, making it one of the Group's largest manufacturing bases. Drawing on our capacity, we will contribute to the Groupwide effort to achieve the target of an "overseas sales to net sales ratio of 50% or greater." Together, Japanese and Singaporean staff will work to make social contributions through production activities.



**Michio Kawamura**  
General Manager of Seraya Plant

## CSR Policies

Based in Singapore, the Seraya Plant bolsters the frontline of DENKA's global operations, engaging in business transactions that encompass regions around the world. With this in mind, we are promoting CSR as an essential part of our corporate activities, striving to maintain the trust of stakeholders worldwide through CSR activities.

## Fiscal 2013 Achievements and Future Initiatives

### Safety

Safety is given priority over any other business activities, including production. As a chemical plant, we are committed to appropriately addressing potential dangers at our facilities. To this end, we are undertaking ongoing voluntary safety activities in addition to complying with laws and regulations.



Mr. Michio Kawamura (second from left), the general manager of the Seraya Plant, attending the Security and Safety Working Group meeting and receiving an award certificate commending the plant as an Outstanding Cluster, from Mr. S. Iswaran, the head of Singaporean Prime Minister's Office (center)

### Environment

On the back of the enactment of the Energy Conservation Act in Singapore, environmental preservation is gaining even more attention here. Given this, we will strive to utilize limited natural resources in a sustainable manner while enhancing our technologies so that our production activities can harmoniously coexist with the environment.

### Communication

The Seraya Plant's Technical Service Center initiated joint research with the Institute of Materials Research and Engineering (IMRE), a research organization under the auspices of Singapore's Agency for Science, Technology and Research. We will promote R&D themes that originate in Singapore.



Collaboration with IMRE

# Denka Advantech Pte., Ltd. Tuas Plant



## Overview

**Operations** The Tuas Plant, commenced operation in 1991 in Singapore, produces fused silica filler, a material mainly used as an encapsulant for semiconductor packaging. Currently, the Tuas Plant's focus is on spherical fused silica filler to accommodate advances in semiconductor packaging as well as the trend toward more environment-friendly products. Stepping up its quality management and production structures, the plant serves mainly Chinese and Southeast Asian markets, working in cooperation with the Omuta Plant.

**Address** Office: 4 Shenton Way #29-02 SGX Centre 2, Singapore 068807  
 Telephone: +65-6321-9530  
 Plant: 11A Tuas Avenue 20, Singapore 638823  
 Telephone: +65-6861-0004

**Employees** 60 (as of March 31, 2014)

## Message from the General Manager

In recent years, we have been facing increasingly harsh market conditions for semiconductor encapsulant, a principal field of application for fused silica filler. To secure profitability in midst of this adversity, we are working to improve production process and technologies. At the same time, we give the utmost priority to maintaining security of plant facilities and ensuring occupational safety, to this end promoting safety activities aimed at creating a working environment in which every employee can continuously work with confidence.



**Hidetoshi Naito**  
General Manager of Tuas Plant

## CSR Policies

- 1 Ensure plant security and employee safety
- 2 Promote energy and resource saving to reduce environmental burdens
- 3 Improve customer satisfaction by controlling risks pertaining to product quality
- 4 Develop a supply system that meets market demands and technological trends
- 5 Reduce costs by improving production processes and technologies

## Fiscal 2013 Achievements and Future Initiatives

### Safety

In addition to workplace patrols, emergency response drills and other regular safety activities, in fiscal 2013 we began reviewing our operating procedure documents. In fiscal 2014 we will introduce case studies of past disasters. This will help improve our procedure documents relevant to the same types of operations.



Firefighting drill



Reviewing operating procedure documents

- Recycling polyethylene covers, flexible containers and wooden pallets
- Utilizing plastic pallets made using recycled plastics
- Implementing emergency drills aimed at containing the leakage of chemicals and oil



An emergency drill aimed at containing a chemical leak

One plant employee acquired an energy manager qualification in line with the Singaporean government's energy saving policies.

### Communication

We hold dinner events not only to deepen ties among the plant staff but to commend our hard-working employees.



Plant staff at the dinner event

### Environment

- Improving productivity to reduce energy and gas consumption intensity while encouraging people to turn off unnecessary lights

# Denka Advantech Pte., Ltd. Tuas South Plant



## Overview

**Operations** The Tuas South Plant initiated operations in June 2013 to manufacture TOYOKALON synthetic fiber for wigs and hairpieces. Introduced in 1952, TOYOKALON is the world's first PVC fiber produced on an industrial scale and is shipped mainly to the United States and Africa, the latter of which has a promising hairpiece market. In tandem with the Ofuna Plant, the Tuas South Plant will bolster the Group's supply structure as the second flagship TOYOKALON production site, helping accommodate burgeoning demand.

**Address** Office: 4 Shenton Way #29-02 SGX Centre 2 Singapore 068807  
 Telephone: +65-6224-1305  
 Plant: 6 Tuas South Drive, Singapore 637046  
 Telephone: +65-6412-9200

**Employees** 37 (as of March 31, 2014)

## Message from the General Manager

In June 2013, we initiated the production of fibers for hairpieces targeting the African market. During plant construction, we focused on training inexperienced local hires while fine-tuning equipment, assisted by the Ofuna Plant, our mother plant. Thanks to the success of these efforts, our operation got on track within a year or so following production kickoff. Looking ahead, we will work hand in hand with the Ofuna Plant as we aim to achieve even higher product quality and greater cost efficiency.



**Takafumi Kono**  
General Manager of Tuas South Plant

## CSR Policies

- 1 Maintain zero-accident record and step up safety activities
- 2 Promote resource recycling and energy saving to reduce environmental burdens
- 3 Reinforce production structure to enhance product quality and cost efficiency

## Fiscal 2013 Achievements and Future Initiatives

### Safety

Fortnightly safety patrols allow us to keep an eye on employees' observance of the "5S"\* and avoidance of unsafe practices while identifying potential dangers. The findings of the patrols are reported at safety meetings and appropriate countermeasures are taken. Looking ahead, we will undertake a near-accident reporting initiative while encouraging employees to attend various safety-related training sessions and acquire relevant qualifications.



Patrolling the worksite

\* "5S" refers to *Seiri* (sort), *Seiton* (set in order), *Seiso* (shine), *Seiketsu* (standardize), and *Shitsuke* (sustain).

- 2) Reduce steam consumption intensity to cut CO<sub>2</sub> emissions attributable to boiler combustion
- 3) Encourage people to turn off unnecessary lighting and air conditioners

### Communication

In addition to daily morning meetings before work begins, representatives from each section regularly gather and discuss safety and other operational issues, confirming the countermeasures being taken and debating future plans.

We exchanged emergency contact information with other companies operating in the vicinity, thereby ensuring that each is prepared to offer support at a time of emergency.

In addition, in May 2013 we hosted a dinner event to deepen ties among the plant staff. We aim to make this a regular annual celebration.



Weekly meeting



Dinner event

### Environment

We will reduce the environmental impact of our operations through the ongoing initiatives stated below.

- 1) Enhance productivity to reduce energy, gas and water consumption intensity

# Denka Advanced Materials (Suzhou) Co., Ltd.

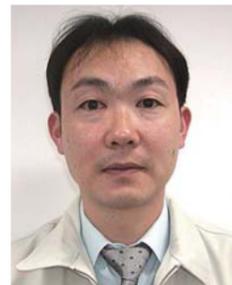


## Overview

- Operations** Established in January 2006, the company manufactures carrier tape for electronic packaging and micro-slit products while responding to domestic users' quality-related requests.
- Products** Carrier tape for electronic packaging
- Address** Unit 9B, Modern Industrial Square, No. 333 Xingpu Road, Suzhou Industrial Park, Suzhou, Jiangsu, China 215126  
Telephone: +86-512-6287-1088
- Employees** 84 (as of March 31, 2014)

## Message from the General Manager

Over the eight years since its founding, Denka Advanced Materials has steadily expanded its operations while building a solid track record. This is owing to efforts made by every employee to pursue a vision of what Denka Advanced Materials should be as a Japanese company based in China. In fiscal 2013, we launched an initiative aimed at advancing our "4S" activity and facilitating a safety-oriented corporate culture, aspiring to be a constantly-evolving company.



**Yuichi Kadoya**  
General Manager  
(as of fiscal 2013)

\* "4S" refers to *Seiri* (sort), *Seiton* (set in order), *Seiso* (shine) and *Seiketsu* (standardize).

## CSR Policies

- 1 Bolster safety initiatives to maintain our zero-accident record
- 2 Strengthen initiatives for environment conservation
- 3 Enhance training; continue to upgrade workplaces

## Fiscal 2013 Achievements and Future Initiatives

### Safety

We have pursued safety activities with the objectives of eliminating danger spots and ensuring that safety rules are strictly observed. In fiscal 2014, we will step up these activities to facilitate a safety-oriented corporate culture, with the slogan "Let's work hand in hand to create a company with a safe and clean working environment in which every employee can find their job rewarding."

### Environment

We constantly strive to improve manufacturing yields and thereby reduce waste generation. As a part of initiatives to reduce CO<sub>2</sub> emissions, we have posted signs near switches reminding people to turn off unnecessary lights in order to eliminate wasteful habits and thereby reduce energy consumption.

### Communication

To facilitate communication among employees, we hold annual company trips while holding sports festivals every year. We believe that building harmonious relationships between employees is key to creating a safety-oriented corporate culture and securing business growth. In line with this belief, we will undertake these and other activities to invigorate communication.



Employees on a company trip organized in October 2013

# Denka Chemicals Development Suzhou Co., Ltd.



## Overview

- Operations** To promptly respond to Chinese consumers' requests for analysis, performance evaluation and product improvements, Denka Chemicals Development Suzhou was established in December 2010, and kicked off operations in August 2011. Currently, the company conducts R&D pertaining to synthetic rubbers, HARDLOC and special cement additives. Since fiscal 2013, it has also been conducting research on functional food packaging sheets and TEMPLOC temporary adhesive.
- Address** Unit 1D, Modern Industrial Square, No. 333 Xingpu Road, Suzhou Industrial Park, Suzhou, Jiangsu, China 215126  
Telephone: +86-512-6280-6808
- Employees** 18 (as of March 31, 2014)

## Message from the General Manager

In 2014, Denka Chemicals Development (DCD) marked the fourth anniversary of its establishment. Having started out with the R&D of chloroprene rubber and functional adhesives, DCD has been expanding the scope of its research and today handles special cement additives, functional sheets and temporary fixing adhesives as well. With the aim of resolving every issue brought from Chinese customers, we will strive to enhance our technological capabilities and service quality to be able to promptly accommodate customer needs through the development of products optimized to the Chinese market.



**Tetsumi Ikeda**  
General Manager

## CSR Policies

- 1 Achieve zero-accident status
- 2 Promote human resource development by enriching education and training
- 3 Improve the working environment while ensuring compliance
- 4 Enhance product quality at the development stage and after-sales service

## Fiscal 2013 Achievements and Future Initiatives

### Safety

- 1) Preparing standard procedure documents and operational manuals for R&D equipment  
Preparing at least one document per month for each product group (chloroprene rubber, food packaging, HARDLOC and special cement additives) in both Chinese and Japanese
  - 2) Undertaking safety activities on a regular basis
    - Holding monthly safety meetings to review the progress of safety activities and discuss other safety issues as well as continuing to carry out safety patrols
    - Having each employee write down their tasks for the day and related safety rules in "safety log" every morning before work begins
    - Carrying out self evaluations of adherence to safety rules on a weekly basis well as peer reviews within each section
    - Translating near-accident case studies, etc., into Chinese and checking them by doing roundtable read-throughs
    - Examining accidents that have occurred at other business sites to upgrade DCD's countermeasures
- In addition to continuing with these initiatives, we will systematically incorporate suggestions by employees to achieve zero-accident status.

### Environment

We commission outside companies specialized in wastewater treatment to remove organic solvents and other hazardous effluent from our testing process. We will continue to give due consideration to environmental preservation in our operations.

### Communication

- Internal meetings
  - 1) Monthly safety meetings
  - 2) Daily morning meetings before work begins
  - 3) Monthly reviews on operational issues to report the progress of ongoing projects
- Communication activities
  - 1) Company trips
  - 2) Barbeque parties and other outdoor activities
  - 3) End-of-year parties and other dinner events



DCD employees

# DENKA Polymer Co., Ltd.



## Overview

**Operations** Established in 1966, DENKA Polymer Co., Ltd. manufactures an array of lightweight plastic food containers. Drawing on the DENKA Group's comprehensive strengths, DENKA Polymer is striving to maximize the performance of its multilayered and composite sheets while enhancing their wrapping functions, design and coloring to improve product value and open up a range of possibilities for packaging materials.

**Products** OPS products, prepared food trays, food containers, PSP food trays, SOFLIGHT products, agricultural packs and stretch films for food packaging

**Address** Head Office: 5-25, Kiba 1-chome, Koto-ku, Tokyo  
Telephone: +81-3-5632-9530  
Plants: Three in Chiba Prefecture (Sakura, Goi, Katori)

**Employees** 528 (as of March 31, 2014)

## Message from the President

Adhering to a fundamental business policy of manufacturing and marketing safe containers that people can use with confidence, we are committed to remaining a sincere company deserving people's trust and have positioned customer satisfaction as our foremost goal. Moreover, we will step up the development and supply of environment-friendly products that assist customers' environmental and energy saving initiatives. In these ways, we will redouble our efforts to become a sustainable company that deserves lasting trust.



**Tsuyoshi Sakamoto**  
President

## CSR Policies

Because DENKA Polymer handles products that people use every day, its corporate policy is focused on safety and trust. This also applies to its stance toward employees and shareholders. With this in mind, we are working to ensure legal compliance and energy saving while nurturing human resources.

## Fiscal 2013 Achievements and Future Initiatives

### Safety

We are facilitating worksite communication centered on face-to-face contacts while implementing safety patrols focused on identifying danger spots and unsafe behaviors. Findings gleaned through patrols and documented using digital cameras are reviewed at monthly Safety and Health Committee meetings. In addition, aiming to prevent the type of accidents we saw in fiscal 2013, which affected back-office workers and those from subcontractors, we will raise safety awareness while facilitating fundamental worksite improvements.



Face-to-face communications

### Environment

We have been reducing energy consumption intensity 1% or more every year, achieving the target set forth in national energy-saving legislation. While expanding the supply of weight-saving containers, we will leverage the DENKA Group's overall

development capabilities to facilitate the creation of innovative products that significantly curb environmental burdens.

### Communication

To deepen interaction with local communities, each plant is participating in initiatives hosted by the industrial complexes to which they belong. For example, they take part in cleanup activities while supplying their container products for use in local industrial festivals. Going forward, we will step up efforts aimed at facilitating communications, building robust partnerships in which we can support one another in emergencies as a community member.



Barbeque party held to welcome new recruits

# DENKA SEIKEN Co., Ltd.



## Overview

**Operations** DENKA SEIKEN Co., Ltd. supplies vaccines and diagnostic reagents to fulfill its mission of protecting people's lives and well-being. Since its founding, DENKA SEIKEN has ceaselessly striven to eliminate infectious and lifestyle-related diseases with the keyword "prevention."

**Products** Influenza vaccines, bacteriological diagnostic reagents, virological diagnostic reagents, clinical chemistry diagnostic reagents, immunological diagnostic reagents and point of care testing (POCT) products

**Address** Head Office: Nihonbashi Mitsui Tower, 1-1, Nihonbashi-Muromachi 2-chome, Chuo-ku, Tokyo  
Telephone: +81-3-6214-3231  
Plants: Niigata Plant, Kagamida Plant (Gosen, Niigata)

**Employees** 598 (as of March 31, 2014)

## Message from the President

As we manufacture vaccines and diagnostic reagents aimed at protecting people's well-being, we have positioned maintaining the stable supply of high-quality products as our utmost social mission. Going forward, we will develop and manufacture products that are needed by people around the world, thereby combating the threat of various infectious and other diseases.



**Tetsuro Maeda**  
President

## CSR Policies

As befits an enterprise inspired by the value of life, Denka Seiken's mission is to protect people's health and thus earn the trust of society. In line with this, we will proactively implement CSR activities, including health promotion and environmental load reduction initiatives as well as local contribution initiatives.

## Fiscal 2013 Achievements and Future Initiatives

### Safety

In recent years, we have experienced no major occupational accidents and facility-related incidents thanks to risk assessments and proactive initiatives undertaken by the Safety and Health Committee. As the scope of our corporate activities is growing, we will give due consideration to safety in the course of construction and expansion work.



No. 56 Building established at the Kagamida Plant

### Environment

Since our Niigata Plant is in a residential area, we recognize that minimizing the noise and exhaust gas generated by our facilities is a crucial task. We invite local residents to join us in monitoring the environment surrounding our plants and to contact us whenever they notice something unusual.

### Communication

We hold periodic exchange meetings with neighborhood associations while proactively taking part in and co-sponsoring various local sports events to foster greater understanding of our operations as a healthcare business operator.



GOSEN KOYO MARATHON co-sponsored by DENKA SEIKEN

# CRK Corporation



## Overview

**Operations** In 1963, CRK Corporation was established through joint investment by DENKA and local interests based in Takasaki City, with the aim of developing, manufacturing and marketing chloroprene rubber-based compounds and their molded products. Building on its accumulated expertise and experience, CRK has expanded its scope of operations to encompass such products as water-stop and fire-resistant materials for construction and civil engineering use. Today, CRK manufactures and sells a range of natural and synthetic rubber compounds and their processing products.

**Products** Rubber compounds, industrial rubber products, fire-resistant thermal expansion rubber products, butyl adhesive tape, hydrophilic water-stop rubber tape and earthquake manhole joints

**Address** 306, Koyagi-cho, Takasaki, Gunma Telephone: +81-27-362-7510

**Employees** 67 (as of March 31, 2014)

## Message from the President

Having celebrated the 50th anniversary of its founding in 2013, CRK Corporation is committed to fulfilling its social responsibilities by establishing a unique presence as a “good company” for both employees and external stakeholders. We will develop a favorable workplace environment while striving to fortify our roots in the community and achieve further business expansion. We will upgrade our facilities, systematically addressing safety concerns due to the aging of our production lines, in order to enhance both productivity and profitability.



**Hiromasa Minowa**  
President

## CSR Policies

We are striving to reduce waste and enhance our recycling ratio. As our production lines handle carbon black and similar products that are easily dispersed, we strive to keep facilities clean. Moreover, we maintain communication with other companies and associations in the vicinity, with due consideration given to local contributions.

## Fiscal 2013 Achievements and Future Initiatives

### Safety

Since April 2013, we have been promoting the 3-S and 3-Tei campaign\* while reviewing our risk assessment results. Despite our eight-year track record of no accidents requiring absence from work, we recognize that our safety level not yet perfect. With this in mind, every morning before work begins, we gather employees and provide them with instructions pertaining to occupational safety and health.

\* A workplace initiative focused on the 3-S, namely, *Seiri* (sort), *Seiton* (set in order) and *Seiso* (shine) and the 3-Tei, namely, *Teii* (proper position), *Teihin* (proper labeling) and *Teiryō* (proper quantity).

### Environment

We conduct regular cleanup activities within and around our premises a member of the local community. Even though the impact of our operations on the environment is already relatively low, we continuously strive to reduce waste generation and enhance recycling rate while conserving energy.



Regular cleanup and weeding activity

### Communication

In fiscal 2013 and 2014, we participated in softball games hosted by DENKA's Shibukawa Plant. While facilitating worksite communication, which we recognize is essential to safety, we address mental health issues by inviting external specialists to lecture employees.



CRK staff joined a softball game hosted by DENKA Shibukawa Plant



The 50th anniversary celebration

# Hinode Kagaku Kogyo Kaisha Ltd.



## Overview

**Operations** Founded in 1949, Hinode Kagaku Kogyo became the first in the world to develop a phosphate fertilizer, initiating the manufacture of this product in 1950 under the brand name YORIN. Since then, Hinode Kagaku has remained Japan's leading fertilizer producer and has striven to enhance quality and create new products while cultivating potential demand. In these ways, Hinode Kagaku helps to develop fertile soil, thereby contributing to greater crop yield.

**Products** YORIN and BM YORIN (fused magnesium phosphate), TORETARO (fused silicate phosphate fertilizer), mixed fertilizer and chemical fertilizer

**Address** 660, Aza Kuratani, Maizuru, Kyoto Telephone: +81-773-75-5760

**Employees** 47 (as of March 31, 2014)

## Message from the President

In 1949, Hinode Kagaku Kogyo was established as Japan's first phosphate fertilizer producer. Now popular in Japan, our phosphate fertilizer is the only product of this kind certified as conforming with national standards for fertilizers used for organic plant production, garnering a solid reputation for safety and environment-friendliness. Looking ahead, we will develop new products tailored to latest customer needs by leveraging the rich technological heritage accumulated since our founding while passing down our techniques to future generations.



**Shizuo Takagi**  
President

## CSR Policies

### Basic Policy

Contribute to society through fertilizer production while facilitating employees' self-fulfillment

### Environmental Policy

Promote environmental management activities in line with KES\* Step 2 to ensure our harmonious coexistence with the earth's environment

### Safety Policy

Every employee regularly checks his/her own and colleagues' actions at the worksite to ensure safety

### Quality Policy

Strengthen process control by employing statistical analysis methods

## Fiscal 2013 Achievements and Future Initiatives

### Safety

We are implementing risk assessment activities and incorporating employee suggestions for improvement. On-site operators engage in discussions, clarifying and prioritizing risks. The progress of risk mitigation countermeasures are reviewed at monthly meetings. In addition, to prevent low back pain, which two of our employees suffered during fiscal 2013, we distributed back support belts while revising working methods.



Safety meeting

### Environment

Based on the KES\* Step 2 environmental management system, we are working on improvements related to wastewater

and exhaust gas. Specifically, we are undertaking the trial application of effluent neutralization technology with an eye to installing a dedicated facility. Simultaneously, we are striving to minimize environmental load substances in our exhaust gas, selecting raw materials with low sulfur content.

\* Abbreviation for Kyoto Environmental Management System Standard. Formulated by an NPO based in Kyoto, KES Step 2 is designed for relatively large SMEs, and comprises management items that are virtually identical with ISO 14001.

### Communication

To facilitate communication with on-site operators, we encourage our employees to write down their concerns in a shared notebook while addressing issues they have pointed out as in need of improvement. We will further enhance worksite communication by increasing opportunities for exchange, such as recreation events aimed at nurturing a sense of unity.



Cleanup activity undertaken around the Isazugawa River

# DENKA Azumin Co., Ltd.



## Overview

**Operations** Originally, DENKA Azumin Co., Ltd. had been the Hanamaki Plant of Japan Metals & Chemicals Co., Ltd. Established in 1962, the plant initiated the production and marketing of AZUMIN in the following year. In 2003, AZUMIN operations were transferred to DENKA and the plant was reorganized into DENKA Azumin Co., Ltd., making a new start as a manufacturer of humic acid fertilizer and other related products. Remaining a pioneering company in the field of humic acid fertilizer, DENKA Azumin is striving to contribute to agricultural production.

**Products** AZUMIN (magnesium humate fertilizer)

**Address** 118, 5 Chiwari, Nimaibashi, Hanamaki, Iwate Telephone: +81-198-26-2131

**Employees** 28 (as of March 31, 2014)

## Message from the President

We have manufactured AZUMIN for a half century, helping to improve farmland soils. In doing so, we have maintained a good occupational safety track record through employee education and training centered on the handling of hazardous substances, such as nitric acid and heavy oil. We will step up these initiatives, with all employees working together.



**Mamoru Nakamura**  
President

## CSR Policies

- 1 Maintain a zero-accident record (current target: achieving 1,000 days of zero-accident operations)
- 2 Pursue environmental conservation and management activities
- 3 Build relationships of trust with local communities

## Fiscal 2013 Achievements and Future Initiatives

### Safety

- We thoroughly disseminated company policies at monthly meetings held by subcommittees in charge of risk prediction, safety patrols, energy saving and logistics operations, respectively. We also implemented countermeasures to address issues identified by each subcommittee. Thanks to these efforts, we achieved zero-accident status for 839 consecutive days as of March 31, 2014.
- We emphasize raising safety awareness among younger employees who have been recently assigned to production sections.
- We will continue to thoroughly implement safety education centered on the handling of nitric acid while carrying out drills aimed at preventing leakage accidents in collaboration with local fire department.

### Environment

- We measured air, water and noise pollution as well as vibrations emanating from our facility and reported that all were within limits set by the city legislation.
- We will continue searching for methods to reduce NOx emissions, which are inherent to our operations.

### Communication

- On July 5, 2013, we celebrated the 10th anniversary of our restart as a DENKA Group member, with all DENKA Azumin employees and representatives from subcontractors, as well as those from DENKA Head Office's Agri-Products Dept. At the event, we gave presentations on the history of improvements in production management, environmental countermeasures, manufacturing facilities and product quality. The ceremony helped cement the unified commitment of all employees to the creation of a "good company" over the next 10 years.
- To facilitate interaction with local residents, we participate in a local anti-pollution council, with employees attending its general meetings as well as exchange gatherings. Moreover, we have invited council members to join plant tours.
- As in fiscal 2012, we participated in the Hanamaki City Industrial Exhibition in fiscal 2013, aiming to facilitate understanding of AZUMIN fertilizer among people from the area.



The 10th anniversary ceremony

## Environmental Performance

### Denka Singapore Pte., Ltd. Merbau Plant

| Item  | Unit                | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|---------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | —                   | —           | —           | —           | —           | —                  |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t             | 0.3         | 0.3         | 0.3         | 0.4         | 0.4                |
| PRTR substance emissions                        | —                   | —           | —           | —           | —           | —                  |
| NOx emissions                                   | t                   | 4           | 1           | 1           | 1           | 1                  |
| SOx emissions                                   | t                   | —           | —           | —           | —           | —                  |
| Soot and dust emissions                         | t                   | —           | —           | —           | 0           | 0                  |
| Wastewater                                      | 1,000m <sup>3</sup> | 41.448      | —           | 34.023      | 44.296      | 45.000             |
| COD (BOD) discharges                            | t                   | 0.4         | 0.1         | 0.1         | 0.1         | 0.1                |
| Waste generated                                 | t                   | 126         | 151         | 254         | 254         | 245                |
| Final waste disposal                            | t                   | —           | —           | —           | —           | —                  |

### Denka Singapore Pte., Ltd. Seraya Plant

| Item  | Unit                | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|---------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | —                   | —           | —           | —           | —           | —                  |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t             | 3.1         | 2.9         | 3.4         | 3.0         | 3.4                |
| PRTR substance emissions                        | —                   | —           | —           | —           | —           | —                  |
| NOx emissions                                   | t                   | 5           | 5           | 5           | 5           | 5                  |
| SOx emissions                                   | t                   | 1           | 1           | 1           | 1           | 1                  |
| Soot and dust emissions                         | t                   | —           | —           | —           | —           | —                  |
| Wastewater                                      | 1,000m <sup>3</sup> | 64          | 58          | 98          | 98          | 100                |
| COD (BOD) discharges                            | t                   | 2           | 2           | 3           | 3           | 3                  |
| Waste generated                                 | t                   | 301         | 232         | 574         | 785         | 600                |
| Final waste disposal                            | t                   | —           | —           | —           | —           | —                  |

### Denka Advantech Pte., Ltd. Tuas Plant

| Item  | Unit                | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|---------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | —                   | —           | —           | —           | —           | —                  |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t             | 2.7         | 2.7         | 2.6         | 2.5         | 2.4                |
| PRTR substance emissions                        | —                   | —           | —           | —           | —           | —                  |
| NOx emissions                                   | t                   | 375         | 548         | 322         | 501         | 501                |
| SOx emissions                                   | t                   | 0           | 0           | 0           | 0           | 0                  |
| Soot and dust emissions                         | t                   | —           | —           | —           | —           | —                  |
| Wastewater                                      | 1,000m <sup>3</sup> | 96.450      | 105.190     | 99.050      | 96.540      | 95.580             |
| COD (BOD) discharges                            | t                   | 0           | 0           | 0           | 0           | 0                  |
| Waste generated                                 | t                   | 451         | 503         | 383         | 411         | 403                |
| Final waste disposal                            | t                   | 404         | 449         | 348         | 381         | 373                |

### Denka Advantech Pte., Ltd. Tuas South Plant

| Item  | Unit                | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|---------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | —                   | —           | —           | —           | —           | —                  |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t             | —           | —           | —           | 0.2         | 0.4                |
| PRTR substance emissions                        | —                   | —           | —           | —           | —           | —                  |
| NOx emissions                                   | t                   | —           | —           | —           | 1           | 2                  |
| SOx emissions                                   | t                   | —           | —           | —           | 0           | 0                  |
| Soot and dust emissions                         | t                   | —           | —           | —           | 0           | 0.1                |
| Wastewater                                      | 1,000m <sup>3</sup> | —           | —           | —           | 3           | 6                  |
| COD (BOD) discharges                            | t                   | —           | —           | —           | —           | —                  |
| Waste generated                                 | t                   | —           | —           | —           | 140         | 400                |
| Final waste disposal                            | t                   | —           | —           | —           | 0           | 0                  |

## Denka Advanced Materials (Suzhou) Co., Ltd.

| Item  | Unit                | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|---------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | —                   | —           | —           | —           | —           | —                  |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t             | —           | —           | —           | 0.05        | 0.05               |
| PRTR substance emissions                        | —                   | —           | —           | —           | 1           | —                  |
| NO <sub>x</sub> emissions                       | t                   | 0           | 0           | 0           | 0           | 0                  |
| SO <sub>x</sub> emissions                       | t                   | 0           | 0           | 0           | 0           | 0                  |
| Soot and dust emissions                         | t                   | —           | —           | —           | 0           | 0                  |
| Wastewater                                      | 1,000m <sup>3</sup> | 20          | 80          | 50          | 2           | 50                 |
| COD (BOD) discharges                            | t                   | 0           | 0           | 0           | 0           | 0                  |
| Waste generated                                 | t                   | 39          | 99          | 130         | 112         | 109                |
| Final waste disposal                            | t                   | 39          | 99          | 130         | 112         | 109                |

## Denka Chemicals Development Suzhou Co., Ltd.

| Item  | Unit                | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|---------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | —                   | —           | —           | —           | —           | —                  |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t             | —           | —           | —           | —           | —                  |
| PRTR substance emissions                        | —                   | —           | —           | —           | —           | —                  |
| NO <sub>x</sub> emissions                       | t                   | —           | 0           | 0           | 0           | 0                  |
| SO <sub>x</sub> emissions                       | t                   | —           | 0           | 0           | 0           | 0                  |
| Soot and dust emissions                         | t                   | —           | —           | —           | 0           | 0                  |
| Wastewater                                      | 1,000m <sup>3</sup> | —           | 0.2         | 0.3         | 0.9         | 0.1                |
| COD (BOD) discharges                            | t                   | —           | 0           | 0           | 0           | 0                  |
| Waste generated                                 | t                   | —           | 1           | 9           | 19          | 0                  |
| Final waste disposal                            | t                   | —           | 1           | 9           | 18          | 0                  |

## DENKA Polymer Co., Ltd.

| Item  | Unit                | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|---------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | —                   | —           | —           | —           | —           | —                  |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t             | 1.3         | 1.2         | 1.2         | 1.2         | 1.3                |
| PRTR substance emissions                        | t                   | 0           | 0           | 0           | 0           | 0                  |
| NO <sub>x</sub> emissions                       | t                   | 0           | 0           | 0           | 0           | 0                  |
| SO <sub>x</sub> emissions                       | t                   | 0           | 0           | 0           | 0           | 0                  |
| Soot and dust emissions                         | t                   | —           | —           | —           | 0           | 0                  |
| Wastewater                                      | 1,000m <sup>3</sup> | 0           | 0           | 0           | 0           | 0                  |
| COD (BOD) discharges                            | t                   | 0           | 0           | 0           | 0           | 0                  |
| Waste generated                                 | t                   | 169         | 112         | 103         | 113         | 110                |
| Final waste disposal                            | t                   | 1.9         | 2.1         | 0           | 0           | 0                  |

## DENKA SEIKEN Co., Ltd.

| Item  | Unit                | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|---------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | —                   | —           | —           | —           | —           | —                  |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t             | 1.5         | 1.5         | 1.5         | 1.5         | 1.5                |
| PRTR substance emissions                        | t                   | 0           | 0           | 0           | 0           | 0                  |
| NO <sub>x</sub> emissions                       | t                   | 3           | 5           | 4           | 3           | 3                  |
| SO <sub>x</sub> emissions                       | t                   | 3           | 3           | 2           | 3           | 3                  |
| Soot and dust emissions                         | t                   | —           | —           | —           | 0           | 0                  |
| Wastewater                                      | 1,000m <sup>3</sup> | 564         | 536         | 674         | 440         | 500                |
| COD (BOD) discharges                            | t                   | 0           | 0           | 0           | 0           | 0                  |
| Waste generated                                 | t                   | 351         | 386         | 337         | 275         | 275                |
| Final waste disposal                            | t                   | 55          | 48          | 41          | 42          | 42                 |

## CRK Corporation

| Item  | Unit                | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|---------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | —                   | —           | —           | —           | —           | —                  |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t             | 0.09        | 0.08        | 0.08        | 0.08        | 0.08               |
| PRTR substance emissions                        | t                   | 0.1         | 0.1         | 0.1         | 0.1         | 0.1                |
| NO <sub>x</sub> emissions                       | t                   | 0           | 0           | 0           | 0           | 0                  |
| SO <sub>x</sub> emissions                       | t                   | 0           | 0           | 0           | 0           | 0                  |
| Soot and dust emissions                         | t                   | —           | —           | —           | 0           | 0                  |
| Wastewater                                      | 1,000m <sup>3</sup> | 74          | 73          | 74          | 75          | 74                 |
| COD (BOD) discharges                            | t                   | 0           | 0           | 0           | 0           | 0                  |
| Waste generated                                 | t                   | 73          | 80          | 75          | 84          | 80                 |
| Final waste disposal                            | t                   | 24          | 27          | 34          | 37          | 35                 |

## Hinode Kagaku Kogyo Kaisha Ltd.

| Item  | Unit                | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|---------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | —                   | —           | —           | —           | —           | —                  |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t             | 1.8         | 2.2         | 2.3         | 2.4         | 2.3                |
| PRTR substance emissions                        | t                   | 2           | 3           | 3           | 5           | 5                  |
| NO <sub>x</sub> emissions                       | t                   | 95          | 220         | 177         | 190         | 185                |
| SO <sub>x</sub> emissions                       | t                   | 68          | 130         | 173         | 118         | 110                |
| Soot and dust emissions                         | t                   | —           | —           | —           | 10.3        | 10.0               |
| Wastewater                                      | 1,000m <sup>3</sup> | 1,400       | 1,390       | 1,570       | 1,880       | 1,850              |
| COD (BOD) discharges                            | t                   | 2           | 2           | 2           | 2           | 2                  |
| Waste generated                                 | t                   | —           | 83          | 103         | 244         | 100                |
| Final waste disposal                            | t                   | 49          | 41          | 38          | 184         | 35                 |

## DENKA Azumin Co., Ltd.

| Item  | Unit                | Fiscal 2010 | Fiscal 2011 | Fiscal 2012 | Fiscal 2013 | Fiscal 2014 target |
|---|---------------------|-------------|-------------|-------------|-------------|--------------------|
| Energy consumption intensity                    | —                   | —           | —           | —           | —           | —                  |
| CO <sub>2</sub> emissions (from energy sources) | 10,000t             | 0.5         | 0.6         | 0.6         | 0.5         | 0.5                |
| PRTR substance emissions                        | t                   | 0           | 0           | 0           | 0           | 0                  |
| NO <sub>x</sub> emissions                       | t                   | 32          | 35          | 27          | 29          | 29                 |
| SO <sub>x</sub> emissions                       | t                   | 1           | 2           | 1           | 2           | 2                  |
| Soot and dust emissions                         | t                   | —           | —           | —           | —           | —                  |
| Wastewater                                      | 1,000m <sup>3</sup> | 596         | 596         | 596         | 596         | 596                |
| COD (BOD) discharges                            | t                   | 2           | 4           | 2           | 4           | 4                  |
| Waste generated                                 | t                   | 43          | 24          | 37          | 78          | 32                 |
| Final waste disposal                            | t                   | 41          | 32          | 44          | 63          | 24                 |