

Denka Group

## CSR REPORT

# 2015

## Site Reports

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Possibility of Chemistry.

# 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. Having expanded into the fields of inorganic fine chemicals and pharmaceuticals in recent years, we are continuously taking on diverse challenges in the field of chemistry.

**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** 845 (as of March 31, 2015)

## Message from the General Manager

As a chemical plant, we utilize a range of resources to manufacture products that benefit society. This sometimes entails the use of hazardous substances. Accordingly, we have made the careful handling of such substances and the prevention of their release into the environment our most important mission as a chemical manufacturer and recognize it as key to continued operations.

In addition, as the payment of corporate income taxes is an essential part of our contributions to the local economy, we recognize the need to maximize profitability. At the same time, creating greater employment opportunities in the community is our key CSR theme as we have seen growing needs for employment in rural regions.

To contribute to society we therefore emphasize engaging in dialogue with in the local community while securing greater profit, thereby creating a plant deserving of society's trust.



**Toshiharu Kano**  
 Senior 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 work and find it rewarding while implementing reforms engaging all sections to progress further toward the goals of the Denka 100 initiative.

### Maintaining Workplace Safety and Health and Disaster Prevention

Focus on eliminating accidents attributable to unsafe behaviors and strengthening security capabilities in line with our belief that safety maintenance helps reinforce operational excellence.

### Promoting RC Activities

All workers will strive to reduce our environmental burden and ensure product safety while contributing to the local community as well as society as a whole.

### Reinforcing Operational Excellence by Continually Improving Product Quality Assurance

Step up upgrades of each production process to streamline operations and enhance "built-in" technologies for ensuring quality and improving energy efficiency and yield ratios.

## Fiscal 2014 Achievements and Future Initiatives

### Safety

We have implemented a variety of fire and disaster drills to secure preparedness for dealing with such emergencies as natural disasters and chemical facility-related accidents. For example, we have participated in the Himekawa Port Comprehensive Emergency Drill aimed at securing resilience against major earthquakes and have rehearsed countermeasures against terrorism with an eye to the growing threat it poses. We have also carried out a comprehensive emergency drill in tandem with the Itoigawa City Fire Department and other local fire brigades. Based on the assumption that a fire had broken out following an earthquake, this drill included practicing 38

actions, including securing communications and reporting to authorities, extinguishing the fire and rescuing the injured. In these ways, we strive to secure our emergency response capabilities.



A scene of arrest during a counter-terrorism drill



Comprehensive emergency drill

### Environment

We undertook facility improvements aimed at reducing the environmental burden, specifically, curbing dust generation at worksites where fine particles are handled and cutting noise attributable to machine operation. Furthermore, we undertook extensive landscaping of the plant premises to improve their appearance.

We also engaged in cleanup activities involving all workers. These activities included cleaning nearby parking lots as well as participating in the Himekawa River Cleaning Mission and a cleanup campaign at "Lavender Beach" on the Omi coast as part of local environmental conservation activities in collaboration with local governments.

In addition, we proactively recycle industrial waste as raw materials for cement production.



Cleanup activity along the Himekawa River



Employees who participated in a beach cleanup campaign

### Communication

To facilitate communication with local residents, the Omi Plant is proactively participating in community events while undertaking cleanup activities in areas near the plant. Among our fiscal 2014 initiatives were helping organize a local marathon race, setting up exhibition booths at a science event for local children, and taking part in the "Itoigawa Omanta Festival."



People participating in the Itoigawa Omanta Festival



Plant employees who helped organize a marathon

### Environmental Performance

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	Compared with FY1990	0.96	0.94	0.90	0.91	0.93
CO <sub>2</sub> emissions (from energy sources)	10,000t	77	83	84	85	93
PRTR substance emissions	t	17	18	14	14	11
NO <sub>x</sub> emissions	t	2,820	2,940	3,390	3,209	3,015
SO <sub>x</sub> emissions	t	94	81	61	45	55
Soot and dust emissions	t	114	86	67	65	119
Water used	1,000m <sup>3</sup>	67,200	64,000	63,000	62,925	—
COD (BOD) discharges	t	1,270	850	850	743	743
Waste generated	t	105,200	109,870	101,260	93,768	115,425
Final waste disposal	t	143	100	69	60	130

# 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. Currently, we are strengthening our operations related to fine ceramics and electronic materials in order to 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** 627 (as of March 31, 2015)

## Message from the General Manager

We believe that the Plant's most important stakeholders are those who work within its premises and, in line with this conviction, strive to maintain a vibrant workplace where no one is in danger of accident or injury. This approach helps us create an essential foundation for gaining the trust of our business partners, community residents and society as a whole. We know such trust to be crucial to our continued operations as is the well-being of the natural environment.

In 2016, we will celebrate the centennial of the Omuta Plant's founding. With an eye to securing growth over the next 100 years, we will create a plant capable of embodying Denka's corporate slogan "Possibility of Chemistry" and of succeeding amid a rapidly evolving business climate.



**Hideki Hirano**  
Executive Officer,  
General Manager of Omuta Plant

## CSR Policies

### >>> General Manager's Policies for Fiscal 2015

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

- ① Expand product lineup
- ② Minimize waste and material loss
- ③ Increase work capacity and reduce 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 Maintain constant vigilance
- ③ Managers are responsible for identifying potential dangers and implementing appropriate countermeasures
- ④ Continuously raise every plant worker's safety awareness

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

- ① Product quality reflects technical capabilities
- ② Prevent recurrence of quality-related complaints to ensure customers' trust
- ③ Improve quality assurance process; introduce automated inspection systems

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

- ① Promote R&D with an emphasis on adding value
- ② Work to satisfy 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 2014 Achievements and Future Initiatives

### Safety

To prevent accidents and disasters from occurring, we hold safety management conferences focusing on manufacturing process as well as safety meetings that involve the implementation of safety diagnoses and other production-related safety initiatives.

We also conducted fire drills in collaboration with a public fire department to ensure effective action should an accident occur. Moreover, we provided employees with driving safety programs involving simulator training and lectures by police officers.

Looking ahead, we will continue pursuing zero

accident and disaster goals, with every worker putting the utmost priority on safety and maintaining constant vigilance in the course of their duties.



Emergency drill in collaboration with the Omuta City Fire Department

Training on a driving simulator supervised by a police officer

### Environment

Since our operations involve a number of energy-intensive production processes and consume a large quantity of resources, we have proactively implemented

energy-saving and environmental load reduction activities while cutting waste emissions through such means as recycling. We will continue these activities.

### Communication

#### ① Chemistry classes for children

On a total of five occasions, we held special one-day chemistry classes aimed at providing fun learning experiences for students and their parents at local community facilities and elementary schools.

We also participated in Omuta City's Omuta Ecotown Fair, held on November 9, 2014, offering experimental science classes that opened the eyes of many attendees to the possibility of chemistry.

#### ② Participating in Omuta Daijaya Festival

On July 26, 2014, we participated in the Omuta Daijaya Festival, the most popular of the area's festivals, with approximately 100 employees joining the main attraction of the festival, the "10,000 Person Dance."

#### ③ Plant tours

We invited high school students and members of agricultural associations and other local community organizations to tour the plant, with the aim of facilitating their understanding of our business operations.

#### ④ Blood donation campaigns

We cooperated with blood donation campaigns in June and December 2014, with 266 employees donating blood (cumulative total).

#### ⑤ Volunteer cleanup activities

We implemented volunteer cleanup activities in 2014 spring and autumn in tandem with local community organizations. We also participated in a semiannual Japanese Islands Cleanup Campaign sponsored by the Omuta City.

Going forward, we will proactively contribute to local communities through similar activities and fundraising.



Omuta Daijaya Festival

Local high school students on a plant tour



Blood donation campaign

Cleanup activities with local residents

### Environmental Performance

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	Compared with FY1990	0.90	0.94	0.94	0.88	0.87
CO <sub>2</sub> emissions (from energy sources)	10,000t	11	13	12	16	16
PRTR substance emissions	t	25	7	7	8	8
NO <sub>x</sub> emissions	t	940	850	788	786	794
SO <sub>x</sub> emissions	t	1	1	1	1	1
Soot and dust emissions	t	6	3	5	6	4
Water used	1,000m <sup>3</sup>	1,390	1,220	1,190	1,205	—
COD (BOD) discharges	t	2	1	1	2	1
Waste generated	t	13,600	7,400	8,680	12,903	4,617
Final waste disposal	t	39	22	72	25	15

# Chiba Plant



## Overview

**Operations** The Chiba Plant serves 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 (BOPS), vinyl chloride tapes and housing and environmental materials.

**Products** **Elastomers & Performance Plastics:** Ultra-pure acetylene black, styrene monomer, polystyrene,\* ABS resin, transparent polymers, heat-resistant polymers, CLEAREN styrene-butadiene block copolymer, EVA emulsions and Denka ER (\*Product of affiliate TOYO STYRENE Co., Ltd.)

**Life Science & Environment Products:** Food packaging, housing and environmental 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** 471 (as of March 31, 2015)

## Message from the General Manager

In 2015, Denka marked the centennial of its founding. In this milestone year, we celebrated the 50th anniversary of the Chiba Plant's operational kickoff. I believe that all employees can be proud of our longstanding operations. At the same time, our 50th anniversary reminds us that our success is largely attributable to the support of local community and society as a whole. Accordingly, I would like to express my wholehearted gratitude to people in neighboring communities.

The Chiba Plant aims to achieve business growth over the next 50 years and to continue as a manufacturing facility that contributes to communities and holds the trust of society. To that end, all plant workers have renewed their commitment to securing safety and preserving the environment as these two factors are crucial conditions to ongoing operations. In line with the Denka Principles, we will strive to fulfill our social responsibilities through the following initiatives.

- Ensuring compliance
- Reinforcing operational excellence = nurturing human resources (passing down technologies, skills and empirical knowledge such as "know-why," nurturing employees' sense of ownership)
- Continuously upgrading our facility security, occupational safety and health, environmental and quality management systems
- Reducing environmental burdens through such means as energy and resource saving
- Contributing to local society



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

## CSR Policies

### >>> General Manager's Policies for Fiscal 2015

- Promote "Advanced CHIBA50" activities to bolster the strength of Denka's key petrochemical operations. Scrutinize every cost element while steadily promoting business structure reforms and aggressively creating new products and business. In these ways, we will reinforce our foundation for achieving growth over the next 50 years.
- Put the utmost priority on worksite safety, health, security and disaster prevention in all aspects of our business activities while creating a lively and vibrant workplace
- Develop independent-minded human resources with a proactive attitude while passing on technologies, skills and empirical knowledge to future generations and advancing these strengths even further
- Maintain superior product quality and promote active CSR initiatives aimed at securing stakeholders' trust

## Fiscal 2014 Achievements and Future Initiatives

### Safety

Each unit and department implemented safety assurance activities, with managers and section leaders spearheading the assessment of current challenges and viable countermeasures based on each entity's operating conditions and area of specialty. In October 2014, the plant held a kickoff meeting for safety assurance activities. In the presence of all plant workers, heads of each unit and department declared their commitment to preventing the occurrence of accidents or disasters while giving presentations on their own action plans.

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.



A kickoff meeting for safety assurance activities

### Environment

#### Welcoming a Government Official from the Republic of Kosovo

Ms. Luljeta Arifi, a government official from the Republic of Kosovo (formerly Yugoslavia) visited the Chiba Plant as a part of a training program to learn about environmental conservation activities undertaken by private companies.



Ms. Luljeta Arifi visiting the Chiba Plant

After a briefing on the Chiba Plant and its RC activities, she observed our VOC collection and wastewater treatment facilities.



Ms. Luljeta Arifi viewing the wastewater treatment facilities

#### Reducing PRTR and Other Environmental Load Substances

We achieved a 30% reduction in our facilities' atmospheric emissions volume of PRTR substances compared with the previous fiscal year. This was attributable to the suspension of operations at and decommissioning of some manufacturing facilities, efforts to reduce the use of environmental load substances and other ongoing initiatives aimed at curbing emissions.

To achieve goals of the Medium-Term Environmental Plan, we will promote energy saving and the effective utilization of resources while reducing the emission of waste and environmental load substances. This will also help curb global warming. Simultaneously, we will proactively work in collaboration with local residents and authorities to preserve the environment.

### Communication

As we aim to facilitate mutual understanding and nurture a sense of unity with local people, we proactively participate in the Goi Rinkai Festival, the Kazusa Ichihara Kokufu Festival and other local events and gatherings. Moreover, we host plant tours and in fiscal 2014 welcomed approximately 150 fifth-graders from Goi Elementary School and members of community



Goi Rinkai Festival



Kazusa Ichihara Kokufu Festival

associations while also accepting new interns. In such ways, we strive to help local residents understand our operations.

In fiscal 2014, in collaboration with other companies operating in the area, we held a matchmaking event introduced under the auspices of Ichihara City. The event was aimed at marriage minded singles working in the area. Looking ahead, we will strive to maintain our harmonious coexistence and relationships of trust with local communities.



Local citizens on a plant tour

### Environmental Performance

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	Compared with FY1990	0.89	0.96	0.91	<b>0.86</b>	0.88
CO <sub>2</sub> emissions (from energy sources)	10,000t	46	34	33	<b>27</b>	32
PRTR substance emissions	t	92	73	66	<b>50</b>	63
NO <sub>x</sub> emissions	t	479	260	263	<b>245</b>	216
SO <sub>x</sub> emissions	t	122	33	20	<b>16</b>	12
Soot and dust emissions	t	8	3	0.9	<b>1</b>	2
Water used	1,000m <sup>3</sup>	9,690	9,580	9,600	<b>3,457</b>	—
COD (BOD) discharges	t	22	13	10	<b>12</b>	20
Waste generated	t	18,100	14,280	12,860	<b>11,719</b>	11,763
Final waste disposal	t	23	39	52	<b>55</b>	18

# 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. In 1984, the plant started expanding 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, helping drive Denka's growth strategies as a key organic electronic materials production base.

**Products** **Electronics & Innovative Products:** HITTPLATE high thermal conductivity aluminum substrates, THERMALLY CONDUCTIVE SPACER, TFE and 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** 386 (as of March 31, 2015)

## Message from the General Manager

In 2014, the Shibukawa Plant experienced an occupational accident that resulted in a minor injury. In the same year, we also had a fire. Although the fire was quickly detected and extinguished, we would like to express our apologies for any anxiety caused among residents in neighboring communities and businesses operating there. To prevent the occurrence of similar incidents, we have renewed our commitment to putting the utmost priority on the safety of every plant worker while ensuring that vigilance is maintained in all aspects of our corporate activities.

The Shibukawa Plant aims to create a safe, lively and vibrant workplace in which every person can work with confidence. For this, we recognize that raising safety awareness across the board is essential. Accordingly, "nurturing people who can think proactively and act with a sense of ownership" is the focus of our human resource development, which we believe constitutes a foundation for all business activities.

Having celebrated 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.



**Shojiro Watanabe**  
General Manager of Shibukawa Plant,  
Assistant to CEO, Electronics &  
Innovative Products Division

## 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

## Fiscal 2014 Achievements and Future Initiatives

### Safety

Since 2013, the Shibukawa Plant has been holding training sessions on occupational safety in its Operator Discipline Training Room and Plant Maintenance Training Room. The former provides hands-on programs on "pointing and calling," an important safety practice trainees must learn. The latter involves the use of the actual machines to familiarize trainees with the dangers of misuse.

With the cooperation of Daido Steel Co., Ltd., a company based in Shibukawa City, we have also introduced periodic employee education sessions involving hands-on training that simulates accident situations.

Going forward, we will enhance the content of programs being provided, including those organized

specially for female workers, while introducing training sessions on the use of Automated External Defibrillators (AEDs).



A classroom lecture in the Operator Discipline Training Room    Practicing "pointing and calling"

### Environment

Embracing the use of clean energy, the Shibukawa Plant operates Denka Solar Power Shibukawa, a mega solar power generation facility established on the site of the former Yagihara Plant. Boasting a maximum output of 2.2MW, the facility is capable of supplying electricity equivalent to that consumed by 800 general households on an annual basis. All output is sold to Tokyo Electric Power Company.

Looking ahead, we will rally the strengths of the entire plant to continuously reduce resource and energy consumption as well as CO<sub>2</sub> emissions.



Denka Solar Power Shibukawa

### Communication

Every year, the Shibukawa Plant hosts experimental chemistry classes at local elementary schools during the summer vacation season. In 2014, we visited two schools in Shibukawa City, holding classes in which children engaged in experiments to create personalized PET bottles, slime (a viscous toy) and artificial salmon roe, with young researchers from the plant serving as lecturers. Going forward, we will enhance the content of these experiments to facilitate local children's interest in chemistry.



Experimental chemistry class

### Environmental Performance

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	Compared with FY1990	0.78	0.78	0.83	0.84	0.66
CO <sub>2</sub> emissions (from energy sources)	10,000t	1	1	0.7	0.8	0.8
PRTR substance emissions	t	4	4	3	3	5
NOx emissions	t	6	5	11	11	9
SOx emissions	t	1	1	2	3	1
Soot and dust emissions	t	0	0	0	0	0
Water used	1,000m <sup>3</sup>	2,520	2,460	2,400	2,294	2,220
COD (BOD) discharges	t	3	3	4	3	2
Waste generated	t	416	369	382	384	410
Final waste disposal	t	2	1	1	2	2

# 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-cutable 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** 187 (as of March 31, 2015)

## 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.

Focusing on safety activities, we are striving to ensure that all plant workers know how to avoid worksite dangers while encouraging them to exchange courtesies in order to cultivate a sense of mutual support. In these ways, we are creating a safe environment in which everyone can work with confidence.

To reduce our environmental burden, we are now revising our production process to save energy and reduce emissions of greenhouse gas and industrial waste. In addition, our R&D is focusing on the development of products that help preserve the global environment throughout their entire life cycles from production to disposal.



**Kazuo Takahashi**  
General Manager of Ofuna Plant

## CSR Policies

### >>> General Manager's Policies for Fiscal 2015

Our slogan is "Working together for safety based on mutual trust; Moving forward with technology backed by passion." 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 2014 Achievements and Future Initiatives

### Safety

We are striving to eliminate occupational accidents involving workers being cut by blades, one of the inherent dangers of a resin processing facilities, having established a dedicated committee to carry out on-site inspections. Applying a new perspective, these inspections have shed light on previously unrecognized risks, and countermeasures have been put in place based on the committee's recommendations.

In addition, safety training sessions that simulate dangerous situations are open to staff from other business sites. In fiscal 2014, the Chiba Plant's

maintenance engineers as well as plant maintenance managers throughout the Company participated in these sessions and toured our facility.



A dedicated committee studying the danger of being cut by blades. Safety training session.

### Environment

We have been striving to reduce energy consumption by revising and upgrading our production process. In fiscal 2014, we reduced energy consumption intensity 1% year on year, meeting our target. This was mainly attributable to the optimization of steam use and the revision of compressor capacities.

We are also aware of importance of swiftly addressing the environment-related concerns of people in neighboring communities. Accordingly, we periodically take environmental surveys in the area surrounding the plant and have developed a prompt information disclosure structure, with the plant's guard station serving as a contact point for local residents.

#### Energy Consumption Intensity and Related Indices for Fiscal 2014 (YOY comparison)

	Target	Results
Energy consumption intensity attributable to electricity	0.99	<b>0.93</b>
Steam consumption intensity	0.99	<b>0.94</b>
Energy consumption intensity	0.99	<b>0.93</b>

Target: achieving a 1% reduction

### Communication

We are proactively interacting with the local community while undertaking social contribution activities. In fiscal 2014, we made the square in front of the plant's main gate available for a summer festival held by nearby neighborhood association on July 5. We also set up food stands and an employee band performed.

In addition, we hosted plant tours for local students. During fiscal 2014, total of 117 third-graders from elementary schools (October 8 and 10), eight seventh-graders from junior high schools (November 6) and 57 third-graders from elementary schools (November 26)

were taken on plant tours. We have received thank you cards bearing comments and words of appreciation and are pleased that these events helped the students to better understand the plant. We will continue our efforts to facilitate dialogue and interaction with local community.



Local junior high school students on a plant tour

#### Environmental Performance

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	Compared with FY2002	0.75	0.77	0.78	<b>0.72</b>	0.72
CO <sub>2</sub> emissions (from energy sources)	10,000t	1	1	0.8	<b>0.8</b>	0.8
PRTR substance emissions	t	1	1	0	<b>1</b>	1
NO <sub>x</sub> emissions	t	2	2	2	<b>1</b>	2
SO <sub>x</sub> emissions	t	0	0	0	<b>0</b>	0
Soot and dust emissions	t	0	0	0	<b>0</b>	0
Water used	1,000m <sup>3</sup>	59	51	46	<b>42</b>	—
COD (BOD) discharges	t	0	0	0	<b>0</b>	0
Waste generated	t	124	110	167	<b>137</b>	80
Final waste disposal	t	30	17	16	<b>14</b>	12

# 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** 241 (as of March 31, 2015)

## Message from the General Manager

We produce plastic films and sheets employing a robust production platform consisting of the mainstay Isesaki Plant facility located near Tonegawa River, Isesaki City, and the Ota Plant facility located alongside Route No. 17 (national Jobu road) in Ota City, both in Gunma Prefecture. In line with Denka's CSR Vision, "Pursuing lasting trust as an outstanding manufacturer," we have made prioritizing safety and pursuing high-product quality a crucial mission for all plant employees. In addition, we undertake R&D aimed at creating ecological products and are stepping up our efforts to develop new offerings that benefit society as a whole.

To remain a plant deserving the trust of society, we will continue striving to fulfill our responsibilities as a corporate citizen while growing in step with surrounding communities.



**Koichi Taguchi**  
 Executive Officer  
 General Manager of Isesaki Plant

## CSR Policies

Making a step forward toward the new growth stage

### >>> Worksite Safety and Health

- 1 Every plant worker strives toward zero-accident status while promoting an organizational culture that assures safety at all operational stages, from R&D to production
- 2 Make our workplace environment more comfortable

### >>> Quality

- 1 Achieve fundamental improvements in product quality while remaining on-trend with changing customer requirements
- 2 Promote quality enhancement initiatives in which all employees participate

### >>> Environment

- 1 Develop products capable of contributing to the preservation of the global environment
- 2 Promote energy, resource and labor saving by advancing production technologies

## Fiscal 2014 Achievements and Future Initiatives

### Safety

To minimize potential worksite dangers, we have drawn up case studies of typical accidents that occur at facilities operated by Denka or others and are sharing them throughout the plant. In addition, we have conducted risk assessments and addressed issues identified through this process. To eliminate unsafe employee behavior, we strove to instill the practice of pointing and calling while having every plant worker establish and declare his/her own safety action policies. Our ongoing safety activities, which are supported by

the entire workforce, have resulted in the improvement of the plant's safety records. We will make further improvements by facilitating a safety-oriented corporate culture, regularly refreshing worker's memories of accident countermeasures.



Practicing pointing and calling

### Environment

Since 2013, we have successively expanded the Ota Plant's solar power generation facilities, which now boast an annual power generation capacity of 1,300MWh—equivalent to the annual energy consumption of approximately 400 households—to help reduce greenhouse gas emissions. (All output is sold to Tokyo Electric Power Company.)

Moreover, reflecting our constant efforts to reduce the volume of final landfill waste to zero, we succeeded in maintaining zero-emission status for the fifth consecutive

year. In these ways, we are helping develop a sustainable, recycling-oriented society. In addition to maintaining this 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 panels installed on the rooftop of a plant building

### Communication

With the aim of facilitating a sense of unity among employees, the managers and the labor union jointly hold various events. For example, each year more than half of our plant employees enter bowling tournaments. We also organize bus excursions to Tokyo Disneyland and the DENKA BIG SWAN STADIUM for employees and their families. Furthermore, we host outdoor sports events aimed at enhancing communication, such as walkathons and kickball games.

We engage in periodic cleanup activities covering nearby parks and streets, thereby helping maintain the cleanliness of adjacent communities.



Walkathon participants



Cleanup activity



Kickball game

### Environmental Performance

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	Compared with FY2005	0.99	0.95	1.02	1.00	0.93
CO <sub>2</sub> emissions (from energy sources)	10,000t	2	2	1.6	2.3	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>	422	483	427	433	433
COD (BOD) discharges	t	0	0	0	0	0
Waste generated	t	239	178	145	171	136
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 the Company relocated its Meguro Research Center from Meguro-ku, Tokyo, renaming it the Central Research Institute, 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** 166 (as of March 31, 2015)

## 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 reorganizing the Group's existing R&D sections.

In addition to focusing R&D strength Groupwide, the Center has been positioned as a hub for realizing open innovation, and thus promotes joint research projects among industries, academia and public institutions 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  
Research and Development  
Denka Innovation Center

## CSR Policies

In line with the following basic policy, we are promoting the fiscal 2015 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 2014 Achievements and Future Initiatives

### Safety

We consider safety activities to be as critical as our R&D activities. We have in place an environmental management system (EMS) that encompasses occupational safety and environmental conservation. In addition, the Center has ISO 14001 certification, which it renewed in March 2015.

Our underlying policy for fiscal 2015 safety assurance activities is "Putting the utmost priority on safety

and thereby continually improving safety record to achieve zero-accident and disaster status." Under this policy, every employee participates in such activities as mutual safety patrols with the aim of maintaining PDCA cycles to retain our zero-accident record. Looking ahead, we will facilitate robust worksite communication while promoting meticulous safety assurance activities and thereby foster a safety-oriented corporate culture.

### Environment

The renovation of the Center's main building has yielded a significant reduction in energy used for facility operation. Specifically, the installation of LED lights and infrared-absorbing double-glazed windows has considerably improved the building's energy efficiency. Also, SUQCEM, an innovative ultrahigh-strength fiber-reinforced concrete was used in the creation of shade screens at the building's entrance and windows. In line with the building design concept "creating rich greenery in the surrounding environment," we have been landscaping the center's premises while enhancing functionality. In addition, we are

stepping up R&D related to lithium secondary batteries and other new energy-related materials in addition to energy-saving construction methods for civil engineering applications.



The front entrance of the main building

### Communication

Held on August 29, 2014, our annual "Innovation FESTA" was a roaring success, with approximately 180 center employees and their families attending. To enhance communication with the local community, we also hosted facility tours for students from nearby elementary schools on a regular basis. Moreover, we participated in the Summer Holiday Chemical Experiment Show for Children sponsored by the "Dream Chemistry 21" committee on August 2 and 3, 2014.

Our main building provides a place for lively interaction between researchers from Denka and external organizations, thereby serving as a core facility for realizing open innovation. We expect that such interaction will lead to epoch-making research results for the next generation.

Looking ahead, we will strive to create an even more vibrant R&D base by holding various events.

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



Innovation FESTA



Summer Holiday Chemical Experiment Show for Children

### Environmental Performance

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	0.1	0.1	0.1	0.2	0.1
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>	8	8	8	7	7
COD (BOD) discharges	t	0	0	0	0	0
Waste generated	t	130	120	100	118	100
Final waste disposal	t	0	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 (as of March 31, 2015)  
 (Including one Japanese national and 17 from subcontractors)

## Message from the General Manager

On July 9, 2015, the Merbau Plant marked its fifth consecutive year of zero-accident operations. However, we will not be content with this accomplishment. Rather, we will strive to uphold our safety record and, to this end, step up 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 2014 Achievements and Future Initiatives

### Safety

- 1) Achieved a four consecutive year zero-accident record (as of March 31, 2015)
- 2) Carried out joint emergency drills with PCS\* (four occasions per year)
- 3) Reinforced safety and security educational programs centered on case studies (presented at monthly safety meetings)

We will continue each initiative presented above.



Joint emergency drill with PCS

\* Petrochemical Corporation of Singapore (Pte) Ltd.

### Environment

- 1) Maintained zero-environmental accident status
- 2) Stepped up environmental and hygiene education centered on case studies, providing monthly training sessions

We will promote 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 the 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** 65 (as of March 31, 2015) (Including five Japanese nationals)

## 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. Having celebrated the centennial of Denka's founding, the Seraya Plant will strive to contribute to social development over the next 100 years through its production activities, with Singaporean and Japanese staff working as one.



**Michio Kawamura**  
General Manager of Seraya Plant

## CSR Policies

As a plant engaged in business transactions that encompass regions around the world, we are structurally stepping up our CSR initiatives, adding "Satisfaction" to the conventional "5S"\* practices. Practicing the "6Ss," we will strive to ensure satisfaction of employees, customers and society as a whole.

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

## Fiscal 2014 Achievements and Future Initiatives

### Safety

Safety is given priority over all production and other business activities. As a chemical plant, we are fully aware of potential dangers at our facilities. We are therefore undertaking ongoing voluntary safety activities in addition to complying with laws and regulations, with the aim of becoming a "Good Company."



Company emergency response team (CERT) audit undertaken by Singapore Civil Defense Force

### Environment

As we use limited natural resources in production activities, we are enhancing our technologies so that our operations can harmoniously coexist with the environment. We are also stepping up collaboration with external organizations to advance our technologies. For fiscal 2015, we are focusing on optimizing utilities and promoting recycling.

### Communication

We host plant tours for representatives from trading companies that handle our products. We also give briefings on product characteristics and demonstrate product performance at the Technical Service Center, thereby enhancing our business partners' understanding of our offerings.



Representatives from NAGASE & CO., LTD. and the director of the Technical Service Center

# Denka Advantech Pte., Ltd. Tuas Plant



## Overview

**Operations** The Tuas Plant commenced operations in 1991 in Singapore to produce 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 and works 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** 59 (as of March 31, 2015) (Including two Japanese nationals)

## Message from the General Manager

In 2016, the Tuas Plant will celebrate its 25th anniversary. Serving as Denka's key fused silica filler production facility, we are striving to achieve further growth, with all employees rallying their full strength to improve production processes and technologies. On the other hand, we recognize that ensuring occupational safety and facility security as a basic condition for stable production. Accordingly, we are promoting safety activities to create a worksite environment in which people can engage in their duties 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 demand and technological trends
- 5 Reduce costs by improving production processes and technologies

## Fiscal 2014 Achievements and Future Initiatives

### Safety

In addition to workplace patrols, emergency response drills and other regular safety activities, we reviewed our operating procedure documents to identify and address risk factors while holding study sessions on disaster case studies to prevent the occurrence of similar incidents. For fiscal 2015, we are periodically providing mandatory safety training to raise employee awareness even further, with safety specialists serving as lecturers.



Fire drill



Safety lecture

- Recycling polyethylene covers, flexible containers and wooden pallets
- Utilizing plastic pallets made using recycled plastics
- Reducing water consumption through the introduction of a tap water management system

### Communication

We hold monthly safety discussion meetings to consider various issues while hosting annual dinner events that not only to deepen ties among the plant staff but provide the opportunity to commend our hard-working employees.



Tuas Plant staff

### Environment

- Improving productivity to reduce energy and gas consumption intensity while promoting a switchover to energy-saving lighting

# 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 U.S. and African hairpiece fiber markets, the latter of which is expected to grow considerably. 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** 35 (as of March 31, 2015) (Including one Japanese national)

## Message from the General Manager

Two years have passed after we initiated operations in June 2013 to deliver fibers for hairpieces to the African market. During fiscal 2014, we maintained the zero-accident and disaster status we have maintained since production kickoff. As for product quality, we have acquired the ISO 9001 certification. Moreover, we have worked to reduce costs by improving production efficiency. For fiscal 2015, we are striving to secure a more robust safety assurance structure while pursuing 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 2014 Achievements and Future Initiatives

### Safety

Monthly safety patrols allow us to keep an eye on employees' observance of the "5Ss" 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 reconfirm and review our emergency response procedures while encouraging employees to attend various safety-related training sessions and acquire relevant qualifications. In these ways, we will reinforce our safety assurance structure.



Patrolling the worksite

- 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 hold weekly meetings to 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, we host annual dinner events to deepen ties among the plant staff.



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 as the Group's first production and sales subsidiary in China, the company engages in the manufacture of whole sheet used to produce carrier tapes and other electronic packaging materials in addition to the slitting of these materials and the supply of food packaging sheets.

**Products** Carrier tape for electronic packaging and food packaging sheets

**Address** Unit 9B, Modern Industrial Square, No. 333 Xingpu Road, Suzhou Industrial Park, Suzhou, Jiangsu, China 215126  
Telephone: +86-512-6287-1088

**Employees** 93 (as of March 31, 2015) (Including four Japanese nationals)

## Message from the General Manager

We are approaching to the tenth anniversary of the company's inauguration. Along with constant growth in our customer base and business performance since operational kickoff, we have been steadily raising our awareness of environmental load reduction and employee safety. As the Group's first subsidiary in China, we will assiduously promote environmental conservation and safety assurance, thereby becoming a company deserving the trust of all stakeholders over the next 10 years.



Tatsuya Koyama  
General Manager

## CSR Policies

- 1 Achieve zero-accident and disaster status through ongoing safety activities
- 2 Ensure legal compliance while promoting environmental conservation initiatives
- 3 Enhance training; continue to upgrade workplaces

## Fiscal 2014 Achievements and Future Initiatives

### Safety

To foster a safety-oriented corporate culture, we are upgrading the former "4S" to "5S" activities and stepping up risk assessment initiatives in addition to maintaining our "Class-III Business Operator" certification under China's Production Safety Standards, with all employees endeavoring to create a safe and rewarding workplace.



Fire drill

### Environment

We are continuously working to improve the yield ratio and thus reduce industrial waste. Moreover, having set annual reduction targets for water and electricity

consumption and the emission of hazardous waste, we monitor progress on a monthly basis, tracking effectiveness using visual markers.

### Communication

We believe that harmonious relationships among employees are key to creating a safety-oriented corporate culture and securing business growth. In line with this belief, we organize periodic company trips. We also began providing new recruits with briefings on the parent company. In these ways, we are nurturing a strong sense of loyalty among employees, thereby facilitating robust worksite communication.



Good Company Program initiative

# 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** 21 (as of March 31, 2015) (Including six Japanese nationals)

## Message from the General Manager

Denka Chemicals Development (DCD) was established as the Group's first overseas R&D base. Marking the fifth anniversary of its founding in 2015, DCD is engaged in the research and development of chloroprene rubber, functional adhesives, temporary fixing adhesives, special cement additives and functional sheets for food packaging applications.

With the aim of resolving every issue our Chinese customers bring to us, we will strive to enhance our technical service quality, shorten response time, and develop products optimized to the local 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 aftersales service

## Fiscal 2014 Achievements and Future Initiatives

### Safety

- 1) Practicing the "5Ss" while instilling safety awareness (ensuring compliance with rules, carrying out self evaluations of keeping plant tidy and ordered, maintaining "safety logs" and utilizing the employee proposal scheme)
- 2) Providing safety education (practical training on dealing with simulated dangers, discussions of accident case studies from other business sites, and roundtable read-throughs of safety-related materials)



Practical training on how to act if caught by rolling machinery

- 3) Preparing standard procedure documents and operational manuals for R&D equipment (with diagrams and photos)
- 4) Improvements through the following upgrades:  
Chloroprene rubber: protective gear  
Functional adhesives: draft chambers  
Special cement additives: wastewater treatment  
Functional sheets: material storage facilities and safety labeling for equipment

### Environment

- We commission the disposal of organic solvents and the treatment of other hazardous effluent from our activities to outside wastewater treatment specialists.
- In January 2015, China enforced its revised environmental protection law, requiring businesses to strengthen the management of hazardous substances and waste. In response, we established a new storage space for hazardous substances and waste where safety countermeasures are in place and caution is displayed. We will continue to give due consideration to the environment, strictly preventing the emission of hazardous substances.

### Communication

#### Internal activities

- 1 Monthly safety meetings
- 2 Daily morning meetings
- 3 Semiannual interview of every employee

#### Recreation activities

- 1 Company trips
- 2 Barbeque parties and other outdoor activities
- 3 End-of-year and other parties

we will continue with our efforts to create a more vibrant workplace environment.



Spring hiking event (Lingyanshan Mountain, Suzhou)

# Denka Inorganic Materials Tianjin Co., Ltd.



## Overview

**Operations** In September 2013, Denka Inorganic Materials Tianjin was established as the Group's first special cement additive production base in China in light of growing demand for infrastructure development and repair in the Chinese market. In collaboration with Denka Infrastructure Technologies Shanghai Co., Ltd., the regional headquarters for our special cement additive business in China, and the R&D base Denka Chemicals Development Suzhou, we are striving to create a production structure capable of swiftly and accurately meeting market needs with solutions based on locally available materials and construction methods.

**Address** No. 3 Saida Mechanical Park, Xiqing Economic Development Area, Tianjin, China 300385  
Telephone: +86-22-8792-0488

**Employees** 9 (as of March 31, 2015) (Including two Japanese nationals)

## Message from the General Manager

In line with the Denka Group Guidelines, we will strive to embody Denka's CSR Vision "Pursuing lasting trust as an outstanding manufacturer." Specifically, we will become a workforce well versed in local conditions and cultures while maintaining a sincere business approach with unyielding diligence.



**Yoshinori Nakagawa**  
General Manager

## CSR Policies

- 1 Safety**  
Giving due consideration to safety is a fundamental condition for securing continued operations. We will therefore strive to create our own unique safety-oriented corporate culture.
- 2 Environment**  
Given the growing call for reducing environmental burdens attributable to cement production, a key operation of Denka Inorganic Materials Tianjin, we will implement ongoing and forward-looking initiatives to contribute to environmental preservation.

## Fiscal 2014 Achievements and Future Initiatives

### Safety

We hold safety meetings, recite a safety slogan and ensure that workers wear safety gear properly with the goal of ingraining these behaviors. Going forward, we will strive to foster a safety-oriented corporate culture while maintaining our zero-accident record, with managers taking leadership in the pursuit of quiet and steady day-to-day effort.



Safety meeting



Reciting a safety slogan

### Environment

In accordance with relevant regulations, we are properly treating effluents and disposing of industrial waste using established treatment methods by type of facility. Going forward, we will strive to ensure strict compliance with laws and regulations. In addition, we will introduce additional facilities to counter dust generation at worksites, thereby improving working environments.

### Communication

We are facilitating worksite communication through safety meetings and other safety activities. Outside the company, we are proactively participating in information exchange gatherings hosted by a local association of Japanese companies and seminars sponsored by the Xiqing Economic-Technological Development Area. Although we are a young company, we will steadily increase contacts with local communities.

# 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** 505 (as of March 31, 2015)

## Message from the President

Delivering safe products that people can use with confidence has long been our motto as a producer and seller of plastic containers for foodstuffs.

Adhering to this motto, we will maintain a sincere business approach to ensure customers' trust. We will also step up environmental conservation and energy saving initiatives while pursuing the development of innovative products as we aim to support a safe and abundant dietary life.



**Tsuyoshi Sakamoto**  
President

## CSR Policies

Because Denka Polymer makes products that people use every day, its corporate policy is focused on safety and trust. In addition to consumers, this 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 2014 Achievements and Future Initiatives

### Safety

Previously, we introduced regular safety patrols augmented by digital cameras. In fiscal 2014, we strove to raise employees' sensitivity to potential danger through the use of training equipment that simulates hazardous situations based on analyses of typical accidents, such as those attributable to a lack of proficiency, slip and falls and being caught or pinned down by machinery. Going forward, we will steadily implement safety assurance activities to achieve zero-accident status.



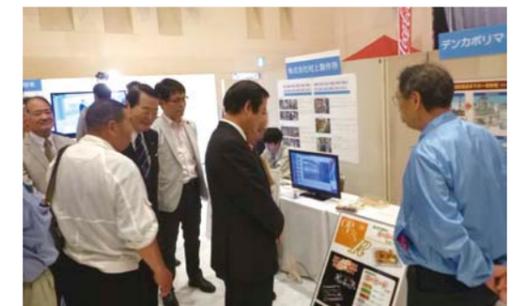
Undergoing a danger simulation

### Environment

Our energy-saving initiatives have reduced energy consumption intensity at least 1% a year. In addition, our waste disposal contractors issue manifests to ensure that the majority of industrial waste emitted from our facilities is recycled. We will continue to promote lightweight containers that help reduce environmental burdens while pursuing environment-friendly production activities.

### Communication

To deepen interaction with local communities, each plant participates in initiatives hosted by their local industrial organizations. For example, they take part in cleanup activities while supplying container products for use in local industrial festivals. We also began holding job level-based training sessions involving staff from all three plants with the aim of raising their awareness of social contribution.



Participating in a local industrial festival

# 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** 628 (as of March 31, 2015)

## 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 2014 Achievements and Future Initiatives

### Safety

We are facilitating worksite communication while improving our risk assessment methods, with all employees working together to reduce worksite hazards. We are also implementing disaster drills to secure our preparedness to emergencies. We will continue with across-the-board efforts aimed at ensuring a safe environment in which employees can work with confidence.



Disaster drill at the Niigata Plant

### Communication

We proactively support local sports events, for example, serving as a "one-day sponsor" for the NIIGATA Albirex BB Rabbits when they participate in annual tournaments held in Gosen City. This professional female basketball team wears uniforms provided by Denka Co., Ltd. In this and similar ways, we are working to interact with people in communities.



The Albirex BB Rabbits (in orange) on the court in Gosen City

### Environment

Since our Niigata Plant is in a residential area, we carefully monitor the impact of our facilities on the environment, including noise and odor. Accordingly, we invite local residents to join us in monitoring the environment surrounding our plants. We will strive to remain a plant deserving the trust of our neighbours through ongoing environmental conservation efforts based on close partnerships with the local community.

# CRK Corporation



## Overview

**Operations** In 1963, CRK Corporation was established through a 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 quakeproof manhole joints

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

**Employees** 67 (as of March 31, 2015)

## Message from the President

Rubber plays an essential role in our daily lives. CRK is thus confident that its operations, including the kneading and processing of rubber, will remain indispensable. In line with this belief, we will create a company in which every employee takes pride in contributing to society through the provision of reliable products, in addition to developing an even safer working environment.



Hiromasa Minowa  
President

## CSR Policies

We will strive to make improvements in every aspect of operations, including quality assurance, environmental protection and stable output, while securing occupational safety by practicing the "5Ss." In these ways, we will realize mutual prosperity with customers and local communities.

## Fiscal 2014 Achievements and Future Initiatives

### Safety

Through monthly lectures and daily morning meetings we ensure that every employee is up to date on the latest safety topics. Also, we measured light levels throughout the plant and optimized lighting based on worksite type. Going forward, we will improve facilities, for example, upgrading aging rolling equipment.

### Environment

We are striving to achieve a better waste recycling ratio. In addition, we changed over to LED lighting while applying heat-insulating coatings to building exteriors, thereby achieving a significant improvement in energy efficiency. We are also engaging in periodic cleanup and weeding activities both within the plant premises and in public areas around our facilities.



Cleaning plant premises

### Communication

We actively participate in events hosted by the local industrial association and others. Also, we send out questionnaires to key customers on a yearly basis, with the aim of improving quality based on the analysis of the results. In addition, we regularly hold in-house social events, including barbeques and golf competitions.



Barbeque

# 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** 45 (as of March 31, 2015)

## 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 the 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 thinks and takes action to secure their own and colleagues' safety

### Quality Policy

Strengthen process control while pursuing higher one-pass yields

## Fiscal 2014 Achievements and Future Initiatives

### Safety

Focusing on risk assessment activities, we are striving to improve production processes and mitigate worksite danger, with a special project team appointed to address issues based on discussions with operators on-site. During fiscal 2014, this initiative garnered 171 suggestions for improvement from employees, an 80% rise year on year.



Safety meeting

eye to installing a dedicated facility. Simultaneously, we are promoting a switchover to alternative raw materials with lower environmental load substance content.

In addition, we are periodically implementing clean-up activities in areas around the plant.



Cleanup activity undertaken around the Isazugawa River

\* 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

Focusing on facilitating dialogue with on-site operators, we hold hazard prediction meetings while implementing countermeasures against potential dangers that they have pointed out. To further enhance worksite communication, we will provide employees with greater opportunities to build a sense of unity, for example, by organizing company trips.

### Environment

We are currently making improvements related to wastewater and exhaust gas based on the KES\* Step 2 environmental management system. Specifically, we are implementing trials of effluent neutralization technology with an

# Denka Azumin Co., Ltd.



## Overview

**Operations** Originally, Denka Azumin Co., Ltd. was 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, 2015)

## Message from the President

We have manufactured AZUMIN for a half century, helping to improve farmland soils. Since we often handle hazardous substances, such as nitric acid and heavy oil, we provide regular employee education and training centered on the proper management of such substances, thus maintaining our good occupational safety track record. Looking ahead, we will step up these initiatives to keep our zero-accident status.



Mamoru Nakamura  
President

## CSR Policies

- 1 Maintain a zero-accident record (current target: achieving 1,500 days of zero-accident operations)
- 2 Pursue environmental conservation and management activities
- 3 Build relationships of trust with local communities

## Fiscal 2014 Achievements and Future Initiatives

### Safety

- We thoroughly disseminated company policies at monthly meetings attended by subcommittees in charge of risk prediction, safety patrols, energy saving and logistics operations. We also implemented countermeasures based on reports from each subcommittee. Thanks to these efforts, we achieved zero-accident status for 1,000 consecutive days on September 8, 2014, and the figure stood at 1,204 consecutive days as of March 31, 2015. We will strive to prolong this record.
- We emphasize raising safety awareness among younger employees who have been recently assigned to production sections.
- We are stepping up employee training on the proper handling of nitric acid, which is a risk factor inherent to the operation of the company. In addition to implementing countermeasures to prevent leakage, we are undertaking emergency response drills envisaging an accidental leak in collaboration with local fire departments. By doing so, we are securing our disaster preparedness, including the ability to ensure human safety and minimize the impact of such disasters on the local environment. We will continue this initiative going forward.



Joint emergency response drill with the Hanamaki City Fire Department assuming a nitric acid leak (October 31, 2014)

### 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 legislature.
- We will continue searching for methods to reduce NOx emissions, which are inherent to our operations.

### Communication

- To facilitate communication with local residents, twice a year we host plant tours to which we invite local anti-pollution council members. We also participate in general meetings and gatherings hosted by that council. We continually strive to maintain favorable relationships with people from neighboring communities.
- We participated in the Hanamaki City Industrial Exhibition in fiscal 2014, aiming to enhance recognition of AZUMIN fertilizer among people from the area.



A booth set up by Denka Azumin at the Hanamaki City Industrial Exhibition 2014 (November 30, 2014)

# Environmental Performance

## Denka Singapore Pte., Ltd. Merbau Plant

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	0.3	0.3	0.4	<b>0.4</b>	0.4
PRTR substance emissions	—	—	—	—	—	—
NO <sub>x</sub> emissions	t	1.2	0.5	0.5	<b>0.5</b>	0.5
SO <sub>x</sub> emissions	t	—	—	0	<b>0</b>	0
Soot and dust emissions	t	—	—	0	<b>0</b>	0
Water used	1,000m <sup>3</sup>	—	34	44	<b>51</b>	50
COD (BOD) discharges	t	0.1	0.1	0.1	<b>0.1</b>	0.1
Waste generated	t	151	332	336	<b>315</b>	317
Final waste disposal	t	—	—	—	—	—

## Denka Singapore Pte., Ltd. Seraya Plant

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	2.9	3.4	3.0	<b>3.3</b>	3.4
PRTR substance emissions	—	—	—	—	—	—
NO <sub>x</sub> emissions	t	4.6	4.6	4.6	<b>4.6</b>	5
SO <sub>x</sub> emissions	t	0.9	0.9	0.9	<b>0.9</b>	0.9
Soot and dust emissions	t	—	—	0	<b>0</b>	0
Water used	1,000m <sup>3</sup>	58	98	98	<b>105</b>	105
COD (BOD) discharges	t	1.9	3.2	3.2	<b>3.5</b>	3.5
Waste generated	t	232	1,948	1,713	<b>2,065</b>	2,250
Final waste disposal	t	—	—	—	—	—

## Denka Advantech Pte., Ltd. Tuas Plant

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	2.7	2.6	2.5	<b>2.0</b>	2.3
PRTR substance emissions	—	—	—	—	—	—
NO <sub>x</sub> emissions	t	548	322	501	<b>590</b>	650
SO <sub>x</sub> emissions	t	0	0	0	<b>0</b>	0
Soot and dust emissions	t	—	—	0	<b>0</b>	0
Water used	1,000m <sup>3</sup>	105	99	97	<b>84</b>	91
COD (BOD) discharges	t	0	0	0	<b>0</b>	0
Waste generated	t	503	383	411	<b>331</b>	365
Final waste disposal	t	449	348	381	<b>306</b>	340

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

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	—	—	0.2	<b>0.4</b>	0.4
PRTR substance emissions	—	—	—	—	—	—
NO <sub>x</sub> emissions	t	—	—	0.6	<b>1.4</b>	1.4
SO <sub>x</sub> emissions	t	—	—	0	<b>0</b>	0
Soot and dust emissions	t	—	—	0	<b>0.1</b>	0.1
Water used	1,000m <sup>3</sup>	—	—	3	<b>10</b>	10
COD (BOD) discharges	t	—	—	0	<b>0</b>	0
Waste generated	t	—	—	140	<b>404</b>	311
Final waste disposal	t	—	—	0	<b>0</b>	0

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

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	—	—	0.1	<b>0.1</b>	0.1
PRTR substance emissions	—	—	—	—	<b>1.4</b>	1.4
NO <sub>x</sub> emissions	t	0	0	0	<b>0</b>	0
SO <sub>x</sub> emissions	t	0	0	0	<b>0</b>	0
Soot and dust emissions	t	—	—	0	<b>0</b>	0
Water used	1,000m <sup>3</sup>	1.8	1.8	1.8	<b>1.8</b>	1.8
COD (BOD) discharges	t	0	0	0	<b>0</b>	0
Waste generated	t	99	130	112	<b>109</b>	108
Final waste disposal	t	99	130	112	<b>109</b>	108

## Denka Chemicals Development Suzhou Co., Ltd.

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	—	0	0	<b>0</b>	0
PRTR substance emissions	—	—	—	—	—	—
NO <sub>x</sub> emissions	t	0	0	0	<b>0</b>	0
SO <sub>x</sub> emissions	t	0	0	0	<b>0</b>	0
Soot and dust emissions	t	—	—	0	<b>0</b>	0
Water used	1,000m <sup>3</sup>	0.2	0.3	0.9	<b>0.4</b>	0.5
COD (BOD) discharges	t	0	0	0	<b>0</b>	0
Waste generated	t	1	9	19	<b>23</b>	41
Final waste disposal	t	1	9	18	<b>7</b>	16

## Denka Inorganic Materials Tianjin Co., Ltd.

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	—	—	—	<b>0</b>	0
PRTR substance emissions	—	—	—	—	—	—
NO <sub>x</sub> emissions	t	—	—	—	<b>0.1</b>	0.1
SO <sub>x</sub> emissions	t	—	—	—	<b>0</b>	0
Soot and dust emissions	t	—	—	—	<b>0</b>	0
Water used	1,000m <sup>3</sup>	—	—	—	<b>0.4</b>	0.5
COD (BOD) discharges	t	—	—	—	<b>0</b>	0
Waste generated	t	—	—	—	<b>8</b>	11
Final waste disposal	t	—	—	—	<b>8</b>	11

## Denka Polymer Co., Ltd.

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	1.2	1.2	1.2	<b>1.3</b>	1.3
PRTR substance emissions	t	0	0	0	<b>0</b>	0
NO <sub>x</sub> emissions	t	0	0	0	<b>0</b>	0
SO <sub>x</sub> emissions	t	0	0	0	<b>0</b>	0
Soot and dust emissions	t	—	—	0	<b>0</b>	0
Water used	1,000m <sup>3</sup>	0	0	0	<b>30</b>	34
COD (BOD) discharges	t	0	0	0	<b>0</b>	0
Waste generated	t	112	103	113	<b>146</b>	140
Final waste disposal	t	2.1	0	0	<b>0</b>	0

## Environmental Performance

### Denka Seiken Co., Ltd.

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	1.5	1.5	1.5	<b>1.6</b>	1.7
PRTR substance emissions	t	0	0	0	<b>0</b>	0
NOx emissions	t	5	4	3	<b>4</b>	4
SOx emissions	t	3	2	3	<b>1.5</b>	1.5
Soot and dust emissions	t	—	—	0	<b>0</b>	0
Water used	1,000m <sup>3</sup>	536	674	440	<b>702</b>	720
COD (BOD) discharges	t	0	0	0	<b>0</b>	0
Waste generated	t	386	337	275	<b>935</b>	970
Final waste disposal	t	48	41	42	<b>48</b>	50

### CRK Corporation

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	0.1	0.1	0.1	<b>0.1</b>	0.1
PRTR substance emissions	t	0.1	0.1	0.1	<b>0</b>	0
NOx emissions	t	0	0	0	<b>0</b>	0
SOx emissions	t	0	0	0	<b>0</b>	0
Soot and dust emissions	t	—	—	0	<b>0</b>	0
Water used	1,000m <sup>3</sup>	73	74	75	<b>74</b>	74
COD (BOD) discharges	t	0	0	0	<b>0</b>	0
Waste generated	t	80	75	84	<b>80</b>	80
Final waste disposal	t	27	34	37	<b>30</b>	30

### Hinode Kagaku Kogyo Kaisha Ltd.

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	2.2	2.3	2.4	<b>2.2</b>	2.2
PRTR substance emissions	t	3	3	5	<b>4</b>	4
NOx emissions	t	220	177	190	<b>208</b>	190
SOx emissions	t	130	173	118	<b>101</b>	100
Soot and dust emissions	t	—	—	10.3	<b>6.6</b>	6
Water used	1,000m <sup>3</sup>	1,390	1,570	1,880	<b>1,333</b>	1,333
COD (BOD) discharges	t	2.1	2.3	2.2	<b>2.1</b>	2
Waste generated	t	83	103	244	<b>54</b>	54
Final waste disposal	t	41	38	184	<b>4</b>	4

### Denka Azumin Co., Ltd.

Item	Unit	Fiscal 2011	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015 target
Energy consumption intensity	—	—	—	—	—	—
CO <sub>2</sub> emissions (from energy sources)	10,000t	0.6	0.6	0.5	<b>0.6</b>	0.6
PRTR substance emissions	t	0	0	0	<b>0</b>	0
NOx emissions	t	35	27	29	<b>26</b>	27
SOx emissions	t	2	1	2	<b>1</b>	1
Soot and dust emissions	t	—	—	122	<b>123</b>	123
Water used	1,000m <sup>3</sup>	596	596	596	<b>603</b>	604
COD (BOD) discharges	t	4	2	4	<b>2.4</b>	3
Waste generated	t	24	37	78	<b>43</b>	45
Final waste disposal	t	32	44	63	<b>37</b>	38