

http://www.denka.co.jp





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Published in October 2011 by Denki Kagaku Kogyo Kabushiki Kaisha

# CSR REPORT 2011





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\* Responsible Care as it pertains to the chemical industry is defined as an approach to business activities in which manufacturers and handlers of chemical substances, in line with the principles of self-determination and individual responsibility, conduct the self-management of environmental and safety issues surrounding aspects of chemical substances, from development through to disposal.

### **Editorial Policy**

DENKA set up its CSR Promoting Department in April 2007 as part of DENKA100, a Companywide initiative to meet new challenges while heading toward its centennial in 2015, and has reported all of its CSR activities since October 2007. The *CSR Report 2011* mainly introduces activities conducted during the period under review, and others encompassing minor changes to in-house systems and activities conducted in a limited scope of operations are introduced on the corporate website only. Previously, DENKA had undergone third-party audits solely for the purpose of gaining reliable assessments of its CSR report. In fiscal 2011, however, we solicited third-party opinions from experts in order to gain much more detailed evaluations of our CSR activities.

In preparing this publication, we referred to the *Environmental Reporting Guidelines 2007* by Japan's Ministry of the Environment and Version 3 of the *Sustainability Reporting Guidelines* of the Global Reporting Initiative.

Furthermore, in order to facilitate investors and shareholders' understanding of DENKA, we included such information as consolidated financial highlights, consolidated net sales ratio and topics by major segment in this report.

### Coverage

This report generally covers fiscal 2010—April 1, 2010, through March 31, 2011—however, it also includes numerical targets and performance statistics from dates preceding that period as well as information on subsequent events.

### Scope

Unless stated otherwise, the data in this report is based on information on the business sites of DENKA and key affiliates.

These sites are the Omi, Omuta, Chiba, Shibukawa, Ofuna and Isesaki plants and the Central Research Institute. The key affiliates are Denal Silane Co., Ltd., Denak Co., Ltd., JUZEN Chemical Corporation at the Omi Plant, and Chiba Styrene Monomer Limited Company, TOYO STYRENE Co., Ltd., and Taiyo Vinyl Corporation at the Chiba Plant.

The financial sections on pages 33-35 of this report present consolidated data.

### Website-Only Content

The following are presented on our website (URL: http://www.denka.co.jp/responsible/index.htm) and serve as references for the *CSR Report 2011*.

- Corporate Governance/Compliance
- The DENKA Group Guidelines
- Initiatives in Human Affairs and Labor Management
- Environment-Friendly Product Development
- Management System
- Environmental Accounting
- Output
- Product Safety Control and Management System
- Financial Statements
- Site Reports

### To All of Our Stakeholders

### Aiming Simultaneously for Improved Performance and the Fulfillment of Social Responsibility

First of all, we would like to express our heartfelt sympathy and deepest condolences to those who suffered from the Great East Japan Earthquake. We wish for the earliest possible recovery to peaceful everyday life. This disaster occurred amid a deteriorating economic environment that encompassed crude oil price hikes due to growing tension in North Africa and the Middle East as well as the abrupt appreciation of the yen. The earthquake brought an unprecedented level of damage to our country that even included accidents at a nuclear power facility, and the negative impact on the economic and social infrastructure will be tremendous. Despite the steady progress toward restoration, we are now confronting an ongoing severe business environment with instability in the areas of raw material procurement and power supply.

Despite such circumstances, DENKI KAGAKU KOGYO KABUSHIKI KAISHA (DENKA) continued to pursue DENKA100 activities. These activities were initiated in 2007 and are being promoted in the lead-up to our centennial in 2015 with the aim of consolidating our business foundation for the next 100 years. Our CSR activities are part of this campaign, and are based on our faith that "the DENKA Group deserves to remain in business only if it is recognized by society." Quality, safety, the environment and employee happiness may not be directly connected to Group performance, but we believe that fulfilling our responsibilities in these areas is essential. We acknowledge that improving business performance and fulfilling our responsibilities as a member of society must be realized in tandem. They are like the wheels of a bicycle; if one is missing, there can be no forward progress.

With the aim of achieving the DENKA100 numerical target of ¥60 billion in consolidated operating profit, we commenced Challenging Spirit 2013 (CS13), a more specific action plan for 2011. Under CS13, we will first reinforce the earnings foundations of materials divisions, such as lime, calcium carbide and styrene-based product operations, and then expand product lineups in such growth fields as electronic materials, functional materials and plastics. At the same time, we will emphasize aggressive business development overseas, including in the burgeoning markets of China and other Asian countries.

However, our ultimate goal is not the mere pursuit of better figures or results. DENKA's business operations are underpinned by an "earnest attitude and sincere dealings," and we will never forget the longstanding trust we have gained from customers over out nearly 100 years of business. Over the next 100 years, we will continue to address various issues, including the environment, safety, employment, compliance and social contribution, while aiming to become a company that creates new value from resources by fully employing our technological capabilities.

In this report we would like to introduce the basic policies and results of our CSR activities. We would be delighted to hear your frank opinions with regard to our efforts. Based on your continued support, we will further promote our CSR activities.



5. Yoshitat

Shinsuke Yoshitaka President

3

### About DENKA

**DENKA100** Initiatives

# **DENKA100—Taking on New Challenges** as We Near Our Centennial

### Toward Our 100th Anniversary (2015)



DENKA was established in 1915. Looking back, it was a time of great change and hardship for Japan. The era saw the Russo-Japanese War in 1904, the First World War in 1914 and the Great Kanto Earthquake in 1923, which occurred shortly after DENKA's founding.

Launched in April 2007, DENKA100 was conceived of as a management plan setting out Companywide activities to be undertaken in preparation for the Company's 100th anniversary in 2015.

The Mitsui No. 2 Building, our headquarters at the time of founding (around 1915)

Under this management plan, DENKA pursued the DS09 action plan, which was intended to run from fiscal

2007 to fiscal 2010 as the first step toward this goal. In the second half of 2008, however, we needed to regain profitability lost in the aftermath of the global phenomenon of the Lehman Brothers' bankruptcy and so launched the KIT09 action plan. We have defined the remaining five years from fiscal 2011 to 2015 as time for taking the second step and, based on a review of the DENKA100 management plan's action guidelines, conceived of the CS13 action plan to cover the next five years. CS13 lays out specific action plans by business division and promotes Groupwide efforts to achieve the goals set while remaining true to the basic policy of DENKA100.

As a company soon to celebrate its 100th anniversary, DENKA will promote the consolidation of its business foundations so that it can secure sustainable business activities for the next 100 years. Understanding that the current period is a time of change in markets and technologies, we will supply products in growth fields in a timely and appropriate manner to ensure future growth.

### Response to the Great East Japan Earthquake

The Great East Japan Earthquake struck on Friday, March 11, 2011, and along with the subsequent tsunamis wrought massive damage to a wide area as well as various industries. In response, the DENKA Group set up support systems to provide long-term assistance in disaster areas. We are participating in restoration activities through our business operations through, for example, the provision of materials to repair infrastructure, while making efficient use of in-house power generation facilities.

### Support for People in Disaster Areas

Starting immediately after the disaster, DENKA provided such everyday goods as disposable dishes to the affected areas, while making financial contributions as a company and collecting donations from employees in order to help survivors as much as possible.

Furthermore, to aid in the restoration of such social infrastructure as the Tohoku Shinkansen line, the Group has been expediting the shipment of cement, special cement additives and other civil construction-related materials.

In the meantime, DENKA has reviewed its stance on social contribution. Based on this, we established the Disaster Area Volunteer Support Program to assist employees' volunteer activities in the disaster areas and commenced operations. Carrying out continuous support activities, DENKA will continue to contribute to the restoration of disaster areas.

Current Head Office

(Nihonbashi-Mitsui Tower)

### • The DENKA Group's Response at Its Production Sites

In response to the shortage of power supply, DENKA is striving for energy savings that go far beyond the Japanese government's requirement of 15%. As part of such initiatives, the production and sales departments are working in tandem to achieve more efficient production while proactively enhancing productivity and promoting energy-saving operations through the improvement of production technologies.

Furthermore, by effectively utilizing in-house power generation facilities, including hydroelectric power plants, DENKA is reducing the use of electricity supplied from outside the Company

# **DENKA100: Fiscal 2015 Numerical Targets**

Consolidated operating income: More than ¥60 billion Operating income ratio: More than 10%

2

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8642 8690

DENKA100

高い技術力で、「資源」から 「価値あるモノ」を生み出す企業となる。

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Sparse 1

2015

The new "DENKA100" poster

CSR

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### CS13 (Challenging Spirit 2013)

CS13 is a three-year action plan for each business department that begins in fiscal 2011. The Company aims to achieve consolidated operating income of more than ¥45 billion in fiscal 2013 and each business department is revising its strategy to reflect changes in the economic environment in a timely manner.

### GCP (Good Company Program)

Under the GCP, everyone associated with DENKA is aiming to make the Company a "Good Company." Positioning GCP as part of its corporate culture, DENKA continues to work toward this goal while striving to be a company in which all employees feel motivated and rewarded as well as to be a company recognized as a reliable corporate citizen. The general managers of each department are leading the way under the slogan "exceptional themes, inspirational measures, outstanding results."

Human Resources Development

action.

### Advancement of Production Technologies

Through the effective use of resources and raw materials, improvement of facility capacities, creation of higher-value-added products and enhancement of operational efficiencies, DENKA will strive to promote technological innovation and strengthen its productive and organizational capabilities.

DENKA will develop new products for future growth and cultivate new markets by reinforcing functions in its R&D department and fostering collaborative relationships between this and relevant departments as well as by developing nextgeneration human resources.

### Promotion of CSR (Corporate Social Responsibility)

Based on the belief that DENKA's ultimate goal is more than simply achieving better business results, we faithfully address various issues, including those related to the environment, safety, employment, compliance and social contribution. In this light, DENKA will aim for harmonious coexistence with local communities, society and the global environment by promoting CSR activities according to its plan.





Strengthening in-house educational activities at the Human Resource Development Center to boost employees' motivation, DENKA will facilitate the development of human resources who can independently think, learn and take

### Promotion of Research and Development Activities

### About DENKA

**DENKA CITY** 

# DENKA products make the world a better place



The value-added products created using DENKA's advanced technological capabilities are utilized in ways that affect society at all levels and contribute to both prosperous lifestyles and industrial development.

Organic Materials Main products: Resin raw materials, synthetic resins, acetic acid products, synthetic rubber

Inorganic Materials Main products: Fertilizers, inorganic chemicals, cement, special cement additives

### Electronic Materials Main products: Electronic products, electronic packaging,

functional ceramics, adhesives Functional Materials and Plastics

Main products: Food packaging, construction materials, industrial materials, pharmaceuticals TIL

> Automated multi-story car parks Light-Emitting Diode (LED) Lighting



ing material for combustion catalysts

Concrete repairs Bising method and HARDLOG

NO

VID

Advertising on bus exteriors

lectromotive power steering controllers ENKA HITTPLATE: high thermal conductivity circuit board

Wire harness tapes for bundling

Hoses, belts, boots and air suspensions

Automotive interiors, vehicle-mounted audio equipment and door mirrors

Audio equipment DENKA HITTPLATE: insu

RDLOC: structural adhe

Electric trains

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letal welding

Air Conditioners





Refrigerators

Coolan

ir conditioners

ienza vaccine

About DENKA

### **CSR** Initiatives



### DENKA's CSR

The DENKA Group is working assiduously to achieve the numerical targets set out in DENKA100 and CS13. However, the Group considers its purpose to be more than simply attaining better business results.

The Group has thus positioned CSR activities as a key DENKA100 initiative and will sincerely address various issues, including employees' happiness, social contribution, regulatory compliance, environmental consciousness, ensuring safety, securing shareholder returns and enhancing customer satisfaction as well as relationships with suppliers. The continued functioning of the DENKA Group's business operations depends on society's acceptance of the Group. We acknowledge that improving business performance and fulfilling our responsibilities as a member of society must be realized in tandem. They are like the wheels of a bicycle; if one is missing, there is no moving forward.

Such responsibilities cover all the stakeholders that DENKA's business operations touch, namely, employees, suppliers, governmental institutions and NPOs, society and shareholders as well as the environment.

Positioning CSR activities as a DENKA100 key initiative, the **DENKA** Group will sincerely work for the benefit of all of its stakeholders in line with its role as a member of society.

### **CSR** Promotion Structure and Action Guidelines

Based on our corporate philosophy-to become a company that creates new value from resources by fully employing our technological capabilities-the DENKA Group established CSR action guidelines.

To support its CSR activities, DENKA formulated the CSR promotion structure. When a major issue occurs, the department in charge of CSR activities addresses the said issue. Daily operations are handled by the CSR Promoting Department.

With the aim of facilitating the understanding of all employees with regard to CSR activities so that it can more keenly engage in such activities, the CSR Promoting Department has painstakingly developed an in-house structure to promote CSR. In addition, the CSR Promoting Department publishes the CSR Report to deepen the understanding of people outside the DENKA Group of its CSR activities and their status.

The DENKA Group Guidelines are introduced on page 3 of the Web-based CSR Report reference materials. http://www.denka.co.jp/responsible/index.htm



### CSR Vision

Promoting CSR activities from the economic, social and environmental perspectives, DENKA will continue to pursue lasting trust as an outstanding manufacturer

### Pursuing lasting trust as an outstanding manufacturer

Environme

Ensuring security/ **Environmental preservation** 

### CSR Promotion Challenges, Goals and Achivements

| Stakeholders  |  | Fiscal 2010 Challenges and Goals   |  | Fiscal 2010 Achievements   |             | Major Challenges and Goals   |  |
|---|--|--|--|--|-------------|--|--|
|   |  | Challenges   | Goals  | Fiscal 2010 Activities   | Achievement | in Fiscal 2011 and beyond  |  |
| Employees   |  | Comfortable and rewarding     workplace  | <ul> <li>Implementation of human<br/>resource development<br/>programs</li> <li>Securing occupational<br/>safety and health</li> </ul> | <ul> <li>Offered education by level/specialty area</li> <li>Conducted occupational safety and health activities</li> </ul>   | В           | Human resource development<br>(nurturing CSR mindset)     Information disclosure about<br>overseas business bases     Securing occupational safety<br>and health                                 |  |
| The Environment   |  | <ul> <li>Prevention of global warming (CO<sub>2</sub><br/>emissions reduction), Curbing<br/>chemical substance emissions,<br/>waste reduction, technological<br/>innovation for energy conservation</li> </ul> | <ul> <li>Promotion of RC activities</li> <li>Implementation of the<br/>Medium-Term<br/>Environmental Plan</li> </ul>                   | Implemented RC activities     Implemented the Medium-Term     Environmental Plan   | В           | <ul> <li>Review of RC activity structure<br/>(application of subcommittee<br/>system)</li> <li>Implementation of the<br/>Medium-Term Environmental<br/>Plan</li> </ul>                           |  |
| Society   | General public<br>and local<br>communities | <ul> <li>Maintain thorough compliance as<br/>a good corporate citizen and<br/>reinforce communication with<br/>local communities</li> <li>Contribute to the solution of social<br/>issues</li> </ul>           | <ul> <li>Thorough compliance</li> <li>Communications with society</li> </ul>   | <ul> <li>Discovered flawed security<br/>inspection process at the Chiba<br/>Plant (received an approval for<br/>appropriate system after<br/>discovering flaws and reporting<br/>correction and preventive measures<br/>to the government)</li> <li>Facilitated communications with<br/>local residents</li> </ul> | С           | <ul> <li>Thorough compliance<br/>(reviewing internal auditing<br/>system)</li> <li>Invigoration of communications<br/>with local communities</li> </ul>  |  |
|   | Governmental/<br>external<br>institutions  | Engage in public policies and activities   | Effective use of public<br>policy-related subsidy<br>systems   | Acquired various subsidies   | В           | Proactive participation in public policies and activities  |  |
| Development and provis<br>high-quality, economic p<br>• Business activities throu<br>and open trade |  | <ul> <li>Development and provision of<br/>high-quality, economic products</li> <li>Business activities through fair<br/>and open trade</li> </ul>  | <ul> <li>Securing safety of raw<br/>materials</li> </ul>   | <ul> <li>Implemented and abided by a<br/>negative list</li> </ul>  | В           | <ul> <li>Development of environment-<br/>friendly products</li> <li>Considering the promotion of<br/>CSR procurement</li> </ul>  |  |
| Shareholders and<br>Investors   |  | <ul> <li>Achieving stable improvement of<br/>business results and<br/>establishment of relationships of<br/>trust through information<br/>exchanges</li> </ul>   | <ul> <li>Accurate and reliable<br/>information disclosure</li> <li>Proactive communication<br/>with investors</li> </ul>               | Thorough internal control     Information disclosure to investors  | A           | Response to internal control<br>reporting system     Securing credibility of<br>disclosed information<br>(enhancement of CSR Report<br>contents)     Implementation of the CS13<br>business plan |  |
| A: Achie  | eved significant res                       | C: No results were ob  | served   |  |             |  |  |
| B. Obse   | erved some results                         | D. The level of activity   | deteriorated   |  |             |  |  |



 Contributing to horough complia

Compliance/Social contribution/Product safety



### Corporate governance **Risk management** Information disclosure

9

### About DENKA

History of CSR Activities

| 1985 | The Canadian Chemical Producers' Association proclaimed the Responsible Care (RC) ethos of independently controlling and managing chemical substances   |
|------|---|
| 1990 | International Council of Chemical Association (ICCA) established  |
| 1995 | Japan Responsible Care Council (JRCC) established; became a member<br>Created the Responsible Care policy and organized our Responsible Care (RC) Committee   |
| 1997 | Started Responsible Care audits<br>Created a basic manual to promote product liability measures and organized the Product Liability (PL)<br>Committee   |
| 1998 | Organized the Energy Saving Subcommittee  |
| 1999 | The Chiba Plant acquired ISO 14001 certification (all plants were certified by 2004)  |
| 2000 | Published our first <i>Environmental Report</i><br>Discovered acetylene and dioxin emissions at our alumina fiber plant and filed a report with the relevant<br>government agency (becoming a designated facility under the Dioxin Special Measures Act in 2002)  |
| 2001 | Inaugurated natural gas cogeneration facilities at the Chiba Plant  |
| 2002 | The Omi Mine won the Gold Kanban Award for excellence in mine preservation and performance<br>Started presenting information on affiliates in our Environmental Report  |
| 2003 | Launched biomass boiler power generation operations at the Omi Plant<br>Created the Negative List (a database on environmental chemical substances)<br>Started our first medium-term environmental plan   |
| 2004 | Inaugurated our Good Company Program (GCP)  |
| 2005 | Launched our second medium-term environmental plan  |
| 2006 | Conducted Japan Responsible Care Conference third-party audits at the Omuta Plant<br>Omi Plant began accepting sewage sludge for its recycling system   |
| 2007 | Commenced the Companywide DENKA100 initiative<br>Established the CSR Promoting Office<br>Published our first CSR Report<br>Launched our third medium-term environmental plan<br>JRCC began providing third-party audits of our CSR Report (covering headquarters and the Chiba Plant)   |
| 2008 | JRCC provided a third-party audit of our CSR Report (headquarters and the Omi Plant)<br>Set up the Earth Committee  |
| 2009 | Established the Environmental Burdens Reduction Promoting Department<br>Acquired third-party verification of our CSR Report from the JRCC (covering headquarters and the Shibukawa Plant)   |
| 2010 | Signed the Responsible Care Global Charter<br>Launched our fourth medium-term environment plan<br>Acquired third-party verification of our CSR Report from the JRCC (covering headquarters and the Omuta Plant)<br>The Omi Plant acquired the OSHMS certificate<br>The CS13 business plan, effective through 2013, was established as a rolling plan under DENKA100 |
| 2011 | DSPL Seraya Plant acquired the OHSAS18001 certificate   |
|      |   |

The DENKA Group is undertaking the Good Co Program (GCP), which involves raising employe and improving labor practices. Such Companyw education-related initiatives are being implement the DENKA100 management plan in the lead up centennial in 2015 with the intention of encoura employees to think, learn and act autonomously



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- aging
- •

### Augmenting Human Resource Development Curricula, Including Expanding the Role of DENKA Techno Schools

### Human Resource Development

We believe that employees are the most important element determining DENKA's future growth. Retaining employees who have the motivation, ability and energy to respond to rapidly changing business conditions is fundamental to our success. Accordingly, DENKA is developing training curricula to cultivate such employees.

### Educational Objectives of the Human Resource Development Center

### Personnel Requisites

- (1) Strive constantly to better yourself through business and social activities
- (2) Always respect others and remain humble and positive
- (3) Always be selfless
- (4) Drive change through teamwork
- (5) Gain broad insights, superior problem-solving skills and the ability to transform potential into reality
- (6) Be cost-conscious

### Specific Initiatives

### Mandatory Job Level-Based Training

Under these programs, employees acquire the knowledge they need to fulfill their duties. We train new managers, young employees and other employees. The main focuses are such business fundamentals as compliance and other legal areas, as well as safety initiatives. We trained nearly 364 employees in fiscal 2010.

### **Specialist Courses**

In fiscal 2010, more than 578 employees took accounting, business, information technology, trade, investor relations, corporate social responsibility and distribution courses, with the purpose of acquiring the specialized knowledge required to undertake business operations.

### DENKA Training System



### Measures to Enhance Productivity

# Expand Measures to Improve Production Technology and Promote Further Innovation

### Measures to Improve Production Technology

To improve productivity across the board, DENKA continually upgrades each process. The Manufacturing Division is the main organization for implementing such improvements based on an understanding of relevant technological issues and by fully examining various approaches. Improvements are implemented in tandem with the Engineering and Research departments.

The aims of these activities are as follows:

Increase workplace capabilities; (2) train young engineers;
 improve operational stability and production performance; and
 maintain and improve quality.

Numbers (3) and (4) in particular involve not only upgrading technology, but also emphasizing error prevention in the areas of operations and design.

Based on these actions, operators, both within and outside the Company, are working to address important issues by making concerted efforts in the short term. These efforts are leading to improvements in workplace capabilities and are useful for training young engineers.

### Specific Examples of Measures to Improve Technology

- We are encouraging the proper use and improved control of equipment to avoid wasting energy amid an unprecedented reduction in production.
- We are optimizing the supply of such materials as fuel gas, which is injected into fusion furnaces, and raw material powders through testing based on practical analysis, simulations and model testing equipment. Through these actions, we will increase production while reducing the unit consumption of gas.
- In cooperation with other companies, we are investigating the commercialization of microscopic fiber. Furthermore, we will increase the scale of such initiatives (expanding from bench testing to the installation of production facilities), which are aimed at addressing issues related to the development of new synthesis technology for use in fabricating low-cost, high-quality products.
- We are improving productivity by revamping the stirring mechanisms used in dissolver tanks. This equipment is part of the mixing process, during which raw materials are melted down using solvents.
   Other measures include the appropriate use of and improvements to operating and control technology for the extrusion equipment

### The Voice of a Young Engineer

### Working with Advanced Technological Capabilities Was a Valuable Experience

### Makoto Hirose



Production Technology Section, Chiba Plant As other plants urgently ramped up the manufacture of processing products for synthetic plastics, I participated in a project to examine the possibility of engaging in this type of production. Given an increase in the volume of synthetic plastics being discharged by the nozzles, we made exacting efforts, in concert with plant workers, to

Anticipated Fruits of Training Personal Growth: Harness greater skills, knowledge, techniques and performance to boost profits Organizational Growth: Improve team performance through collaboration within and between business units Corporate Growth: Enhance DENKA's profitability, brand and reputation

We once again conducted employee training with the purpose of

instilling logical thinking and Plan-Do-Check-Act (PDCA) cycle

problem-solving practices. These training sessions are intended for

employees who entered the Company two to three years ago. In

addition, we have opened DENKA Techno Schools to provide spe-

### **Educational Support**

Initiatives in Fiscal 2010

cialized training for sales staff.

### Skill Acquisition

We assist employees taking language classes and correspondence courses. We also support those seeking to acquire certain formal qualifications.

### Business Unit Training

Each business unit identifies areas needing improvement and formulates and implements its own programs. There is a constant focus on establishing, planning and executing original educational and training programs according to each operation to help improve the knowledge and skills of every employee.

### DENKA Techno Schools

Each business unit has opened a techno school to preserve our technological and skills resources and provide employees with expert and practical knowledge.



commonly used in DENKA's plants. To this end, we are sharing technology-related information by obtaining the latest information from extrusion manufacturers and facilitating mutual assistance among plants.

determine whether the level of humidity and pressure were appropriate for this type of production. Based on chemical engineering-related calculations and analyses that combined test data obtained from actual machine operations and simulations, we were able to achieve effective results on site. Each stage of this investigation was a valuable experience thanks to the unsurpassed knowledge and experience of senior employees, who provided direct guidance and kept us motivated.

### **Creating Comfortable and Motivating Workplaces**

### Fiscal 2010 Good Company Program (GCP) Initiatives

For society, for the environment, for customers and shareholders, and for DENKA associates, Good Company Program (GCP) activities hone on-site capabilities by changing the way employees think and by encouraging autonomy and proactivity. Participation is on a group basis, with groups consisting of employees from the same unit and all employees attending.

Implementation of the GCP is the responsibility of managers and requires 100% participation. Every six months, all the employees of a division will come together to clarify priority issues in an effort to find solutions.





DENKA100 News

GCP website where information is shared Companywide



GCP 2.0 poster

### Holding a GCP 2.0 Networking Meeting at the **Omi Plant**

The GCP 2.0 Networking Meeting is a Companywide event that is convened once a year. At this event, the successes of GCP members are highlighted and lively discussions are held. In fiscal 2010, a GCP 2.0 Networking Meeting took place over June 10 and 11, 2010 at the Omi Plant, sponsored by the DENKA100 Promoting Department. With 12 overseas employees also in attendance, participants discussed how using multiple languages can improve communication and how these meetings foster a sense of unity within the DENKA Group.



GCP 2.0 Networking Meeting (June 11, 2010)

### Respect for Diversity

DENKA respects the rights and individuality of every member of its diverse staff. At the same time, we work to fully utilize the abilities of each employee.

### Work-Life Balance

DENKA promotes the development of comfortable workplaces in full consideration of the need to balance both work and family life.

### **Employing People with Disabilities**

We are creating safe workplaces so people with disabilities can realize their potential. The percentage of employees with disabilities on a nonconsolidated basis stood at 1.82% in fiscal 2010.

### Labor and Management Relations

### **Maintaining Good Relationships**

Management maintains positive relationships with employee organizations, regularly meeting with officials of The Denki Kagaku Labor Union and The Head Office Labor Union based on mutual good faith and otherwise negotiating with these bodies.

### Labor Management Exchanges

On August 27, 2010, with the sponsorship of the Head Office Labor Union, the DENKA100 Promoting Department supported a head office summer party. A total of 250 executives and employees participated in this event.

On December 18, 2010, executives and employees participated for the first time in recreational soft volleyball and bingo games at the Isesaki Civic Gymnasium. A total of 67 Isesaki Plant employees and their families participated in this event.

**Reemploying Retirees** 

In April 2004, we launched a program to rehire retirees in order to harness their technological knowledge and skills and pass them on to younger employees. At the end of May 2010, 277 employees who were retirees were reemployed on a nonconsolidated basis.

### **Preventing Harassment**

DENKA maintains various systems to prevent all types of harassment with the purpose of respecting the individuality of employees. No complaints were made to our consultation desk in fiscal 2010.



Participants having fun at a lottery held during the head office summer party



Employees taking part in a soft volleyball game



### Occupational Safety Record

The number of people involved in occupational accidents requiring time off in fiscal 2010 was as follows. The figures in parentheses are the accident frequency rates.

### DENKA: 3 (0.57) Subcontractors: 0 (0.00)



### **Accident Frequency Rates**



In fiscal 2010, DENKA held safety review meetings at each of its facilities. During these meetings, executives in charge of safety and on-site employees vigorously discussed safety-related issues under the theme of "making rigorous safety adherence a basic practice and invigorating communication within the workplace." Employees voiced opinions regarding the importance of safetyrelated training, stable manufacturing processes, safe construction and safety guidance for subcontractors. We will reflect these opinions in the next fiscal year's safety plans.

### Occupational Safety Activities

At the Ofuna Plant, we are working to raise awareness about safety while undertaking initiatives with the goal of achieving zero accidents. The Ofuna Plant's safety-promotion working group is mainly engaged in holding safety training sessions. During the "behavior drills" and "studying past accidents" portions of the safety training sessions, we firmly impressed upon employees the fundamental actions required to maintain safety. Under the direction of "Safety Meisters" and other instructors, we are "cultivating safety-conscious employees who do not get hurt or cause others to be harmed."



An opening ceremony for DENKA's safety training sessions (June 25, 2010)

### DENKA CSB REPORT 2011 15

### Health Management and Mental Health-Related Measures

Working together with industrial physicians and health care institutions, we provide guidance to individual employees. Such activities include following up on medical examination results, implementing mental health-related measures and providing health-related education. We are working to create a workplace that is safe from a mental-health perspective through the early detection and prevention of illnesses.

### Isesaki and Ota Plants

We held lectures on September 17 and 21 focusing on the theme of worker mental health. A total of 47 supervisors and employees from both plants participated. The lectures offered information on the causes of disorders while providing advice on prevention, the necessity of mutual understanding and communication and stretching exercises that relax the body and mind.



On October 4, 2010, one of DENKA's industrial physicians, Dr. Shuichiro Watanabe held a lecture about the role of laughter in maintaining and improving the mental health of all employees. During the lecture, Dr. Watanabe explained ways of preventing mental illness and provided opportunities for attendees to try out various health-maintenance techniques. This lecture helped to raise awareness of mental health issues.





**Initiatives in Society** 

# Pursuing Safety by Cooperating with Governments and Municipalities

### Security and Disaster Prevention

During fiscal 2010, we experienced no fires, explosions or leaks of hazardous materials that would significantly affect the communities in which we operate. However, there were 16 safety-related problems likely caused by leaks and fires, 11 more than in the previous fiscal year. The majority of these were electrical problems and the result of power outages and short circuits caused by the Great East Japan Earthquake, lighting strikes, snow and other natural phenomena. The next largest cause of accidents was fires due to the improper management of equipment and flammable materials. We will work to conduct training that reinforces adherence to established procedures while systematically addressing specific problems.

### **Chiba Plant**

### Recertifying High Pressure Gas Safety Inspection Executors

The Chiba Plant applied to the Ministry of Economy, Trade and Industry in order to recertify its accredited safety inspection executors, who inspect the safety of high pressure gas equipment at its styrene monomer manufacturing facility. Recertification was granted after a Ministry review confirmed that the Plant's measures were appropriate. Consequently, after being recertified on March 11, 2011, DENKA was given permission to conduct safety inspections for another five years in accordance with Article 35 of the High Pressure Gas Safety Act.

### Correcting Deficiencies Revealed during the High-Pressure Gas Security Inspections

The High Pressure Gas Safety Institute of Japan sponsors on-site inspections of the Chiba Plant, which are carried out by academics and security inspectors accredited by the Ministry of Economy, Trade and Industry and the Chiba Prefectural Government. It was revealed that the Chiba Plant had undergone only once in the past two years an inspection of certain safety equipment that must be conducted every year. As a result, we promptly corrected this oversight and filed a report with the Chiba Prefectural Government.

### Fire Drills

### DENKA Azumin Co., Ltd.

DENKA conducted a fire drill in cooperation with the Hanamaki Fire Department on November 5, 2010. Undertaken to ensure preparedness in the event of a nitric acid leakage accident, the drill involved simulating a fire using nitric acid and lignite. This fire impressed upon everyone the dangers of nitric acid. DENKA invited approximately 30 employees from nearby businesses and local residents to observe this drill in order to improve their understanding of the Company's safety activities.



### **Omi Plant**

We conducted comprehensive emergency drills at Himekawa Harbor on September 29, 2010. This large-scale drill was conducted to ensure preparedness in the event of an earthquake measuring in the sixes on the seven-point Japanese seismic intensity scale as well as subsequent tsunamis, tanker fires and heavy oil spills in the harbor and employee injuries. In addition, the drill, which involved a total of 123 people, was conducted jointly with the Marine Safety Station, Joetsu, Itoigawa Fire Department and Himekawa Harbor Users Association.



A large-scale drill involving both government agencies and business



A drill to put out an oil fire

### Safety Education

DENKA emphasizes strict adherence to fundamental safety practices that include not placing hands near equipment in operation. In addition, we work to improve safety techniques through lectures and on-the-job training that reflects the specific characteristics of individual facilities and workplaces.

### Shibukawa Plant

The Shibukawa Plant stresses the importance of preventing forklift accidents, which often result in major damage. To this end, we invite outside instructors to give lectures twice a year on the safe operation of forklifts. On January 28, 2011, 32 employees attended such a lecture, which reaffirmed the basics of forklift safety.



Reinforcement of employees' basic understanding of proper forklift operation under the guidance of an outside instructor DENKA products play a useful role in people's homes and throughout society. Aiming to develop even stronger relationships of trust with all members of society, DENKA engages in a wide array of communication-related activities, ranging from social contribution efforts to community dialogues.



Friendship Concert (p.19)

### Aiming to Maintain Communication That Deepens Mutual Understanding among Members of the Local Community

### Educational Assistance

### **Plant Tours**

The Omuta Plant held a tour for 42 students from Miike Technical High School in June 2010 while the Ofuna Plant opened its doors to 125 students and teachers of Kanagawa Technical High School in February 2011. Providing an up-close view of the manufacturing lines and testing facilities, these tours are valuable opportunities for visitors to deepen their understanding of DENKA's business operations.





Students from Miike Technical High School receiving a briefing prior to beginning the plant tour (June 9, 2010)

Kanagawa Technical High School students touring the synthetic fiber plant (February 21 – 24, 2011)

### **Social Studies Field Trips**

The Central Research Institute hosted social studies field trips for approximately 80 third graders from Machida Dai-San Elementary School in June 2010 and about 100 third graders from Machida Dai-Yon Elementary School in November 2010. These spirited plant tours mainly consisted of a fun learning program, which included the presentation of DENKA's television commercials and recent products, as well as an up-close look at its testing facilities. These activities inspired many unique questions from the students.



Students listen intently to an explanation given by an employee (Left: Machida Dai-San Elementary School tour held on June 17, 2010; Right: Machida Dai-Yon Elementary School tour held on October 22, 2010)

### Community Exchanges

### Isesaki Plant

The Isesaki Plant holds beautification days twice a year in the surrounding area. In May 2010, employees worked to clean up nearby parks and other areas surrounding the plant.



Employees cleaning up a sidewalk near the plant (May 12, 2010)

### **Summer Vacation Experimental Science Class**

The Shibukawa Plant held the Summer Vacation Experimental Science Class for the first time in July 2010. A total of 44 students participated in this event, including 24 fourth, fifth and sixth graders from nearby Toyoaki Elementary School. The students spent the day becoming more familiar with science through this fun, hands-on event. Activities included taking a tour of the plant's interior; observing objects through electron microscopes; making personalized PET bottles from DENKA products; participating in fingerprint detection experiments; and making super bouncy rubber balls.





Students making personalized PET bottles (July 28, 2010)

Students observing objects through electron microscopes

### Participating in Science Events

The Omi Plant participated in the Youngsters' Science Festival in Niigata in January 2011. We set up a booth at the two-day event where 645 students had the opportunity to make original key holders using such DENKA products as compressed particle board.



A lively scene at the DENKA booth (January 8 – 9, 2011)



th A participant tries making a key holder using DENKA THERMOSHEET OPS

### The Chiba Plant

The Chiba Plant held the 8th RC Chiba District Regional Dialogue Meeting on February 8, 2011. This event was sponsored by the Japan Chemical Industry Association's Responsible Care (RC) Committee and 20 member companies located in the Chiba District. Held once every two years, approximately 170 people—including local community representatives, students, government officials and companies—were invited to the dialogue meeting where opinions on environmental preservation activities were vigorously exchanged. In addition, approximately 80 participants took a tour of the Chiba Plant, where DENKA products were showcased and an explanation of the Company's environmental responsiveness was presented.

The dialogue meeting featured a lecture given by a government official on environmental conditions in Chiba Prefecture; the announcement of environmental preservation activities undertaken by two district companies; a panel discussion undertaken by four companies and representatives of the local community; and a lively dialogue involving various participants.

### Helping All People through Inspirational Music



### Participating in the Fureai Trio Concert Held in Itoigawa City

The Fureai Trio performs concerts, gives hands-on musical lessons and holds bazaars to support facilities that assist people with disabilities. Formed by violinist Kyoko Yoshida, cellist Genichi Watanabe and pianist Mitsutaka Shiraishi in 2003, the Fureai Trio has performed 320 concerts for more than 80,000 people. Through these activities, the Fureai Trio conveys the beauty of classical music to elementary and junior high school students as well as people with disabilities nationwide while assisting in the revitalization of local communities.

As part of its efforts to support such activities, DENKA and its local production facilities provided assistance for concerts held by the Fureai Trio in Itoigawa City on July 4 and 5, 2010. These concerts were performed in the now defunct Omi Town for the first time in since 2004 and marked the trio's 300th performance. On July 4, the Fureai Trio gave a performance and held a Fureai Market bazaar at the Omi Cultural Center. Both of these events were sponsored by the Itoigawa Civic Hall. On July 5, the trio provided musical instruction through the Fureai Program at the town's Omi and Yamatogawa elementary schools.



The Fureai Program gives children an opportunity to play the violin

A Fureai Market being held at the concert hall

# Lending Our Support to Concerts for People with Disabilities

On January 15, 2011, the Fureai Trio performed a concert at the Suntory Hall's Blue Rose concert hall in Akasaka, Tokyo, for people with disabilities. Three DENKA employees assisted with this concert. The concert was thoroughly enjoyed by all 560 people in attendance.

We received many positive comments via questionnaires given out to the audience. Examples of these include: "It is difficult for people with disabilities to participate in cultural events. I really A "Fureai Concert" being performed by the Fureai Trio From left to right: Kyoko Yoshida, Mitsutaka Shiraishi and Genichi Watanabe

appreciate having the opportunity to enjoy live music in such a magnificent hall while feeling completely at ease;" and "Music soothes the human heart. I think the Fureai Trio's efforts are fantastic.".



The audience enjoyed the performance



Audience members clapping in unison with the music

Message



From left, Kei Takahashi, Legal Department, Hidetoshi Iwasaki, Investor Relations & Corporate Communication Department

### The Audience Fully Enjoyed the Musical Performance

Hidetoshi Iwasaki Investor Relations & Corporate Communication Department Kei Takahashi from the Legal Department and I were in charge of providing directions to the concert venue. Despite the cold weather that day, there was a big turnout for this concert. Beyond listening to the performance, the audience clapped their hands and tapped their feet in time with the music. I believe this allowed them to more fully experience the music.

### Having a Renewed Sense of the Incredible Power of Music

Kei Takahashi Legal Department

I was very happy to see all the smiling faces among the concertgoers, many of whom do not have much opportunity to attend such events due to their disabilities. At the same time, I gained a renewed sense of the incredible power of music. This event was made possible by the cooperation of many people. I would very much like to see such initiatives continue in the future.

### **Initiatives in Society**

**Recycling Activities** 

### DENKA Proactively Accepts Waste Materials to Foster the Development of a Global Recycling-Oriented Society



### Cement Plant Recycling System

The waste material recycling business at the Omi Plant's cement plant begins with the efficient treatment of byproducts generated by its in-house operations. To manufacture cement, we currently accept coal ash produced by thermal power stations as a raw material. In addition, we receive used tires and waste plastic for use as fuel sources. In order to facilitate the use of fly ash from the incineration of waste tires and other sources as an ingredient in the manufacture of every type of cement, the Omi Plant is developing a recycling system that enables the reuse of these waste materials.

In recent years, the Omi Plant has been increasing the amount of carbide produced from sewage sludge and household waste it accepts from local government bodies. Consequently, the Omi Plant has received high praise for these social contribution efforts. In addition, the Omi Plant promotes the use of soil displaced from construction sites as a cement raw material. The Omi Plant was the first cement factory located on the Sea of Japan to obtain permission to operate a processing business in accordance with the revised Soil Contamination Countermeasures Act, which went into effect in April 2010.

### The Development of a Recycling-Oriented Society

In fiscal 2010, every metric ton of DENKA cement produced used 551 kilograms of recycled materials, the largest proportion recorded to date. DENKA promotes the use of such alternative waste as scrap wood and plastics, both of which effectively reduce the consumption of fossil fuel. Such actions are contributing to the protection of the global environment from the standpoint of helping to alleviate global warming while fostering the development of a recycling oriented society.

We plan to process chlorine and other waste materials that were previously difficult to dispose of by augmenting the chlorine removal and other related facilities.





4% Amount 33% accepted 854 thousand tons 24% Sludge Fly ash Slag Waste oil, and plastic and wood chips Other **Environmental Initiatives** 

DENKA is striving to reduce energy use to contribute to lower CO<sub>2</sub> emissions while developing and promoting environment-friendly products that can contribute to the development of renewable energy sources, including solar power.



The Omi Plant's cement works

### **Environmental Activities/Responsible Care Activities**



| Itomo   | Fiscal 20 |        | Fiscal 2011 | Fiscal 2012 |  |
|---|-----------|--------|-------------|-------------|--|
|   | Actual    | Target | Target      | Target      |  |
| Energy consumption intensity<br>(with fiscal 1990 as base year) | 0.91      | 0.88   | 0.87        | 0.86        |  |
| Emissions of PRTR substances (tons)                             | 122       | 118    | 90          | 88          |  |
| Final waste disposal (tons)                                     | 304       | 577    | 337         | 374         |  |

### DENKA's Environmental Activities

DENKA engages in environmental preservation mainly through Responsible Care (RC) activities. In fact, the Company's management is underpinned by its commitment to protecting the environment and securing safety. Therefore, DENKA strives to incorporate environmental and safety considerations into all stages of its chemical product's life cycles, from development and distribution to usage, final consumption and disposal.

### Medium-Term Environmental Plan

DENKA systematically engages in environmental improvement and carried out its Fourth Medium-Term Environmental Plan "EM10"\* from fiscal 2010 to fiscal 2012. With the aim of achieving the efficient use of resources and environmental preservation, DENKA is striving mainly to save energy and reduce PRTR substance emissions and waste generation.

During fiscal 2010, the Company's energy consumption intensity and reduction in PRTR substance emissions were slightly below target due to routine repair and maintenance work undertaken at the Chiba Plant as well as the increased production of chloroprene. The amount of final waste disposal was substantially reduced, reflecting the positive effect of in-house recycling efforts.

\* Details of the EM10 Fourth Medium-Term Environmental Plan are provided under "Initiatives and Final-Year Targets" in the table "Fiscal 2010 Responsible Care Objectives and Achievements" on page 23.

### Input and Output

The main environmental impact totals of all business sites for fiscal 2010 are shown below.



Fiscal 2010 Responsible Care Objectives and Achievements

|              |  |  | (Assessment code: A = Reach  | ed target  | t B = Par           | tially missed target C = Missed target)   |
|--------------|--|--|--|------------|---------------------|---|
|              | Key Area   |  | Fiscal 2010  |            | Relevant<br>Page    | Initiatives and<br>Final-Year Taroets   |
|              |  | Goals  | Achievements   | Evaluation |                     |   |
|              | Prevent global<br>warming and con-<br>serve energy                                   | CO <sub>2</sub> emissions intensity<br>(from energy sources):<br>1.05t/t<br>Energy consumption intensity<br>(fiscal 1990 base): 88%  | CO <sub>2</sub> emissions intensity: 1.08t/t<br>Energy consumption intensity (fiscal 1990 base): 91%   | С          | 22<br>24<br>1<br>26 | CO <sub>2</sub> emissions intensity (from energy sources):<br>1.00t/t<br>Energy consumption intensity (fiscal 1990 base):<br>86% and below  |
| rvation      | Prevent air and water pollution  | S0x: 122t<br>N0x: 4,220t<br>Soot and dust: 122t<br>COD (BOD): 1,114t   | S0x: 257t<br>N0x: 4,320t<br>Soot and dust: 111t<br>COD (BOD): 1,599t<br>[Air]<br>S0x: Missed target despite a reduction reflecting the installation of<br>gas turbines<br>N0x: Reached target due to the decreased production of cement<br>[Water]<br>COD (BOD): Increased due to stepped up production of chloro-<br>prene. Considering the expansion of COD (BOD) removal facilities                             | В          | 22<br>Website<br>09 | S0x: 121t<br>N0x: 3,780t<br>Soot and dust: 133t<br>COD (BOD): 564t  |
| Cons         |  | Total waste generated<br>104,000t<br>In-house and external reuse:  | Total waste generated: 112,000t<br>Total waste generated increased due to the enhancement of chlo-<br>roprene production. Will strive to improve operational process.<br>In-house and external reuse:  | С          |                     | Constrain and reduce wastes<br>Reinforce the wastewater treatment facility at<br>the Omi Plant while promoting the adoption of<br>solvent-free adhesives  |
|              | Reduce waste   | 91,200t  | 98,900t  | A          | 22<br>Wobaita       | Promotion of reuse  |
|              | (zero emissions)   | Recycle resources<br>In-house and external landfill:<br>577t   | Recycle resources<br>In-house and external landfill:<br>304t<br>Reached target by promoting recycling both inside and outside the<br>Company. Will further reduce waste generated and promote recy-<br>cling.  | A          | 10                  | Cut final landfill waste<br>374t  |
|              | Use resources effi-<br>ciently   | Further enhancement of recycled resource usage intensity from 417kg/t in fiscal 2008   | Recycled resource usage intensity=511kg/t<br>Promoted the use of alternative waste, such as wood scraps and<br>waste plastics, to reduce the use of fossil fuels   | А          | 20<br>22            | By further enhancing the use of waste and<br>byproducts per ton of cement (recycled resourc-<br>es usage intensity), we will contribute to the<br>development of a recycling-oriented society.  |
| safety       | Appropriate com-<br>pliance with<br>chemical sub-<br>stance manage-<br>ment policies | Comply with the European<br>Union's Registration, Evaluation,<br>Authorization and Restriction of<br>Chemical Substances (REACH)     Accommodate Globally<br>Harmonized System of<br>Classification and Labeling of<br>Chemicals (GHS) in each country | <ul> <li>Conducted necessary procedures at Group companies, including overseas affiliates, to acquire registration of compliance with the REACH regulation</li> <li>Switched from MSDS (materials safety data sheet) to GHS mainly in EU countries and China and reviewed labeling systems</li> </ul>  | A          | Website<br>11<br>12 | Continued to supply MSDS and other product<br>safety information and identify and consider<br>complying with overseas chemical regulations,<br>including REACH  |
| Product :    | Manage chemical<br>substances and<br>suppress emis-<br>sions                         | Companywide emissions of PRTR substances: 118t   | Companywide emissions of PRTR substances: 122t<br>Despite efforts to reduce of emissions 10% year on year at each<br>plant by promoting the improvement plan, we failed to achieve tar-<br>gets. We will set higher goals and conduct deliberate reductions.   | С          | 22<br>Website<br>10 | Emissions of PRTR substances: 88t<br>Reinforce the wastewater treatment facility in<br>the Omi Plant, while promoting the adoption of<br>solvent-free adhesives   |
|              | Ensure safe transportation   | Target a zero accident rate for<br>in-house and off-site logistics     Step up our Safe Transportation<br>Code of Conduct as a Shipped<br>Goods Owner  | We continued to revise our yellow card system and yellow cards<br>for containers (labels)     We evaluated and analyzed transportation safety levels and insti-<br>tuted improvements  | A          | Website<br>11<br>12 | Fulfill responsibilities as an owner of shipped goods   |
| Occupational | Eliminate occupa-<br>tional accidents  | Conduct risk assessments and<br>identify and eliminate unsafe<br>facilities and work practices   | All business sites continued to conduct risk assessments and iden-<br>tified and addressed unsafe work practices.<br>Number of incidents of lost worktime due to accidents in Group:<br>3 (5); accident frequency of 0.57 (1.00)<br>Number of incidents of lost worktime due to accidents among sub-<br>contractors: 0 (3); accident frequency of 0.00 (0.62)<br>Note: Numbers in parentheses are for fiscal 2009. | A          | 15                  | Eliminate occupational accidents through educa-<br>tion and safety management systems<br>Attain zero accidents requiring employees to take<br>time off  |
|              | Manage employee health   | Maintain and improve health  | Held a seminar regarding mental health at each plant and conduct-<br>ed continuous follow-ups  | А          | 15                  | Undertake activities to maintain and improve health   |
| Disaster     | Eliminate major<br>accidents   | Eliminate major accidents, notably<br>explosions, fires and large leaks<br>of chemical substances  | <ul> <li>•There were no major accidents.</li> <li>•The number of problems impeding operations increased from 5 to 16.</li> <li>•Based on analysis of previous accidents, we implemented measures to prevent recurrences and stepped up preliminary safety assessments and change management.</li> </ul>  |            | 16                  | Eliminate major accidents, notably explosions,<br>fires and large leaks of chemical substances, and<br>improve production stability (in keeping with the<br>characteristics of specific plants, target more<br>stable operating conditions, enhance operational<br>techniques and facilities) |
| Community    | Maintain com-<br>munity trust  | Continue to engage communities and build trust   | We addressed complaints about noise and odors by setting up<br>response desks at each business site, deploying countermea-<br>sures and responding in good faith to complaints to obtain under-<br>standing.     We hosted business site tours and held children's chemistry<br>classes, engaged in community dialogue and participated volun-<br>tarily in social activities to maintain community trust.         | A          | 18<br>19            | Target ongoing corporate activities that secure<br>and maintain community trust   |

References are available in the Web-based CSR Report reference (http://www.denka.co.jp/responsible/index.htm).

CO<sub>2</sub> Emissions and Reduction

### **Aiming to Develop and Promote Environment-Friendly Products** That Contribute to the Realization of a Low-Carbon Society

### Reduction of Direct CO<sub>2</sub> Emissions (Attributable to Energy Use)

Through the Japan Chemical Industry Association, DENKA participates in the voluntary action plan of the Nippon Keidanren (Japan Business Federation). In addition, the Company participated in a group charged with establishing targets for the Trial Emissions Trading Scheme\* that the Japanese government introduced in 2009 based on this voluntary action plan. As part of such initiatives, in fiscal 2010 DENKA set its target for CO<sub>2</sub> emissions intensity\*\* at 1.14 t-CO<sub>2</sub>/t-CaC<sub>2</sub> and strived to achieve this goal. Having achieved this goal in fiscal 2010, the Company will continue to work to save energy and reduce CO<sub>2</sub> emissions.

\* Trial Emissions Trading Scheme: Companies that participated in both the target-setting group and the voluntary action plan of the Nippon Keidanren set in-house targets and reduction targets based on their organization's fiscal 2010 targets, and received verification from the Japanese government after the activity

DENKA does not fall under the category of participants authorized to trade emission auotas

 $^{\star\star}$  CO\_{\scriptscriptstyle 2} emissions intensity: In order to represent figures in a unified manner, the CO2 emissions intensity target for each DENKA product is translated into terms of the Omi Plant's CO<sub>2</sub> emissions volume divided by its calcium carbide production volumes

### Reduction of Non-Energy-Derived CO<sub>2</sub> Emissions

Calcium carbide is DENKA's mainstay product and serves as a raw material for fertilizer, electronic materials and automobile parts. The processing of limestone, the key raw material used to produce calcium carbide, generates a large volume of CO<sub>2</sub> (non-energy derived emissions). Calcium carbide, in turn, can be processed to make acetylene. If hydrated lime, a post-production byproduct of acetylene manufacturing, is cycled back into the initial processing of the limestone to produce calcium carbide, the volume of CO<sub>2</sub> generated is significantly reduced. Thus, by recycling hydrated lime, DENKA has drastically cut its CO<sub>2</sub> emissions.

Verified as a company working to develop the technological foundation that will promote the establishment of a next-generation recycling-oriented society (page 32) in fiscal 2011, DENKA is promoting operations that aim to reduce non-energy-derived CO2 emissions, backed by a subsidy provided by the Ministry of the Environment. DENKA is considering other methods of reducing non-energy-derived CO<sub>2</sub> emissions.

### Educational Activities both Inside and Outside of the Company

DENKA introduced life cycle assessment (LCA) in 2009 and made a list of products that contribute to reductions in energy use (and thus lower carbon emissions) when being used by customers. By raising employee awareness and facilitating customer understanding, DENKA expects to help realize a low-carbon society. For details, please see page 5 "Development of Environment-Friendly Products" of the web-version CSR Report (http://www.denka. co.jp/responsible/index.htm).

CO<sub>2</sub> Emissions Intensity



Production Volume and Energy Consumption Intensity Relative to the Fiscal 1990 Level





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



\* Non-energy derived CO<sub>2</sub> emissions are generated from raw materials processing and waste disposal during the manufacturing process.

### Supplying Electricity in House through Hydroelectric Power **Generation and Thermal Power Generation Using Natural Gas**

### Initiatives to Secure a Stable Electricity Supply

Accounting for 30% of DENKA's total energy consumption, hydroelectric power largely contributes to the reduction of CO<sub>2</sub> emissions as a clean energy source while helping to secure a stable power supply in the midst of tight electricity demand.



Oami Power Plant

### History of Hydroelectric Power Generation

Having established hydroelectric power plants during the Taisho and early Showa eras (1921-1945), DENKA currently owns six hydroelectric power plants along the Himekawa River system and four along the Umikawa River. In addition, DENKA maintains five hydroelectric power plants jointly established with Hokuriku Electric Power Company. The total permitted annual output of all these facilities is approximately 110,000kW. Our oldest hydroelectric power plant is over 90 years old. Therefore, it is a pressing issue to repair and maintain the facility in order to secure clean energy. In winter, we check transmission lines by helicopter, while removing snow from power generation facilities. Furthermore, over the 10

years leading up to our 100th anniversary, we have been systematically upgrading facilities as we prepare for the next 100 vears



Checking transmission lines by helicopter



Large icicles on the Yokokawa Power Plant No. 1 switching station. Removing icicles. DENKA constantly works to maintain its facilities.



### Breakdown of Electricity Use by Power Source

DENKA uses electricity generated by its own hydroelectric power plants, three thermal power plants and a cement waste heat recovery power plant,\* as well as purchased electricity. The in-house power generation ratio is approximately 54% of total electricity use. At thermal power plants, we have been switching fuel from heavy oil to natural gas in an endeavor to reduce CO<sub>2</sub> emissions. In addition, we strive to make efficient use of energy by adopting cogeneration\*\* facilities.

\* Cement waste heat recovery power plant: A power generation facility using waste heat from cement factories

\*\* Cogeneration: A system using waste heat generated from gas turbine power generation that simultaneously produces steam to enhance the enerav efficiency of fuel



### **Promoting Thorough Rationalization in Logistics to Reduce CO<sub>2</sub> Emissions**

### Response to the Law Concerning the Rational Use of Energy

As a designated shipper, DENKA's Logistics Project Team is carrying out across-the-board activities, having established the RC Promotion Committee and the Container Cargo Logistics Information Exchange Group, with the aim of improving logistics quality and reducing costs while achieving energy savings of more than 1% per year. In accordance with CS13, DENKA reviewed current conditions and operations at in-plant logistics facilities, while expanding the use of local ports for container cargo transportation and thoroughly eliminating inefficiencies. Also contributing to the optimization of logistics, we entered into an exclusive contract with a distribution company for the shipment of products to multiple plants and subcontractors. Similar initiatives are being taken at our affiliates both in Japan and overseas.

Reflecting lower demand for cement in fiscal 2010, the CO2 emissions volume was down 12,600 tons compared with the fiscal 2006 level to 38,500 tons. DENKA's energy consumption intensity (amounts converted into crude oil equivalent and divided by cargo volume) deteriorated 1.8% a year on average fiscal 2006 due to a significant drop in the volume of cement, acetic acid and vinyl acetate, which were efficiently shipped. We are thus striving to improve the situation by promoting the use of local ports for container cargo transportation and using heavy vehicles for the bulk shipping of cement-related products using the land transportation.

By horizontally extending our integrated logistics to cover multiple plants and subcontractors while drastically reducing energy use based on reviews of the cement distribution system, we will further reduce CO<sub>2</sub> emissions.

### Energy Saving Status (Fiscal year) Transportation volume 864,140 797,452 831,227 618,865 605,609 1000t-km) Energy consumption intensity mounts converted into 0.0223 0.0224 0.0217 0.0240 0.0239 crude oil equivalent and vided by cargo volume Previous fiscal year — 100.5% 97.1% 110.3% 99.6% 101.8% 51,100 47,500 48,300 39,500 38,500 CO<sub>2</sub> emissions (t-CO<sub>2</sub>)

Integrated Transportation of DX Film



Loading cargo onto vehicles (Isesaki Plant)



Offloading cargo from vehicles (Hiratsuka Depot



Loading cargo onto a main truck

supply vehicle (Hiratsuka Depot)

| Year-on-Yea                                    | (      | Fiscal year) |      |      |
|--|--------|--------------|------|------|
|  | 2007   | 2008         | 2009 | 2010 |
| Cargo subject to<br>modal shifts<br>(1000t-km) | +2,830 | +3,175       | +968 | +86  |
| CO <sub>2</sub> emission reductions (t)        | +112   | +158         | +13  | (10) |

Since fiscal 2006, we have been promoting across-the-board

modal shifts for transporting large cargo lots over long distances. In

fiscal 2010, we focused on shortening land transportation distanc-

es. Responding to a significant increase in transport volume, we

shifted from railway to box vessels for the transport of cargo from

the Omi Plant to Kyushu. For products dispatched from the Omuta

Plant to the Kanto area, we switched from ferries and roll-on, roll-

off vessels to railway containers. For products dispatched from the

Chiba Plant to from the Kansai area to the west, the order volume

As a result, CO<sub>2</sub> emissions in fiscal 2010 grew 10 tons com-

### Message

Pursuing efficient energy use = improved quality of logistics business = cost reduction

### Yoshihiro Ishikawa



Promotion of Modal Shifts

from major customers largely decreased.

pared with the previous fiscal year.

Promotion of Modal Shifts

Leader, Logistics Project Team Reflecting the impact of the Great East Japan Earthquake, it is anticipated the supply chain will see changes on a global scale. Given this, we will go back to the basics of providing logistics services for manufacturers, and strive to ensure that our business operations flexible in the face of environmental changes in

order to realize efficient energy use, an approach which should yield improvements in the quality of our logistics business and reduce costs. In all these activities, we will continue to pursue optimal logistics.

In fiscal 2011, we will reinforce our response to risks. Particularly with regard to logistics safety and quality, we will reformulate operation manuals based on relevant laws and regulations and focus on employee education. By mapping the distribution flows of main products both in Japan and overseas, we will raise employee awareness of logistics costs. Sorting out problems and conducting multilateral simulations from a medium-term perspective, we will enhance our logistics improvement measures. Simultaneously, we will assiduously save energy and reduce costs in a step-by-step manner by integrating the transport of products as well as raw materials for multiple plants and subcontractors.

### **Developing Environment-Friendly Products for** a Broad Range of Industries

### Environment-Friendly Concrete

Concrete products emit CO<sub>2</sub> when produced. Until now, existing technologies could only reduce the CO<sub>2</sub> emissions volume, meaning the more concrete used, the more CO<sub>2</sub> emitted.

The newly developed "environment-friendly concrete" incorporates DENKA's special cement additive "y-C2S." The CO2 absorption power of this concrete is enhanced by facilitating a chemical reaction with atmospheric CO<sub>2</sub> (carbonation curing). This curing increases the amount of CO<sub>2</sub> fixed in proportion to the amount of concrete used.

Utilizing this property, environment-friendly concrete can absorb CO<sub>2</sub> from the exhaust gas of thermal power plants while making effective use of coal ash, a waste product of such facilities. As a result, CO<sub>2</sub> emissions from the manufacturing of concrete can be effectively reduced to below zero.



### Environment-Friendly Temporary Adhesive

In the precision processing of optical and electronics components, parts are temporarily fixed on substrate using such materials as wax. When fixing parts, wax must be melted at a high approximately 150°C heat, and organic solvents are used to remove wax afterward. As a result of these processes, issues related to safety and the environment have been emerged.

TEMPLOC is an epoch-making product that hardens quickly under ultraviolet rays and can be removed using warm water. In addition to the advantages of user safety and environment friendliness, TEMPLOC also boasts better quality than preexisting procedures as it forms a film that can be easily peeled off without leaving a residue of glue on parts and substrate surfaces.

SOLARLOC is another temporary adhesive and was developed for use in manufacturing silicon wafers for solar batteries. This product hardens quickly at room temperature and can also be removed with warm water, drastically shortening the manufacturing process and improving environment-friendliness. Emphasizing these features, we are expanding sales of SOLARLOC in China, Southeast Asia and Europe in addition to sales in Japan and Taiwan, where significant growth is expected for the use in the solar power generation component field.

Continuing to expand sales in the area of temporary adhesives, DENKA will strive to develop new applications of these products, leveraging their unique characteristics.





Environment-Friendly Concrete Used in Various Power Generation Facilities (Photos provided by the Chugoku Electric Power Co., Inc.)





protection)



SOLARLOC: A temporary adhesive for silicon ingots being sliced for use in solar cells and semiconductors



TEMPLOC peels off in a



SOLARLOC is used for the manufacture of solar power generationrelated components

### **DENKA Will Secure Information Security through Appropriate Control**

### Information Control

The DENKA Group Ethics Policy established in 2002 includes a code of specific behavior that encompasses guidelines under the headings the Safe Management of Personal Information and Confidential Information Management and Respect for Intellectual Property Rights, both of which are strictly complied with. As subordinate regulations of these guidelines, DENKA established and developed the Personal Privacy Policy and the Regulation for Protecting Information regarding Corporate Secrets, which are thoroughly disseminated through lectures and in-house newsletters.

Furthermore, DENKA strictly manages and respectfully handles confidential information provided by third parties in accordance with the DENKA Group Ethics Policy.

### Management of Information Related to the Information System

In recent years, the volume of information digitally processed by the Group's information system has been rapidly expanding on the back of drastic advances in IT technologies. Accordingly, it is increasingly important to secure our information management system. DENKA set up the Information System Management Guidelines in 2006 and the Information System Work Manual in 2008 based on the Regulation for Protecting Information regarding Corporate Secrets. In cooperation with managers and persons in charge at each relevant department, we are appropriately handling digitized information.



### Restrictions on Insider Trading

Since the introduction of the surcharge system in 2005, regulations have been tightened to detect insider trading. As a result, companies that fail to familiarize themselves with retail regulations and inhouse rules may find themselves accused of insider trading. Understanding this, DENKA held lectures on regulations pertaining to insider trading for General Managers and Managers of the Headquarters, Central Research Institute and plants from February to August 2010. A total of 290 participants during this period learned the details of regulations on insider trading and DENKA reconfirmed the awareness of in-house rules among directors and



Lecture on insider trading at the Omi Plant (August 31, 2010)

employees. Also in 2010, in the September issue of our in-house newsletter we presented a question-and-answer style article based on questions posed at the lectures and widely promoted compliance with regulations.



An article on insider trading in the September 2010 issue of the in-house newsletter Gunba

### We Proactively Disclose Information to Customers with the Aim of Developing Growth Fields and Markets

Growth Field: Photovoltaic Power Generation

• PV EXPO 2011



DENKA participated in the Fourth International Photovoltaic Power Generation Expo "PV EXPO 2011," Japan's largest international exhibition in the photovoltaic power generation field. We exhibited our SOLARLOC and thermal materials with the aim of further building public recognition.

During the three days of the event from March 2 to 4, 2011, our booth welcomed approximately 400 visitors. Many of those visitors were overseas users and business organizations planning to participate in the solar cell business. It revealed the great interest the world has in Japanese solar cell technologies.



The venue with a number of visitors

### Message

We Felt Upward Momentum in the Industry



Masashi Inazumi Tapes & Adhesives Department, Electronic Materials Division

SOLARLOC is a temporary adhesive used when slicing silicon blocks for solar cells and semiconductors. Owing to its characteristics of easy handling at room temperature and excellent adhesive power, SOLARLOC can improve workability. At the exhibition, as we

strived to get a picture of market trends and promote our products, we became aware of customers' expectations regarding DENKA products. We will accumulate business expertise in Japan and Taiwan and then expand sales in China, South Korea and Europe.

### Growth Market: Asian Region

### India Rubber Expo 2011

DENKA exhibited in the India Rubber Expo (IRE) 2011 held in Chennai, Southern India, presenting DENKA CHLOROPRENE (CR) rubber, DENKA ER and DENKA BLACK. During the three days of the event from January 19 to 21, 2011, our booth attracted visitors from 300 companies in India. We held lectures on CR and ER technologies during the exhibition and received inquiries from a number of listeners, which revealed high interest in DENKA products.



### Message

### Proposal Activities at the Largest Exhibition in India's Rubber Industry



Masakazu Minegishi

Organic Chemicals Department, Chemicals Division

Held annually since 2001, IRE saw a record-high number of exhibitors and visitors in 2011. In pursuit of business growth in burgeoning India, foreign companies are proactively exchanging information. Amid such circumstances, China boasted the largest number of

exhibitors, showing a strong presence. Having commenced aggressive sales expansion in 2009, DENKA CR now commands a more than 40% share of the Indian market. We will continue to respond to robust demand, while aiming to introduce other products to the market and expand their shares.

### China International Elevator Exhibition

DENKA presented the HARDLOC high-performance adhesive for the first time while participating in the 2010 China International Elevator Exhibition held in Langfang City, Hobei Province, China. Our booth, located in the parts area, displayed newly developed products, including demonstrations of a honeycomb-structured

floor and a door panel with an attached reinforcing board, demonstrating some possible applications of DENKA products to visitors.



430 companies from home and abroad visited DENKA booth (April 21–24, 2010)

**CSR** Procurement/Quality Assurance

### **DENKA Will Engage in Procurement and Quality Assurance for Sustainable Growth**

### CSR Procurement

Green Procurement

In accordance with our "DENKA 100" corporate philosophy, we aim to remain a company that creates new value from resources by fully employing our technological capabilities. To that end, the DENKA Group believes it is indispensable to maintain good relationship with the suppliers that form our supply chains.

The DENKA Group considers its suppliers of raw materials, machinery and equipment, and contract construction to be valuable partners, and looks forward to attaining sustainable growth in tandem with them. Therefore, the Group comprehensively takes into account quality and sustainable supply as well as costs when dealing with suppliers.

The Group will sort out these ideas to establish the basic policy and disclose it.

Masato Mitani

list in raw materials and production processes with the aim of

eradicating them from the roots up. Upon customer request and in

light of other necessities, we analyze the content of environmental

load substances in raw materials and products based on pre-

scribed methods to secure the quality and safety of products as

well as to promote the reduction of environmental burdens.

General Manager, Quality Management

DENKA maintains a negative list that

clarifies environmental load substances

regulations and customers' voluntary

management regulations and restricts

the use of substances in the negative

Office, Technology Division

### Quality and Safety Initiatives In recent years, there has been growing demand for better quality

in the electronics materials field. In order to reinforce quality management, DENKA established the Quality Assurance Department in the Electronic Materials Division and the Omuta Plant in April 2010. Fully aware of risks associated with procuring rare materials, DENKA's Purchasing Department, Business Division and plants will work together to secure stable procurement.

Everyone, from managers to the work staff in the R&D Division, Facilities Department and Manufacturing Division is pursuing better quality in accordance with the basic idea of "No stable production procedure, no better quality."

### Quality and Safety Assurance Structure in the **Electronic Materials Field**



Addressing Quality Management for **Electronic Materials-Related Products** 



Mikio Yamaguchi General Manager, Quality Assurance Department, Electronic Materials Division

Products from the Electronic Materials Division are used in such markets as automotive electronic components. where high reliability is required. Demand for quality, including better functionality, has been growing year by

year. In response to this, DENKA introduced a new quality assurance system at the Electronic Materials Division and its related offices. Under this new system, we will strive to reinforce our quality management system and production capabilities to pursue better customer satisfaction and enhanced quality competitiveness.



Waste contracto

audits

\* For detailed information regarding product safety management, please see page 11 of the Web-based CSR Report reference (http://www.denka.co.ip/responsible/index.htm

### **Collaboration with External Institutions**

Award Commendations

### **Contributing to Industrial Development by Fostering Good Relationships with External Institutions**

### Winning the Ceramic Award

The Ceramic Society of Japan annually presents the Ceramic Award to engineers who have contributed to the development of the ceramic industry and related areas of science and technology over the course of many years. In fiscal 2010, this award was given to Shigeru Tomioka of the Omi Plant's Inorganic Materials Laboratory and Hideto Ishimaru of the Omuta Plant's No. 1 Manufacturing Section at an awards ceremony held on October 15, 2010. Also in attendance were Mr. Tomioka and Mr. Ishimaru's wives, who have supported their endeavors all these years.

### Message

### Working Hard to Guide and Cultivate Young Employees Engaged in Development

Shigeru Tomioka, Inorganic Materials Laboratory, Omi Plant Since entering DENKA in 1970, I have focused on expanding applications of calcium sulphoaluminate clinker for use in the civil engineering and construction fields as part of ongoing R&D into special cement additives. The successful increase in sales of expansive additives, non-shrink grout additives and high-strength additives was due to the efforts made by older employees to deepen the civil engineering and construction knowledge of younger staff members and to follow up on these lessons through-



out the R&D process. We will use this experience to further develop special cement additives while continuing to focus on training younger employees.

Shigeru Tomioka (left) and his wife I would like to sincerely thank my supervisors, senior colleagues and employees from related departments who fully supported me over the past 40 vears.

### My Deep Sense of Satisfaction from My Involvement in New Product Development Motivates Me to Continue Contributing to Technological Improvements

Hideto Ishimaru, No. 1 Manufacturing Section, Omuta Plant

I have been continually engaged in the manufacture of and new product development for acetylene black since entering the Company in 1970. In particular, I cannot forget the joy I felt when helping to develop new products through the painstaking study of production methods for the acetylene black used in highperformance manganese dry cells. I am very grateful to work in an



environment that has allowed me to gain such valuable experience. I would like express my sincere gratitude to all my senior colleagues and coworkers in relevant departments.

Hideto Ishimaru (left) and his wife I believe that I have made a small contribution to the improvement of technology used to manufacture acetylene black.

### categorized under Japanese and international environmental management

### Materials Safety and Management Flowchart

audits

### The Central Research Institute Wins the JCIA/ **JRCC Special Safety Award**

The Central Research Institute won the newly established JCIA/ JRCC Special Safety Award in fiscal 2010 at the 34th Grand Prix Safety Awards, sponsored by the Japan Chemical Industry Association (JCIA) and Japan Responsible Care Council (JRCC).

The award was in recognition of the institutes' outstanding efforts to develop safety measures meeting certain criteria. Also, the institute was favorably evaluated for having recorded no accident-related work absences for the past 17 years. This evaluation was based on an on-site inspection and a safety awards conference held on April 22, 2010, which included University of Tokyo's professor emeritus Dr. Shozo Tamura.



Deputy General Manager Tetsuva Shinmura accepting the JCIA/ JRCC Special Safety Award on behalf of the Central Research Institute



A ceremony held for the 34th Grand Prix Safety Award (May 27, 2010)



### Raising Awareness among All Employees Is Vital for Maintaining Accident-Related Work Absences at Zero

Tetsuya Shinmura, Deputy General Manager, Central Research Institute The major reason for the Central Research Institute's longstanding maintenance of the rate of absence due to work accident at zero is its persistent promotion of basic safety activities targeting all employees. Maintaining safe operations depends largely on the capabilities of each staff member. Our safety record is attributable to ardent efforts to improve training for new and transferred employees. In addition, creating opportunities for communication with employees from different departments has helped increase safety awareness and capabilities throughout the workplace.



From left to right: The Central Research Institute's Manager of Administration Keiji Shirai, Deputy General Manager Tetsuya Shinmura and DENKA's Environment Preservation Manager Katsuhito lesaki "We will work together to maintain accident-related work absences at zero."

### Subsidies/Donations

### A Variety of Activities Supported by Subsidies

### Subsidies Offered by

### the Ministry of the Environment

As part of its activities to reduce environmental burden, DENKA actively utilizes a subsidy system established by the Japanese Ministry of Environment. Throughout fiscal 2010 and 2011, we received approval for two subsidies.

### • Japan's Voluntary Emissions Trading Scheme (JVETS)

Under JVETS, the Shibukawa Plant has been recognized as a facility that reduces CO2 emissions thanks to its switch in the fuel it uses from A heavy oil to city gas. Approximately 30% of the cost of installing low-carbon equipment was covered by subsidies provided through JVETS. In fiscal 2011, the Shibukawa Plant exceeded its contract conditions under JVETS, achieving a 1,033-ton reduction in  $CO_2$ . The Plant aims to sell its excess  $CO_2$  emission credits.

### • Developing a Technological Foundation That Will Promote the

Establishment of a Next-Generation Recycling-Oriented Society In fiscal 2011, the Omuta Plant applied for a subsidy to develop technology to recycle hydrated lime, a byproduct of acetylene manufacture, to produce calcium carbide. The Plant was granted a subsidy under a system that fosters the development of a technological foundation that will promote the establishment of a nextgeneration recycling-oriented society. With approximately 50% of the necessary costs covered by the subsidy, the Omuta Plant is preparing to engage in the verification testing of this equipment.

### Message

### Continuing to Actively Develop Environmental Technologies through the Effective Use of Government Subsidies



Shuichi Hirai General Manager, Environmental Burdens Reduction Promoting Section. Technology Division

Undertaking R&D and environmental preservation activities through proactive participation in government programs is an important issue from the standpoint of contributing to society. In addition, we have made effective improvements in

these areas by utilizing subsidies and tax incentives that are in line with the objectives these programs. These subsidies have facilitated the smooth switchover of fuels at the Shibukawa Plant and the development of technology for recycling the byproduct hydrated lime. In the years ahead, we will continue to effectively use these systems, widen the scope of applicable environmental upgrades and increase the speed of our improvements

### Making Charitable Contributions

### Japan Sports Medicine Foundation

As the number of people playing sports increases, the number of those who suffer sports-related injuries and disabilities is rising.

The Japan Sports Medicine Foundation was established to assist research into the prevention and treatment of such injuries and thus allow people to enjoy sports in a safe manner. To date, the Foundation has helped to fund research conducted by the Japanese Orthopaedic Society for Sports Medicine (JOSSM) and the Japan Knee Society. Hyaluronic acid preparations produced by DENKA play an important role in the wide array of research conducted by these organizations, including the diagnosis and development of optimal treatments for joint and ligament injuries; the repair of meniscus injuries using medicinal conveyance systems; and the creation of exercises to increase muscular strength and conservation treatments for those suffering from knee joint-related illnesses.

As a company that supplies pharmaceutical products, DENKA helps to fund these research activities based on the belief that cooperating in the safe and rapid development of effective medical treatments is extremely meaningful.

### DENKA Scholarship System

We established the DENKA Scholarship System in fiscal 2006 as a way to show our appreciation to the local community. This scholarship is open to high school students seeking admission to colleges or universities in areas where DENKA's domestic plants are located (Omi, Omuta, Chiba and Shibukawa). The application and selection process is conducted once per year. In addition, scholarship recipients will receive accommodations designated by DENKA and cash to assist in the payment of rent during the period of their university studies, which must be accomplished within the normal number of years. Eight students received this scholarship in fiscal 2010.

### Message

### Focusing on My Studies Thanks to the Support of Others



Graduate of Itoigawa High School, Second-year pharmacy student at the University of Toyama As a second-year student in the University of Toyama's Faculty of

Pharmaceutical Sciences, I am currently concentrating on studying core subjects, including chemistry, biology and physics. My goal is to pass the national

exams in order to become a pharmacist. The DENKA Scholarship System not only helps me in my daily life, it gives me peace of mind. Receiving support from a variety of sources in addition to my parents allows me to fully focus on my studies. I will always be grateful for the assistance I have received from DENKA, which has motivated me to study even harder.

| To Investors | and S | Share | holc | lers |
|--------------|-------|-------|------|------|
|--------------|-------|-------|------|------|

### **Consolidated Financial Highlights**

|                                      |             |             |             |             | (Millions of yen) |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------------|
|                                      | Fiscal 2006 | Fiscal 2007 | Fiscal 2008 | Fiscal 2009 | Fiscal 2010       |
| Net sales                            | 329,262     | 363,996     | 334,130     | 323,875     | 357,893           |
| Operating income                     | 29,877      | 29,912      | 10,302      | 21,655      | 24,618            |
| Ordinary income                      | 26,006      | 24,918      | 3,094       | 16,888      | 23,052            |
| Net income                           | 15,734      | 6,660       | 1,439       | 10,474      | 14,355            |
| Total assets                         | 365,301     | 375,364     | 377,912     | 400,407     | 402,046           |
| Total net assets                     | 164,643     | 161,870     | 150,142     | 160,316     | 168,182           |
| Total shareholders' equity ratio (%) | 43.5        | 41.6        | 39.1        | 39.4        | 41.2              |
| Net income per share (yen)           | 32.03       | 13.57       | 2.89        | 21.33       | 29.24             |
| Net assets per share (yen)           | 323.81      | 317.91      | 300.60      | 321.46      | 337.35            |
|                                      |             |             |             |             |                   |



### Operating income



# Net income/ Net income per share (hillions of ven) 20 15 10 5

(yen)

60

45

15



Total assets/

10 (Fiscal year) 06 07 ng Net income - Net income per share



### 32 DENKA CSR REPORT 2011



### Ordinary income



### Total net assets/ Net assets per share



Total shareholders' equity ratio

### Breakdown of Consolidated Net Sales by Principal Business Segment

The percentages of fiscal 2010 consolidated net sales accounted for by each principal business segment and summaries of their operations are as follows.

### Organic Materials



**Inorganic Materials** 

Percentage

of consolidated net sales in fiscal 2010

13.6%

Electronic Materials

Percentage

of consolidated

net sales

13.1%

n fiscal 2010

### Main products: Resin raw materials, synthetic resins, acetate acid products, synthetic rubber

In addition to sales price revisions in response to rising raw material prices, styrene resins, including styrene monomers and ABS resin, and transparent resins experienced increases in revenue, reflecting growing demand. The sales volume of CLEAREN, a specialty resin, remained on par with the previous fiscal year. DENKA's Singapore-based subsidiary, Denka Singapore Pte. Ltd., recorded a rise in revenue owing to firm sales of polystyrene resin and other products.



Chloroprene rubber experienced an upswing in revenue due to higher sales volume following aggressive marketing activities primarily in China and the rest of Asia.

Main products: Fertilizers, inorganic chemicals, cement, special

The sales volume and net sales of fertilizers, fire-resistant materials

and steel materials were the same as the previous fiscal year.

However, a decrease in the sales volume of cement led to a reduction

of revenue because of sluggish public investment and private-sector

demand. Special cement additives recorded growth in revenue thanks

to a rise in the sales volume of DENKA NATMIC, a guick-setting agent

for sprayed concrete linings used in the New Austrian Tunnelling

# 



### Main products: Electronic materials, electronic packaging, functional ceramics, adhesives

cement additives

Method (NATM).

Electronic circuit substrates enjoyed higher revenue, owing to increased sales volume related to electric trains and industrial equipment. Functional ceramics (including spherical fused filler for semiconductor sealant fillers) and electronic packaging (including the electronic components and semiconductor transportation materials DENKA THERMOSHEET EC and CLEAREN SHEET C) experienced a boost in revenue thanks to higher sales volumes on the back of market expansion in emerging countries. Rises in the sales volumes of ALONBRIGHT, a SIAION Phosphor used in LEDs, and the highly functional adhesive HARDLOC led to an increase in revenue.



### Functional Materials and Plastics



## Main products: Food packaging, construction materials, industrial materials and pharmaceuticals

Both the sales volumes and net sales of plastic rain gutters and agricultural- and construction-use corrugated piping were steady. Higher revenue recorded for TOYOKALON synthetic wig fibers was buoyed by robust exports to Africa. Revenue also rose for the weather-resistant, fluorine-alloy film DX FILM due increased production and growth in sales volume. Sales of food packaging sheets were firm. In addition, sales of products made from food packaging sheets by the Company's subsidiary, DENKA Polymer Co., Ltd., were brisk.

In pharmaceuticals, the sales volume of high-molecular sodium hyaluronate preparation, a product that improves joint function, fell year on year, following the relocation of production to a new plant. Sales of influenza vaccines and test kits manufactured by DENKA SEIKEN Co., Ltd. remained at average levels during the fiscal year under review.

\*The percentage of net sales in the Others business segment stood at 9.2%

\*For more information on each business segments' main products, please refer to DENKA CITY on pages 6 and 7.

### **Research and Development Activities**

We constantly reinforce our unique technologies to facilitate further improvements to our high-quality products. At the same, we focus on developing specialized, highly functional product lineups in the growing peripheral technology field, which is rooted in existing businesses; strive to rapidly meet market demands that emphasize next-generation product development; and work to position our R&D operations with the aim of achieving the early commercialization of products.

In fiscal 2010, we allocated ¥9,819 million to R&D operations, which employed 617 researchers. During the consolidated fiscal year under review, we had 204 outstanding applications in Japan and registered 328 patents (including for utility models) domestically.

The following is an explanation of each business segment's research objectives, main concerns and successes in fiscal 2010.

### Organic Materials

In the styrene-based functional resin segment, we are promoting research with the goal of further differentiating and increasing the functionality of these products. To this end, we are developing and reinforcing production technologies for such new product grades as shrink materials, transparent resins and thermal resins.

In addition, we aim to expand our business in the organic chemicals segment, including in overseas markets. Amid these efforts, we are developing new processes and product grades based on facility upgrade plans to enhance our competitive edge, particularly with regard to increasing our global market share of chloroprene rubber. We are also conducting research to increase the performance of acetylene black, which has to date been used as a lithium-ion secondary battery conductivity agent for commercial use. The aim of such research is to expand our business operations in the area of large high-performance batteries, including for car-mounted applications, an area that is expected to grow.

### Inorganic Materials

In special cement additives, DENKA is seeking to further differentiate itself by focusing on the maintenance and repair market and ultra-high strength, high-durability concrete products, notably ultra-high strength fiber-reinforced concrete. In addition, we promote the development of products that reduce environmental burden while proposing new technologies that include products for overseas expansion. In fertilizers and inorganic products, we are conducting R&D to strengthen our operations.

### Electronic Materials

In Electronic Materials, we focus on developing product lineups concentrated particularly in the LED and power device segments. In the LED segment, we received a basic patent license for SiAION Phosphor, a material owned by the nongovernmental organization, National Institute for Materials Science (NIMS). Utilizing synthesis technologies

### Research and Development Organization



used for our nitride-type ceramics, we have commercialized SiAION Phosphor for a wider range of applications, including for white LEDs for LCD TV backlights. Aiming to make SiAION Phosphor a de facto standard for white LEDs, we are currently undertaking research to increase the high-performance features of fluorescent materials while focusing on the development of new fluorescent materials for LCD TV backlights. In addition, we are promoting the use of fluorescent materials in LED lighting, an area that is expected to grow in the future.

In the area of tape adhesives, we are expanding practical applications, particularly in the area of temporary fixing adhesives used in the high-precision processing of electronic materials and components. Moreover, we are promoting the market development of newly developed adhesives used in solar cell silicon wafer processing. In electronic packaging, we have focused on developing new products related to tapes for transporting electronic components and process tape for manufacturing semiconductors. In functional ceramics, we continued to pursue higher performance in spherical fused silica for semiconductor sealants, spherical alumina for thermal materials and boron nitrate (BN).

### Functional Materials and Plastics

In polymer processing products for industrial materials, packaging and construction materials, we are taking advantage of our capabilities in adhesive coating, film and sheet and profile extrusion technologies to join hands with Group companies and drive expansion. In particular, we are focusing research on upgrading production technology and capabilities for weather-resistant films for solar cells and synthetic fibers.

In pharmaceutical products, we are improving production technology and developing new applications for fermented hyaluronan, which improves joint function. DENKA SEIKEN Co., Ltd., is developing highquality vaccines while developing bacteriological diagnostic reagents to detect infectious diseases and viruses, clinical chemistry diagnostic reagents and immunochemistry diagnostic reagents that are vital for health management.

### Other Businesses

Denka Engineering Co., Ltd. designs and installs industrial equipment. Its R&D is focusing on more efficient pneumatic transfer equipment for powders and wastewater treatment facilities.

### Next-Generation Product Development

We are focused on the development of next-generation products in the energy and pharmaceuticals fields. Particularly in the energy field, we are concentrating on improving the conductivity of lithium-ion secondary batteries; incorporating our accumulated experience in the development of acetylene black (which has already been commercialized) into this field; and obtaining and fostering the cooperation of other companies and research institutes regarding R&D into new materials for use in lithium-ion secondary batteries.

| Central Research Institute |  | Phosphor Research Dept.                   |
|----------------------------|--|---|
|                            |  | New Materials Research Dept.              |
|                            |  | Biochemistry Research Dept.               |
|                            | M                                      | aterial Characterization & Analysis Dept. |
| Omi Plant                  |  | Organic Materials Research Laboratory     |
|                            | In                                     | organic Materials Research Laboratory     |
|                            |  | Production Technology Section             |
| Omuta Plant                | —C                                     | Ceramic Research Laboratory               |
|                            |  | Production Technology Section             |
| Chiba Plant                | ———————————                            | High Molecular Laboratory No. 1           |
|                            |  | High Molecular Laboratory No. 2           |
|                            | <u> </u>                               | Production Technology Section             |
| Shibukawa Plant            | —-C                                    | Electronic Materials Laboratory           |
| Isesaki Plant              | —————————————————————————————————————— | High Molecular Processing Laboratory      |

Fo Investors and Shareholders

# Striving to Maintain Good Relationships with Shareholders and Investors

### Holding Various Types of Briefings

In addition to the timely disclosure of information, DENKA undertakes a wide variety of investor relations activities with the aim of maintaining effective communications with shareholders and investors. Along with results briefings convened in tandem with financial results announcements, we hold briefings for individual investors in important locations throughout Japan, respond to coverage of our business performance by analysts and institutional investors and undertake plant tours. Through these activities, DENKA is working to showcase its products while actively promoting the greater understanding of its business operations.

### **Results Briefings**

DENKA holds results briefings for analysts and institutional investors. A results briefing for the fiscal year ended March 31, 2011 was held on May 10, 2011, the same day that financial results were announced. More than 130 analysts and institutional investors attended this briefing.

During the briefing, we undertook a PowerPoint presentation to explain such topics as the Company's fiscal 2010 financial results, performance forecasts and management plans. Following the briefing, we convened a joint press conference for reporters who cover the chemical industry. During the Q&A session, we answered various reporter questions about key products and future trends in growth areas.



The fiscal 2010 results briefing (May 10, 2011)



Joint press conference (May 10, 2011)

### Briefing on Products in the Electronic Materials Business

On June 16, 2010, we held a briefing regarding electronic materials and business-related products for analysts, institutional investors and the media. This was our first attempt at holding a briefing solely about our initiatives in the electronic materials business. A total of 80 people attended the morning and afternoon briefings. Market interest has been rising in light of the increasing number of chemical manufacturers that have entered the electronic materials business in recent years. Against this backdrop, we introduced distinctive new products, including SiAION Phosphor and the high-functioning adhesives TEMPLOC and SOLARLOC.



The TEMPLOC abrasion test captured the attention of many of the guests

### Plant Tours for Analysts

On July 9, 2010, we invited eight analysts and institutional investors who focus on the chemical sector to take a tour of the Omuta Plant. The Deputy General Manager Masaharu Suzuki provided an overview of the Omuta Plant that focused on its long history as DENKA's founding production facility as well as on the technologies it has developed and their use in the Company's characteristic product lineups. In addition, guests were given a tour of plant facilities that produce fused silica (which is used to make ceramic products), advanced nano products (ANP) and fluorescent materials. These products are DENKA's core electronic materials. Our growth products caught the attention of the guests, who asked managers at each tour stop various questions. Afterward, a lively Q&A session was held in the plant office.



Tour participants observing the ANP plant's inspection process

### Holding Briefings for Individual Investors

### Briefings for Individual Investors in Nagoya

DENKA held a corporate briefing for individual investors at the Nagoya head office of Tokai Tokyo Securities Co., Ltd. on July 10, 2010. This is the third time that this briefing has been held in Nagoya, and the appeal of the city drew over 100 participants.

During the briefing, we used diagrams and photos to provide a detailed and easy-to-understand overview of the Company as well as an explanation of the limestone mines and hydroelectric power plants used by the Omi Plant (which has been producing calcium carbide since the DENKA's founding) and such key products as chloroprene rubber, a product that ultimately derives from limestone. In addition to our core businesses, we showcased such LED products as florescent materials, which are becoming increasingly specialized; electronic materials business' product lines, including carrier tape, fused silicon filler and radiation substrates; macromolecular sodium hyaluronate preparation, which improves joint function; and influenza-related pharmaceuticals offered by DENKA SEIKEN Co., Ltd.

### Briefings for Individual Investors in Niigata

More than 100 people participated in a briefing for individual investors held in Niigata City on September 16, 2010. During the briefing, we provided explanations on performance trends, DENKA's Asiacentered overseas sales promotion strategies, and performance enhancement strategies in anticipation of the Company's centennial based on integrating the growing processing business field with the core materials business.



Despite inclement weather, more than 100 people were in attendance at the briefing held in Niigata City

Moreover, we provided details of the uses of SiAION Phosphor in LED backlights for LCD televisions and the applications of DENKA products in LED light components.



More than 100 individual investors participated in the individual investor briefing in Nagoya



Looking ahead, we will promote active communication with investors and shareholders by taking advantage of opportunities such as these to create an ever larger base of DENKA fans.

### DENKA CSR REPORT 2011 37

Fo Investors and Shareholders

### **Company Information/Directors/Investor Information**

### Corporate Data (as of March 31, 2011)

| Established:                          | May 1, 1915              |
|---------------------------------------|--------------------------|
| Paid-in capital:                      | ¥36,998,436,962          |
| Employees: 4,768 (consolidated) and 2 | 2,739 (non-consolidated) |
| Directory                             |                          |

### Head Office:

Nihonbashi Mitsui Tower, 1-1, Nihonbashi Muromachi 2-chome, Chuo-ku, Tokyo 103-8338, Japan Tel: +81-3-5290-5055

### Branches

Osaka, Nagoya, Fukuoka, Niigata, Hokuriku (Toyama), Sapporo and Tohoku (Sendai)

### Sales Offices

Nagano, Gunma, Hiroshima, Shikoku (Takamatsu), Akita Overseas Sales Office

Taiwan (Taipei)

### Plants

Omi (Itoigawa Niigata), Omuta, Chiba (Ichihara, Chiba), Shibukawa, Ofuna (Kamakura, Kanagawa) and Isesaki

### Overseas Plants

China (Suzhou), Singapore (Seraya, Merbau, Tuas)

Research Institutes

Central Research Institute (Machida, Tokyo)

### Maior Affiliates

DENKA Polymer Co., Ltd. (Koto-ku, Tokyo) DENKA SEIKEN Co., Ltd. (Chuo-ku, Tokyo) CRK Corporation (Takasaki, Gunma) Hinode Kagaku Kogyo (Maizuru Kyoto) DENKA Azumin Co., Ltd. (Hanamaki, Iwate)

### **Overseas Subsidiaries**

New York, Düsseldorf, Singapore, Shanghai, Suzhou, Hong Kong and Seoul

### Shareholder Information (as of March 31, 2011)

| Total number of authorized shares | 1,584,070,000 |
|-----------------------------------|---------------|
| Shares of common stock issued     | 505,818,645   |
| Number of shareholders            | 41.886        |

Major Shareholders

|   | Number of<br>shares held<br>(thousands) | Percentage<br>of shares<br>held (%) |
|---|---|-------------------------------------|
| Japan Trustee Services Bank, Ltd. (Trust Account)   | 35,016                                  | 6.92                                |
| The Master Trust Bank of Japan, Ltd.<br>(Trust Account)   | 34,907                                  | 6.90                                |
| National Mutual Insurance Federation of<br>Agricultural Cooperatives  | 15,965                                  | 3.15                                |
| Trust & Custody Services Bank, Ltd., as trustee for<br>Mizuho Bank Ltd. Retirement Benefit Trust<br>Account re-entrusted by Mizuho Trust and<br>Banking Co., Ltd. | 15,275                                  | 3.01                                |
| DENKI KAGAKU KOGYO KABUSHIKI KAISHA   | 14,867                                  | 2.93                                |
| Japan Trustee Services Bank, Ltd. (Trust Account 9)   | 14,777                                  | 2.92                                |
| Mitsui Life Insurance, Co., Ltd.  | 11,908                                  | 2.35                                |
| Government of Singapore Investment Corporation Pte Ltd.   | 9,302                                   | 1.83                                |
| JPMorgan Chase Bank, N.A., 385078   | 7,662                                   | 1.51                                |
| The Nomura Trust and Banking Co., Ltd.  | 7,362                                   | 1.45                                |
| Mitsui Sumitomo Insurance Co., Ltd.   | 6,916                                   | 1.36                                |

### Board of Directors (as of June 22, 2011)

### Diversity Operation And the send Encoded of the

Toshiaki Tada Outside Corporate Auditor Tsunehiro Sasanami..... Outside Corporate Auditor

### Shareholder Composition (Thousand shares)



### Shareholder Composition by Number of Shares Held (persons)



### **Third-Party Opinion**

### Tamio Yamaguchi, Junkan Workers Club NPO

### A CSR Report That Reflects Everybody's Efforts

I wrote this third-party opinion after participating in discussions with the director and managing executive officer, Mitsukuni Ayabe, as well as supervisors from each department. During these discussions, Mr. Ayabe and others strongly impressed upon me their forward-looking stance towards DENKA's CSR activities and its CSR report. In particular, I made 74 editing recommendations in the first draft. DENKA organized these recommendations into three categories: fundamental CSR concepts, reflections on the 2011 edition and efforts to address issues from fiscal 2011 onward. Incorporating my recommendations in this manner impressed me greatly. DENKA's responses to my advice have influenced various aspects of their CSR activities, which I sincerely hope encourages a sincere engagement with stakeholders. In addition, the CSR Report 2011 contains numerous executive and employee comments, giving the impression that all personnel actively participated in the drafting of the report.

The content of the CSR Report 2011 is far more persuasive than that of the previous year. I believe this is due to the citing of specific examples rather than simply relying on general explanations, describing causes of various issues and providing background on actions being undertaken by DENKA. I would like to see the strong awareness of the "check, act" aspects of the PDCA cycle conveyed in this report to be directly linked to improvements in the Company's CSR activities as well as future reports. The 2011 edition consists of a booklet and online form to help increase the number of people who have access to this information. However, I have some doubts as to whether DENKA can carry out to the letter its editorial policy of posting on its corporate website "minor changes to in-house systems and activities conducted in a limited scope of operations." Accomplishing such actions requires a full understanding of this editorial policy. Accordingly, I believe that DENKA should follow a policy that prevents gaps in understanding from forming while making efforts to appropriately categorize relevant information.

The CSR Report 2011 provides information on the Company's financial status. Both financial and non-financial reporting is essential for promoting the understanding of a business. For this reason,

### Response to the Third-Party Opinion

Thank you very much for reading the CSR Report 2011. The drafting of this year's report coincided with our efforts to provide relief assistance following the Great East Japan Earthquake. This disaster served as an opportunity to reexamine our social contribution activities. We have been providing long-term assistance through a program that supports volunteer activities in disaster-stricken areas. We plan to provide information on the initiatives of the newly established Disaster Assistance System in next year's CSR report. We sincerely wish for the earliest possible restoration of the livelihoods of those residing in disaster-affected areas.

In editing this year's report, we focused on two particular points. The first was the page layout, which we completely changed to reflect our CSR activities for each category of stakeholder, making the report easier to read. In combination with this, we moved specific and specialized information, including items related to corporate governance and specified data on environmental performance, to the Company's website.

### For More Information

CSR Promoting Department DENKI KAGAKU KOGYO KABUSHIKI KAISHA TEL. +81-3-5290-5070 FAX. +81-3-5290-5095 Nihonbashi-Mitsui Tower, 1-1, Nihonbashi-Muromachi 2-chome, Chuo-ku, Tokyo 103-8338, JAPAN http://www.denka.co.jp



integrated CSR and annual reports are increasing not only in Europe but in Japan as well. In addition, the International Integrated Reporting Committee (IIRC) was established in August 2010, and new ideas on integrated reports to be outlined in the 4th edition of GRI guidelines are expected to be announced in 2013. Consequently, I expect such actions to facilitate the further development of DENKA's CSR reports as integrated reports that feature more comprehensive content

DENKA established the CSR Promoting Department in 2007 and has been steadily advancing its CSR initiatives since then. The CSR Report 2011 has for the first time included CSR Activities' Target Management for each stakeholder. This explanation of issues and targets is a powerful engine that will drive the Company's CSR activities forward. I believe that DENKA will address the issue of how to raise awareness of and implement CSR activities among individual employees. To this end, DENKA is expanding Good Company Program (GCP) activities Companywide. Although there is no information available beyond that which has been included in the CSR Report 2011, I believe that GCP and CSR activities are very similar. Accordingly, the issue of raising awareness and implementing CSR can perhaps be overcome by further stepping up GCP initiatives.

Through the verification of individual CSR activities, it must be pointed out that reporting on labor-related CSR has been rather weak. When CSR reports were first introduced in Japan, reporting on labor-related CSR activities was extremely rare. Despite this, various reader questionnaires indicated that there is a strong desire for reporting on this subject. Reflecting this point of view, DENKA will take active steps to report on its efforts to improve labor practices.

\*Junkan Workers Club is a citizens group that examines ways to foster the harmonious coexistence of society and natural ecosystems from a global perspective to benefit future generations. In addition, this organization strives to conduct research, provide assistance and undertake measures that will create a recycling society in tandem with the members of the local community, business and governments

URL: http://www.nord-ise.com/junkan/ (Japanese only)

Turning to the second point of focus, we reorganized and enhanced information in areas where our reporting has so far been insufficient. Specific examples include taking steps to augment the reporting of details on DENKA's newly improved environment-friendly products.

Looking toward its centennial in 2015, DENKA is currently promoting various measures to fulfill its aims for the next century. We will move forward with CSR activities from a long-term view based on the opinions of all stakeholders as well as those of Mr. Yamaguchi. We are very pleased to receive the candid thoughts and ideas of readers regarding our CSR activities. We look forward to your guidance and support in the years ahead.

> September 2011 Mitsukuni Ayabe Director, Managing Executive Officer In charge of CSR Promoting Department